N00129.AR.000295
NSB NEW LONDON
5090.3a

FINAL

SITE INSPECTION REPORT

PIER 33 AND BERTH 16/FORMER INCINERATOR

INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE-NEW LONDON
GROTON, CONNECTICUT

PREPARED FOR:

NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
LESTER, PENNSYLVANIA

FEBRUARY 1995

ATLANTIC PROJECT NO: 1256-15-02
NAVY CONTRACT NO: N62472-88-C-1294

ATLANTIC
ENVIRONMENTAL SERVICES, INC. 188 NORWICH AVENUE COLCHESTER, CONNECTICUT 06415 (203) 537-0751

TABLE OF CONTENTS

SECTION		PAGE
1.0	INTRODUCTION	1
1.1	Purpose	3
1.2	Site Background	3
1.2.1	Site Location	5
1.2.2	Site and Area Land Use	6
1.2.3	General Site History	6
1.2.4	Water Quality Classifications and Water Supply	10
1.2.4.1	Water Quality Classifications	10
1.2.4.2	Water Supply	11
1.2.5	Site Descriptions	12
1.2.5.1	Pier 33	12
1.2.5.2	Berth 16/Former Incinerator	14
1.3	Report Organization	18
1.3.1	Site Investigation	19
1.3.2	Physical Characteristics of the Study Area	19
1.3.3	Nature and Extent of Contamination	19
1.3.4	Contaminant Fate and Transport	19
1.3.5	Summary and Conclusions	20
2.0	SITE INVESTIGATION	21
2.1	General Discussion	21
2.2	Laboratory Analysis Program	22
2.3	Surveying and Mapping	27
2.3.1	Surveying	27
2.3.2	Mapping	29
2.4	Soil-Gas Survey	29
2.4.1	Sample Collection and Analysis	29
2.4.2	Data Utilization	30
2.5	Soils Investigation	31

TABLE OF CONTENTS
(continued)

SECTION		PAGE
2.5.1	Test Borings	31
2.5.2	Surface Soils	40
2.5.3	Sediments	40
2.6	Groundwater Investigation	40
2.6.1	Monitoring Well Installation	41
2.6.2	Monitoring Well Development	43
2.6.3	Groundwater Sampling	43
2.7	Quality Assurance/Quality Control (QA/QC)	45
2.7.1	Field Quality Control (QC) Samples	45
2.7.2	Data Validation	47
2.7.3	Data Quality Objectives	48
3.0	PHYSICAL CHARACTERISTICS OF THE STUDY AREA	50
3.1	Topography	50
3.2	Soils	51
3.2.1	Ud - Udorthents-Urban Land, 0-15 Percent Slopes	53
3.2.2	Ur - Urban Land	53
3.3	Bedrock Geology	53
3.4	Surficial Geology	56
3.5	Surface-Water Hydrology	58
3.6	Groundwater Hydrology	59
3.7	Site-Specific Geology and Hydrogeology	61
3.7.1	Pier 33	61
3.7.2	Berth 16/Former Incinerator	64
3.8	Climatology	70
4.0	NATURE AND EXTENT OF CONTAMINATION	71
4.1	Introduction	71
4.2	Applicable or Relevant and Appropriate Requirements	71
4.3	Inorganics Background Concentrations	76

TABLE OF CONTENTS
(continued)

SECTION		PAGE
4.4	Pier 33	79
4.4.1	Soil Gas	79
4.4.2	Subsurface and Surface Soil	79
4.4.3	Sediments	89
4.4.4	Groundwater	91
4.4.5	Utility Manhole Inspection	95
4.5	Berth 16	96
4.5.1	Soil Gas	96
4.5.2	Subsurface Soil	98
4.5.3	Sediments	111
4.5.4	Groundwater	113
4.5.5	Utility Manhole Inspection	117
5.0	CONTAMINANT FATE AND TRANSPORT	119
5.1	Fate and Transport Data	119
5.1.1	Volatile Organic Compounds	126
5.1.1.1	Nonchlorinated Aromatic Volatile Organic Compounds	126
5.1.1.2	Chlorinated Volatile Organic Compounds	126
5.1.1.3	Other Volatile Organic Compounds	127
5.1.2	Semivolatile Organic Compounds	128
5.1.2.1	Polynuclear Aromatic Hydrocarbons	128
5.1.2.2	Other Semivolatile Organic Compounds	128
5.1.3	Pesticides/PCBs	129
5.1.4	Inorganics	131
5.1.4.1	Metals	131
5.1.4.2	Cyanide	132
5.2	Contaminant Migration	133
5.2.1	Potential Routes of Migration	133
5.2.1.1	Air	133

TABLE OF CONTENTS
(continued)

SECTION		PAGE
5.2.1.2	Groundwater and Soils	134
5.2.1.3	Storm Sewer Sediments	135
5.2.2	Site-Specific Potential Routes of Migration	136
5.2.2.1	Pier 33	136
5.2.2.2	Berth 16/Former Incinerator	138
6.0	SUMMARY AND RECOMMENDATIONS	140
6.1	Pier 33	140
6.1.1	Summary	140
6.1.2	Recommendations	142
6.2	Berth 16/Former Incinerator	142
6.2.1	Summary	142
6.2.2	Recommendations	144
7.0	REFERENCES	145

LIST OF FIGURES

Figure 1-1:	Installation Restoration Study Sites	2
Figure 1-2:	Site Vicinity	7
Figure 1-3:	Site Location	8
Figure 1-4:	Area Land Use	9
Figure 1-5:	Site Plan Pier 33	13
Figure 1-6:	Site Plan Berth 16/Former Incinerator	16
Figure 3-1:	Background Sampling Locations	52
Figure 3-2:	Bedrock Geology Map	54
Figure 3-3:	Bedrock Geology Cross-Section Line	55
Figure 3-4:	Surficial Geology Map	57
Figure 3-5:	Watershed Areas in the Vicinity of NSB-NLON	60
Figure 3-6:	Geologic Cross Section A—A Pier 33	62
Figure 3-7:	Geologic Section B—B—Pier 33	63
Figure 3-8:	Groundwater Flow Direction Pier 33	65
Figure 3-9:	Geologic Cross Section A—A Berth 16/Former Incinerator	67
Figure 3-10:	Geologic Section B—B Berth 16/Former Incinerator	68

TABLE OF CONTENTS
(continued)

SECTION		PAGE
Figure 3-11:	Groundwater Flow Direction Berth 16/Former Incinerator	69
Figure 4-1:	Background Sampling Locations	78
Figure 4-2:	Sampling Locations, Pier 33	80
Figure 4-3:	Sampling Locations, Berth 16/Former Incinerator	97

LIST OF TABLES

Table 1-1:	Summary of Existing Analytical Data Pier 33 and Berth 16/Former Incinerator	15
Table 2-1:	Target Compound List Volatile Organics	23
Table 2-2:	Target Compound List Semivolatile Organics	24
Table 2-3:	Target Compound List Pesticides/PCBs	26
Table 2-4:	Target Analyte List - Inorganics	28
Table 2-5:	Summary of Soil Sampling Program	33
Table 2-6:	Summary of Monitoring Well Information	42
Table 2-7:	Groundwater Sampling Parameters	44
Table 2-8:	Summary of QA/QC Samples	46
Table 2-9:	Data Qualifiers	48
Table 4-1:	Summary of Chemical Specific ARARs and TBCs by Media	73
Table 4-2:	Natural Background Levels for Inorganic Compounds	77
Table 4-3:	Summary of Soil Analytical Results (Volatile Organics)	82
Table 4-4:	Summary of Groundwater Analytical Results	92
Table 4-5:	Summary of Soil Analytical Results (Volatile Organics)	99
Table 4-6:	Summary of Groundwater Analytical Results	114
Table 5-1:	Chemical Properties of Compounds	120

LIST OF APPENDICES

Appendix A: Soil Gas Data
Appendix B: Test Boring Logs and Monitoring Well Construction Details
Appendix C: Data Validation Reports
Appendix D: Laboratory Analytical Results

LIST OF PLATES

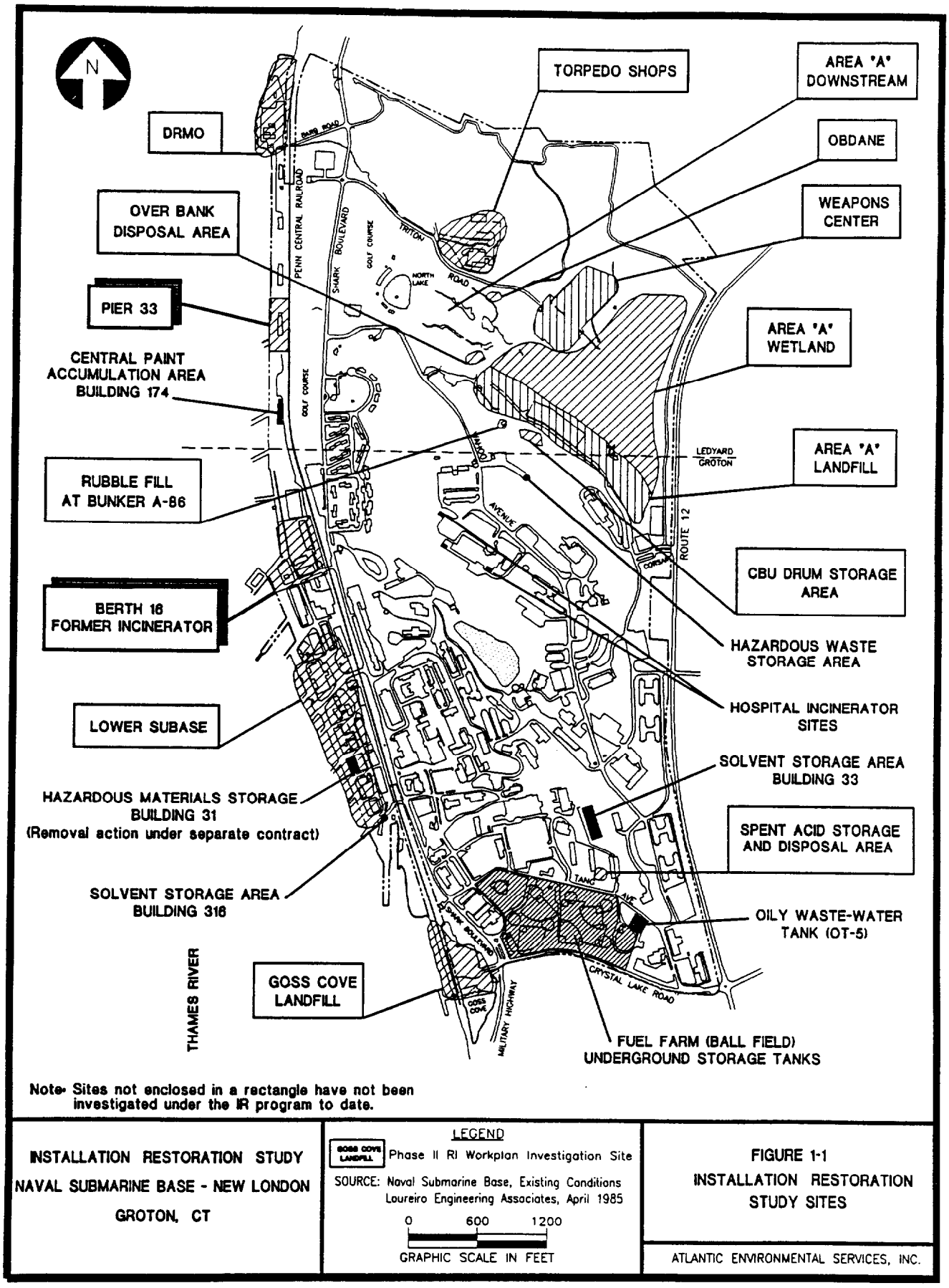
Plate 1: Field Sampling Results, Pier 33
Plate 2: Field Sampling Results, Berth 16/Former Incinerator

1.0 INTRODUCTION

This report was prepared to address two additional sites identified as part of the Installation Restoration (IR) Program for the Naval Submarine Base — New London (NSB-NLON), located in Groton, Connecticut. Soils containing petroleum hydrocarbons were discovered at these additional sites during a subsurface investigation, conducted by Morrison Geotechnical Engineering in the fall of 1989, for replacement of the quay wall. The resultant analyses are discussed in Section 2.0. After identifying the condition of the additional sites, the Navy determined that Site Inspections (SI) were appropriate for them, that is, the Pier 33 (Site 19) and Berth 16 sites. In addition, the U.S. Environmental Protection Agency (EPA) and Connecticut Department of Environmental Protection (CTDEP) requested that the Site Inspection also include the former incinerator located at Berth 16. Because of the proximity of the former incinerator to Berth 16, the former incinerator and Berth 16 are combined into one site (i.e., Site 20) for evaluative and investigative purposes. Site 20 is therefore referred to as the Berth 16/Former Incinerator site in this report. The new investigation sites at NSB-NLON are illustrated in Figure 1-1, along with the other investigated Remedial Investigation and Feasibility Study (RI/Fs) and SI sites.

The IR program consists of two levels of investigation and evaluation. The objectives of the SI are to determine the presence or absence, as well as the order of magnitude, of specific toxic or hazardous contaminants, or other contaminants which may be present in concentrations considered to be an environmental risk. An SI includes an initial field sampling program to determine if contamination is present on site and whether the associated results warrant an RI/FS.

The RI/FS is applicable to sites where on-site contamination is identified in previous


N
DRMO
OVER BANK DISPOSAL AREA
PIER 33
CENTRAL PAINT ACCUMULATION AREA BUILDING 174
RUBBLE FILL AT BUNKER A-86
BERTH 16 FORMER INCINERATOR
LOWER SUBASE
HAZARDOUS MATERIALS STORAGE BUILDING 31 (Removal action under separate contract)
SOLVENT STORAGE AREA BUILDING 316
GOSS COVE LANDFILL
THAMES RIVER
TORPEDO SHOPS
AREA "A" DOWNSTREAM
OBDANE
WEAPONS CENTER
AREA "A" WETLAND
AREA "A" LANDFILL
CBU DRUM STORAGE AREA
HAZARDOUS WASTE STORAGE AREA
HOSPITAL INCINERATOR SITES
SOLVENT STORAGE AREA BUILDING 33
SPENT ACID STORAGE AND DISPOSAL AREA
OILY WASTE-WATER TANK (OT-5)
FUEL FARM (BALL FIELD) UNDERGROUND STORAGE TANKS
PENN CENTRAL RAILROAD
SHARK BOULEVARD
GOLF COURSE
TRITON ROAD
NORTH LAKE
LEDYARD
GROTON
ROUTE 12
CORSAIR
AVENUE
TANG AVE
CRYSTAL LAKE ROAD
MILITARY HIGHWAY
GOSS COVE
Note: Sites not enclosed in a rectangle have not been investigated under the IR program to date.
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT
LEGEND
GOSS COVE LANDFILL Phase II RI Workplan Investigation Site
SOURCE: Naval Submarine Base, Existing Conditions Loureiro Engineering Associates, April 1985
0 600 1200
GRAPHIC SCALE IN FEET
FIGURE 1-1
INSTALLATION RESTORATION STUDY SITES
ATLANTIC ENVIRONMENTAL SERVICES, INC.

investigations and potential health or environmental impacts exist. An RI/FS involves comprehensive on-site investigations to determine the extent of contamination, to assess health and environmental risks, and to evaluate remediation alternatives.

The point of contact (POC) for Atlantic Environmental Services, Inc. (Atlantic) at the Subase for the IR Program project is Mr. Andrew Stackpole. Mr. Mark Evans is the Engineer-In-Charge (EIC), representing the Northern Division of the Naval Facilities Engineering Command, Lester, Pennsylvania.

1.1 Purpose

The purpose of this Site Inspection (SI) report is to: present a description of the site; provide background information; present site investigation data; present the physical characteristics of the study area; examine contaminant fate and transport; and provide a summary with recommendations.

1.2 Site Background

This subsection of the report provides a description of the general site location, area land use, and a history of the overall site (Submarine Base) development. A discussion of the area water- quality classifications and water supply is also provided. This discussion is followed by a detailed description of the Pier 33 (Site 19) and Berth 16/Former Incinerator (Site 20) sites. **Note:** *Site numbers in parenthesis have been adopted to continue the site numbering scheme initiated in the 1982 Initial Assessment Study (IAS) performed by Envirodyne Engineers, Inc., to identify and evaluate past hazardous waste-disposal sites at NSB-NLON. They are used for sample identification purposes but are not repeated further in this report.*

Site history information was obtained from a number of different sources, and the following subsections on site background are based on information obtained from these sources,

which are listed herein:

- Previous Site Investigations/Reports:

  - Atlantic Environmental Services, Inc., 1989, *Plan of Action - Installation Restoration Study: Naval Submarine Base - New London, Groton, Connecticut*, final, prepared for the Northern Division, Naval Facilities Engineering Command.

  - U.S. Navy, 1991, Preliminary, *Draft Environmental Impact Statement: Thames River Dredging Project*.

  - Morrison Geotechnical Engineering, Nov. 1989, *Appendix D to a Geotechnical Data Report to Oak Point Associates on The U.S. Naval Submarine Base, Groton, Connecticut.*

  - Morrison Geotechnical Engineering, Dec. 1990, *A Supplement Geotechnical Data Report to Oak Point Associates on The U.S. Naval Submarine Base, Groton, Connecticut.*

  - Envirodyne Engineers, Inc., 1982, *Initial Assessment Study: Naval Submarine Base, New London, Connecticut*, prepared for Navy Assessment and Control of Installation Pollutants Department.

  - Naval Facilities Engineering Command, 1988, *Master Plan for Naval Submarine Base, New London.*

- Aerial Photographs:

  - U.S. Environmental Protection Agency (U.S. EPA), March 1992, *Site Analysis: New London Submarine Base, Groton, Connecticut.*

  - U.S. Navy, May 23, 1959, Dec. 1963, May 24, 1964.

  - Connecticut Department of Environmental Protection, August 24, 1952, March 2, 1965, March 27, 1975, April 17, 1980, March 23, 1986.

- Interviews with Subase Personnel:

  - Mr. Robert Morgan - Department of Public Works, Engineering Division
  - Mr. William Mansfield - Department of Public Works, Environmental Division

- Base Records (only those containing pertinent data are listed):

  - U.S. Submarine Base, New London, Connecticut. Improvements to June 30, 1919, Drawing.

- Map of U.S. Naval Submarine Base, New London, Connecticut. Showing conditions on June 30, 1943, Drawing No. A145.

- U.S. Naval Submarine Base, New London, Connecticut. Dredging for Berthing of Reserve Fleet, Plan, September 4, 1945, Drawing No. 420,045.

- U.S. Naval Submarine Base, New London, Connecticut. Dredging for Berthing of Reserve Fleet, Borings and Sections, September 4, 1945, Drawing No. 420,046.

- Map of U.S. Naval Submarine Base, New London, Connecticut. Showing conditions on June 30, 1947, Drawing No. A197.

- Department of the Navy, Bureau of Yards and Docks. Master Shore Station Development Plan, Part IV Section 6, Area Development Plan Utilities, Fuel Oil & Diesel Oil Distribution, February 15, 1954, Drawing No. 641219.

- Department of the Navy, Bureau of Yards and Docks. Repairs to Low Pressure Compressed Air Line North of Pier 17, November 4, 1954, Drawing No. 659943.

- Existing Storm Sewer System, Louriero Engineering Associates, April 28, 1981, Drawing Nos. 2049838; 2049839; 2049832 and 2049833.

- Laboratory Resources, Inc., Brooklyn, Connecticut. Sample results for soil sample collected from trench dug next to building B-157. Report date: October 18, 1991.

- Petro-Tite tank test at fuel oil tank near Building 175, May 22, 1990.

- Alpha Analytical Laboratories, Warwick, Rhode Island. Sample results for soil and groundwater samples from boring B-30 and B-32. Report date: September 27, 1989.

• Other:

- Department of The Interior, United States Geological Survey, 1984, *Geologic Quadrangle Maps of the United States, Topographic Map of the Uncasville Quadrangle, Connecticut*, 1893, 1939, 1952, 1958 and 1984.

1.2.1 Site Location

NSB-NLON consists of approximately 576 acres of land and associated buildings in southeastern Connecticut in the towns of Ledyard and Groton. NSB-NLON is situated on the

east bank of the Thames River, approximately six miles north of Long Island Sound. Figures 1-2 and 1-3 represent the site vicinity and the site location, respectively.

NSB-NLON is bounded to the east by Connecticut Route 12, to the south by Crystal Lake Road, and to the west by the Thames River. The northern border is a low ridge that trends approximately east-southeast from the river to Baldwin Hill. The Pier 33 and Berth 16/Former Incinerator sites are both located on the western edge of the Subase along the Thames River.

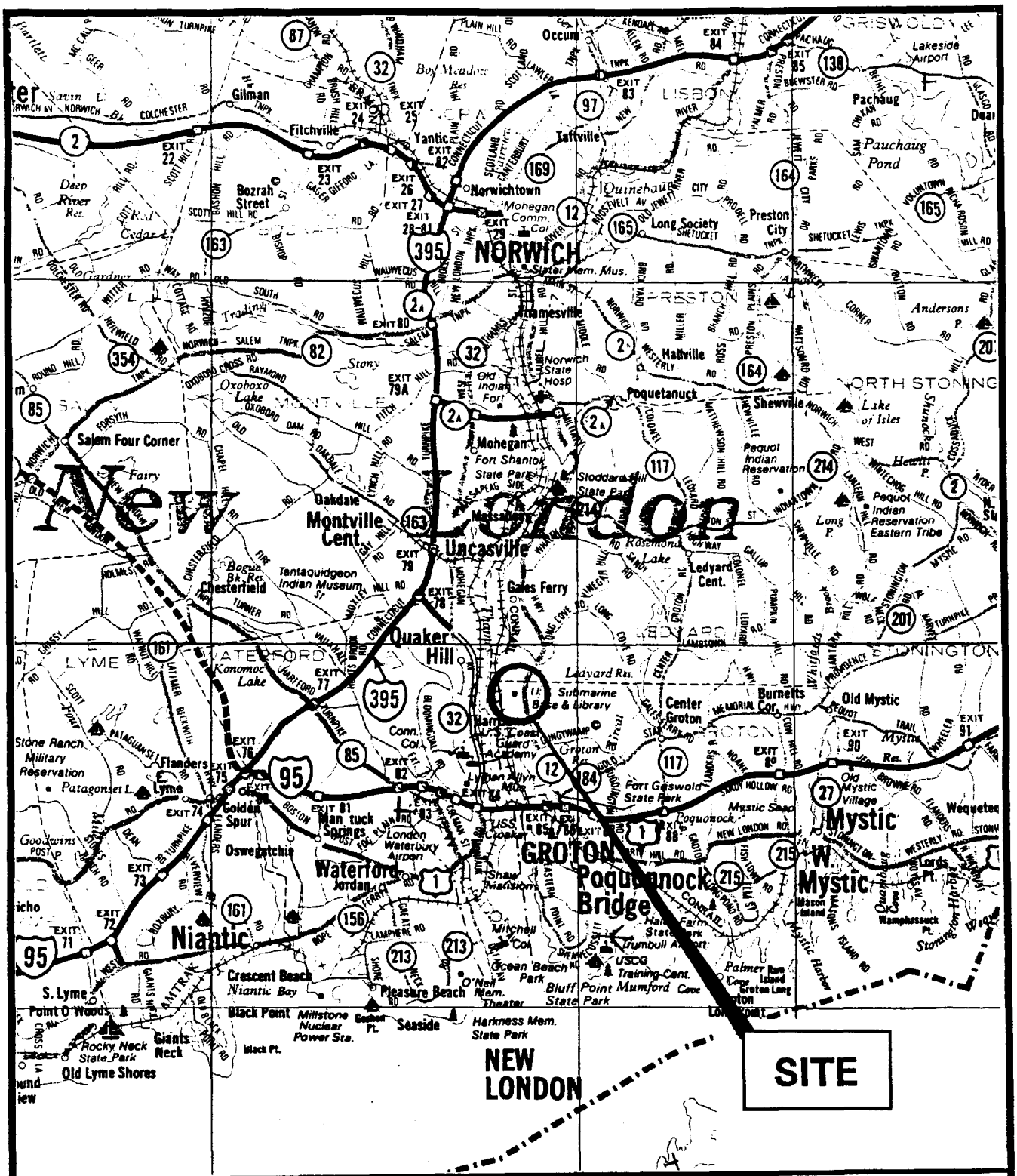
1.2.2 Site and Area Land Use

NSB-NLON currently provides a base command for naval submarine activities in the Atlantic Ocean. Additionally, NSB-NLON includes housing for: Navy personnel and their families; submarine training facilities; military offices; medical facilities; and facilities designed for the maintenance, repair, and overhaul of submarines.

Land use adjacent to the site generally is residential or commercial, as shown in Figure 1-4. Residential development along Military Highway, Sleepy Hollow, Long Cove Road, and Pinelock Drive borders the site at the northward and extends north into the Gales Ferry section of Ledyard. Property along Route 12 to the east of the site consists of widely spaced private homes and open woodland. Further south on Route 12, development is mixed (commercial and residential) and includes a church, automobile sales and repair facilities, convenience stores, restaurants, and a gas station. Private residences and an automobile service station are located along the south side of Crystal Lake Road; further south is housing for Navy personnel.

1.2.3 General Site History

In 1867, the state of Connecticut donated a 112-acre parcel on the east bank of the Thames River to the Navy. The Navy did not use the property until 1868, when it was officially designated a Navy Yard. The site was then used to moor small craft and obsolete warships and also as a coaling station for the Atlantic fleet.



INSTALLATION RESTORATION STUDY

NAVAL SUBMARINE BASE - NEW LONDON

GROTON, CT

SOURCE: Marshall Penn-York Co. Inc.

Miles

0 1 2 3

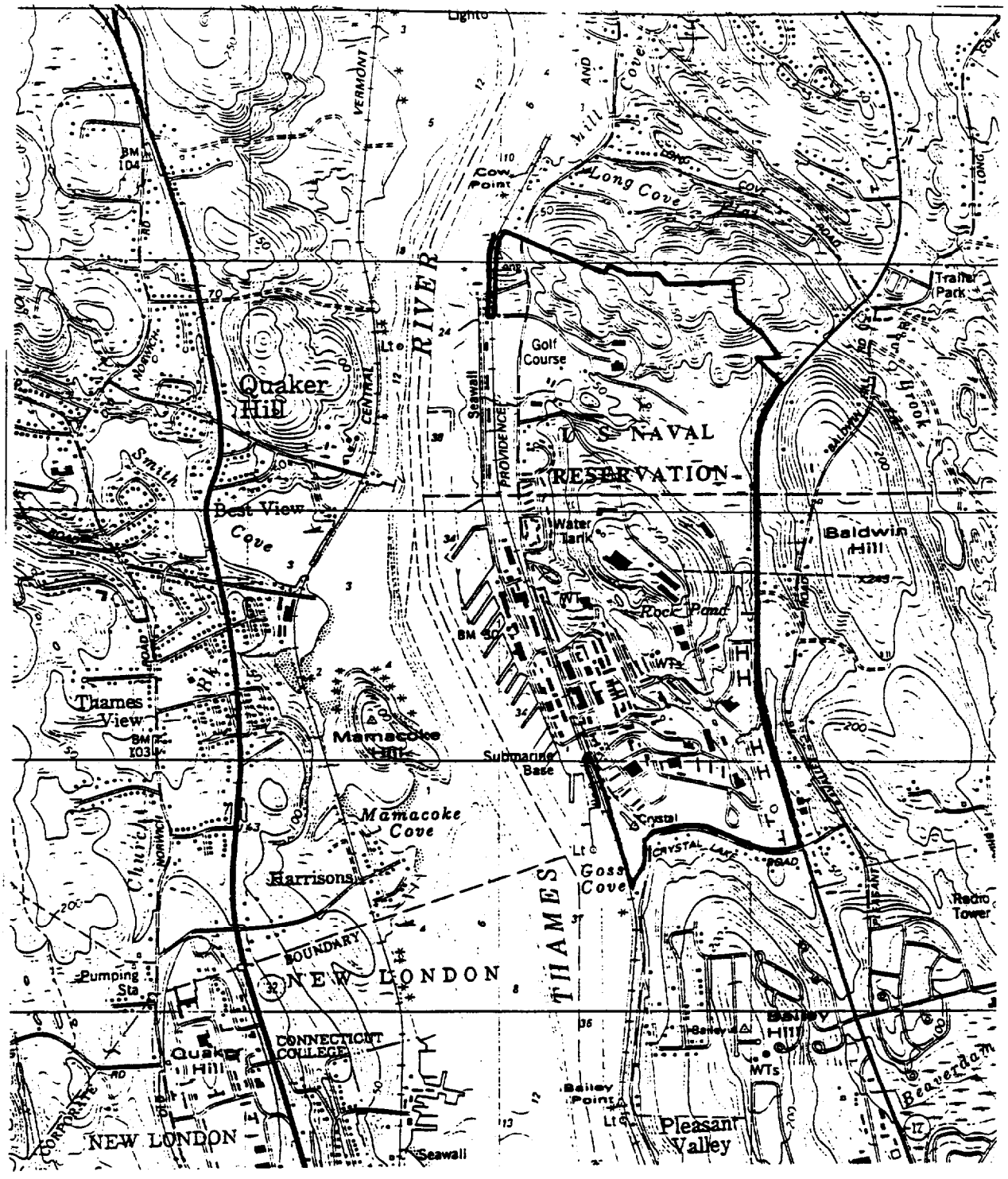
N

APPROXIMATE SCALE

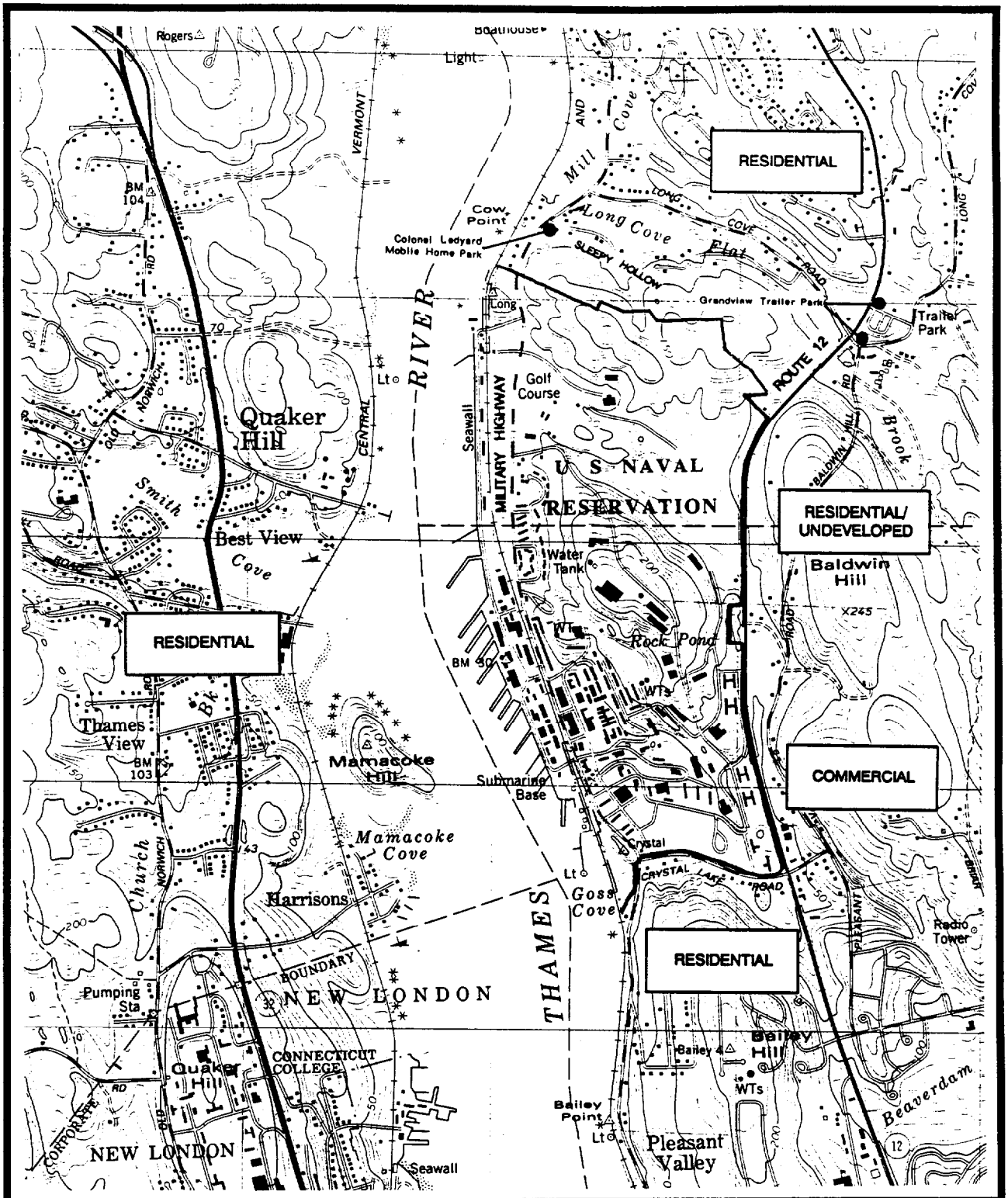
FIGURE 1-2

SITE VICINITY

ATLANTIC ENVIRONMENTAL SERVICES, INC.



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	SOURCE: Uncasville, CT U.S.G.S. Topographic Map 1984 N	FIGURE 1-3 SITE LOCATION ATLANTIC ENVIRONMENTAL SERVICES, INC.



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	SOURCE: Uncasville, Ct. U.S.G.S. Topographic Map 1984 ● Active Water Supply Well N 0 1000 2000′ SCALE	FIGURE 1-4 AREA LAND USE ATLANTIC ENVIRONMENTAL SERVICES, INC.

The Navy Department designated the site a Submarine Base in 1916. During World War I, facilities at the base were expanded extensively; 6 piers and 81 buildings were added. In 1917, a Submarine School was established, and in 1918 the Submarine Medical Center was founded.

NSB-NLON experienced another period of growth during World War II. Between 1935 and 1945, the Navy built in excess of 180 buildings and acquired adjacent land to expand NSB-NLON from 112 to 497 acres of land.

The growth of NSB-NLON continued after World War II. The Medical Research Laboratory was established in 1946. In 1968 the status of the Submarine School was changed from an activity to a command, and the school became the largest tenant on the base. The Naval Submarine Support Facility was established in 1974, and the Naval Undersea Medical Institute was established the following year. At present, NSB-NLON consists of more than 300 buildings on 576 acres of land (U.S. Navy, 1988).

1.2.4 Water Quality Classifications and Water Supply

1.2.4.1 Water Quality Classifications

The State of Connecticut Department of Environmental Protection (CTDEP) has classified the Thames River quality as SC/SB. This classification designates the water for marine fish, shellfish, and wildlife habitat; certain aquaculture operations; recreational uses; and industrial and other legitimate uses. The classification also indicates that, because of pollution, the waters currently do not meet water-quality criteria or support one or more designated uses (CTDEP 1992). NSB-NLON is located at the mouth of the Thames River estuary; therefore, due to tidal influence river water in the vicinity of the site is brackish and groundwater at locations adjacent to the river is also brackish.

CTDEP has classified the groundwater beneath the central and southern portions of NSB-NLON, which includes both the Pier 33 and Berth 16/Former Incinerator sites, as GB/GA. A classification of GB/GA indicates that the groundwater may not be suitable for direct human consumption without treatment due to waste discharges, spills, chemical leaks, or land-use impacts. GB/GA waters may be useful as industrial process waters or cooling waters. The state's goal is to restore the water to drinking water quality (GA).

The groundwater beneath the northern portion of NSB-NLON is classified by CTDEP as GA. The GA classification signifies groundwater presumed suitable for direct human consumption without the need for treatment. CTDEP's goal is to maintain drinking water quality.

1.2.4.2 Water Supply

The Groton Water Department supplies potable water to NSB-NLON. The primary source of the Groton water supply is reservoirs, which are supplemented with wells. The water supplies are located within the Poquonock River Watershed, located east of NSB-NLON, which is not within the NSB-NLON watershed.

Homes on Route 12 adjacent to the northeast portion of the site have individual on-site drinking water wells, as do homes north of NSB-NLON on Sleepy Hollow, Long Cove Road, and Military Highway. Two trailer parks near the site have wells classified as public water-supply wells. The Colonel Ledyard Mobile Home Park, located on Sleepy Hollow adjacent to the North Gate, has a well that supplies between 15 and 20 families. The Grandview Trailer Park, located at the intersection of Long Cove Road and Route 12, has two water-supply wells. There are several irrigation wells on site at the golf course which have not been used for several years. The public water-supply well locations are depicted in Figure 1-4.

1.2.5 Site Descriptions

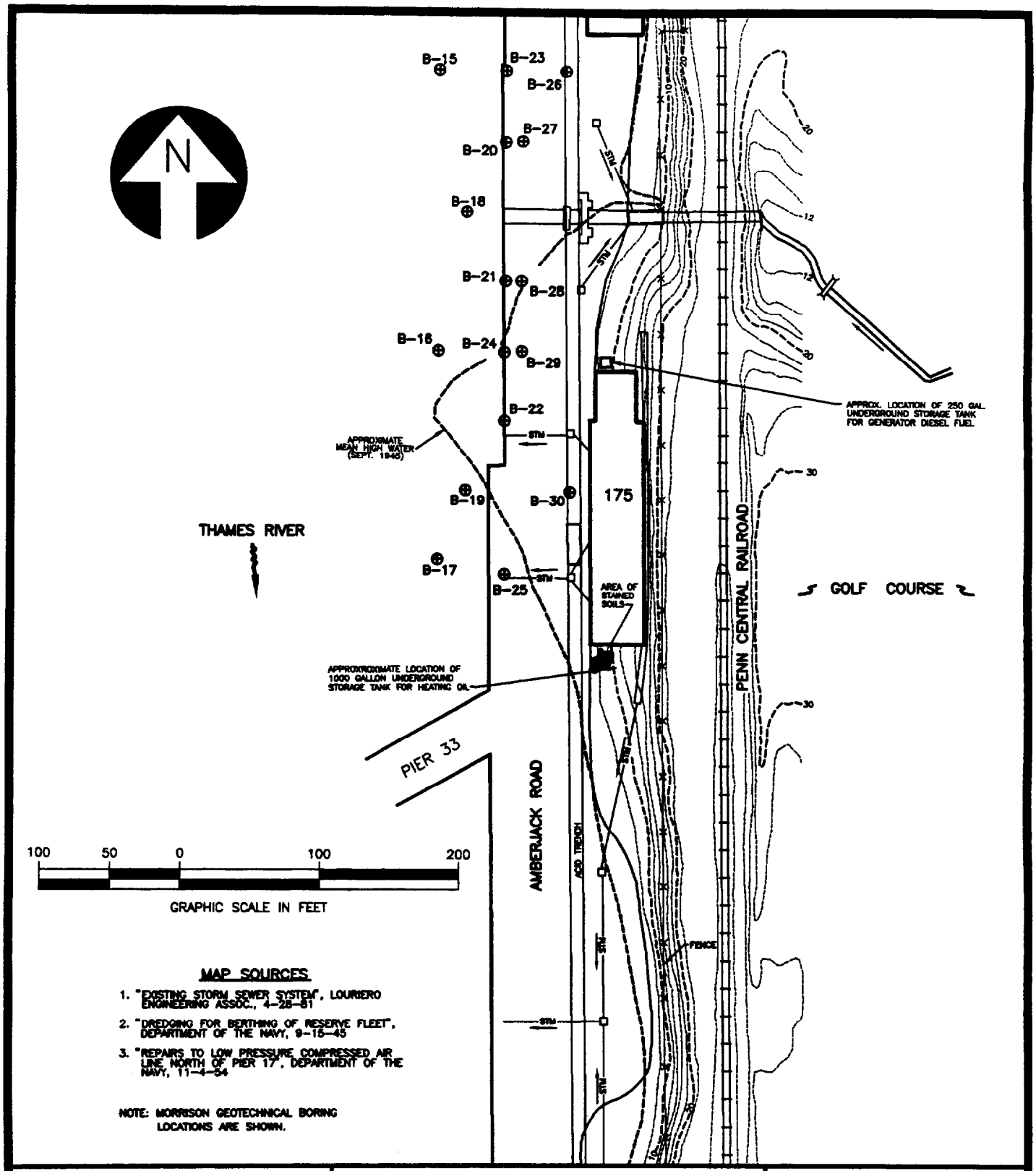
This subsection summarizes the available information on the Pier 33 and Berth 16/Former Incinerator sites, including details of past-and-future usage, findings of previous investigations (including chemical data), and observations made during site inspections. Site locations are shown in Figure 1-1.

1.2.5.1 Pier 33

The current general layout of the subject site is shown in Figure 1-5. The site property is generally level and covered by either buildings or pavement. Utilities at the site include storm drainage, sanitary sewers, telephone, electric, water, and compressed air.

This area of the Subase was undeveloped until approximately 1946. The mean high-water elevation of the Thames River extended to the toe of the railroad embankment slope in some areas at that time. In 1946 the waterfront was extensively renovated to berth the reserve fleet. The area was dredged and filled. Bulkheads, piers, support buildings, and utilities were constructed. Fill was obtained from a reportedly clean upland source near Dow Chemical. Building 175 was constructed originally for battery electrolyte (sulfuric acid) storage. The building was completely filled with large aboveground storage tanks. These tanks were connected to the piers by underground pipes located in the acid trenches, as shown in Figure 1-5. There are no known or reported spills from the electrolyte storage and transfer system.

Currently, no underground steam or fuel-oil utilities service Building 175 other than its own underground fuel-oil storage tank. This underground tank is located on the southern side of the building and has a capacity of 1,000 gallons. The age and type of tank is unknown.


N
B-15
B-23
B-26
B-27
B-20
B-18
B-21
B-28
B-16
B-24
B-29
B-22
B-19
B-30
175
B-17
B-25
THAMES RIVER
APPROXIMATE MEAN HIGH WATER (SEPT. 1946)
APPROX. LOCATION OF 250 GAL. UNDERGROUND STORAGE TANK FOR GENERATOR DIESEL FUEL
AREA OF STAINED SOILS
APPROXIMATE LOCATION OF 1000 GALLON UNDERGROUND STORAGE TANK FOR HEATING OIL
PIER 33
AMBERJACK ROAD
ACID TRENCH
PENN CENTRAL RAILROAD
GOLF COURSE
FENCE
STM
100 50 0 100 200
GRAPHIC SCALE IN FEET
MAP SOURCES
1. "EXISTING STORM SEWER SYSTEM", LOURIERO ENGINEERING ASSOC., 4-28-81
2. "DREDGING FOR BERTHING OF RESERVE FLEET", DEPARTMENT OF THE NAVY, 9-15-45
3. "REPAIRS TO LOW PRESSURE COMPRESSED AIR LINE NORTH OF PIER 17", DEPARTMENT OF THE NAVY, 11-4-54
NOTE: MORRISON GEOTECHNICAL BORING LOCATIONS ARE SHOWN.
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONN
LEGEND
B-19 EXISTING TEST BORING LOCATION
STM STORM SEWER
10 EXISTING CONTOUR
123 BUILDING No.
UNDERGROUND STORAGE TANK
RAILROAD TRACKS
FIGURE 1-5
SITE PLAN
PIER 33
ATLANTIC ENVIRONMENTAL SERVICES, INC.

Based on a tank test performed on May 22, 1990, no leakage was identified. On the northern side of this building is another underground diesel storage tank (250-gallon capacity) that services an emergency generator for the sewage-lift station. Again, the age and type of this tank are unknown. The above-grade acid storage tanks in Building 175, along with the associated, underground acid piping, have been removed. Building 175 currently is used for miscellaneous storage and administrative purposes.

During a geotechnical investigation for replacement of the quay wall conducted by Morrison Geotechnical Engineering in 1989, No. 2 fuel oil was detected in subsurface soils at the Pier 33 site. Total petroleum hydrocarbons were detected at 1,100 ppm at test boring B-30. The location of boring B-30 is shown in Figure 1-5. Fluorescence analysis indicated the hydrocarbons present to be from the No. 2 fuel oil. The laboratory report for sample B-30A and pertinent boring logs from the geotechnical investigation are included in the Approved Work Plan (Atlantic, February 1993). The analytical results from the two sites are summarized in Table 1-1. Only one sample (B-30A) was analyzed for the Pier 33 site. Samples were not collected from any other boring locations; however, petroleum contamination was also evident, based on odor and a visual examination of borings B-21 and B-25.

A visual inspection of the site was conducted by Atlantic. The only evidence of potential contamination or spillage observed was a small area of what appeared to be oil-stained soils near the fill pipes for the underground heating oil-storage tank on the south side of the building.

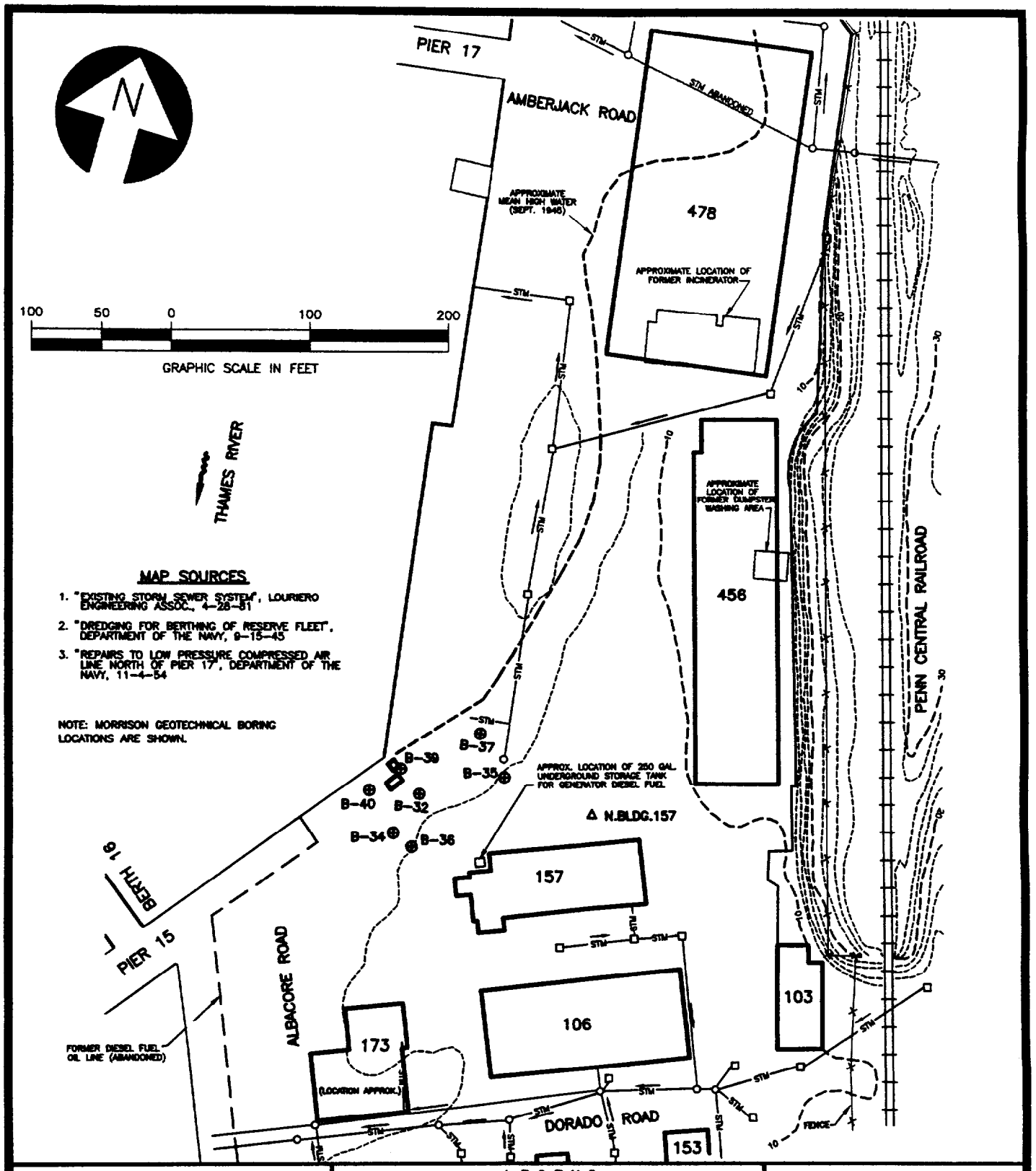
1.2.5.2 Berth 16/Former Incinerator

The current general layout of the Berth 16/Former Incinerator site is shown in Figure 1-6. The site topography is generally level and covered either by buildings or pavement. Utilities at the site include storm drainage, sanitary sewers, telephone, steam, water, electric, and compressed air.

TABLE 1-1
SUMMARY OF EXISTING ANALYTICAL DATA
PIER 33 AND BERTH 16/FORMER INCINERATOR

Site	Pier 33		Berth 16/Former Incinerator		
Sample ID	**B-30A**	**B-30**	**B-32A**	**B-32B**	**N.BLDG.157**
Media	**Soil**	**Water**	**Soil**	**Water**	**Soil**
Date Collected	**9-21-89**	**9-21-89**	**9-14-89**	**9-14-89**	**9-11-91**
Toxicity Characteristic Leaching Procedure (TCLP) Metals (ppm)					
Arsenic	NA	NA	NA	NA	0.7
Barium	NA	NA	NA	NA	2.0
Cadmium	NA	NA	NA	NA	0.51
Chromium	NA	NA	NA	NA	ND
Lead	NA	NA	NA	NA	245
Mercury	NA	NA	NA	NA	ND
Selenium	NA	NA	NA	NA	0.2
Silver	NA	NA	NA	NA	ND
Total Metals (ppm)					
Arsenic	0.9	ND	0.4	NA	NA
Barium	ND	ND	13	NA	NA
Cadmium	0.18	0.0006	0.045	NA	NA
Chromium	10	ND	4	NA	NA
Lead	3.4	0.016	18.9	NA	NA
Mercury	ND	ND	ND	NA	NA
Selenium	ND	ND	ND	NA	NA
Silver	ND	ND	0.5	NA	NA
Volatile Organic Compounds (VOC) (ppb)					
Aromatics	ND	ND	ND	ND	ND
Halocarbons	ND	ND	ND	ND	1,100*
Total Petroleum Hydrocarbons (TPH) (ppm)					
Total Petroleum Hydrocarbons	1,100	13	1,200	NA	490
Oil Type ID	#2 Fuel	#2 Fuel	#2 Fuel	NA	NA
Polynuclear Aromatic Hydrocarbons (PAH) (ppb)					
PAH	NA	NA	NA	NA	ND
Pesticides (ppb)					
Pesticides	ND	ND	ND	NA	NA
Polychlorinated Biphenyls (PCBs) (ppb)					
PCBs	ND	ND	ND	NA	ND

Notes: * Volatile halocarbons detected in Sample N.BLDG. 157 consists of 1,100 ppb of Trichloroethene.
Samples collected by Morrison Geotechnical Engineering.
NA Not Analyzed
ND Not Detected


PIER 17
AMBERJACK ROAD
STM ABANDONED
APPROXIMATE MEAN HIGH WATER (SEPT. 1948)
478
APPROXIMATE LOCATION OF FORMER INCINERATOR
100 50 0 100 200
GRAPHIC SCALE IN FEET
THAMES RIVER
APPROXIMATE LOCATION OF FORMER DUMPSTER WASHING AREA
456
PENN CENTRAL RAILROAD
MAP SOURCES
1. "EXISTING STORM SEWER SYSTEM", LOURIERO ENGINEERING ASSOC., 4-28-81
2. "DREDGING FOR BERTHING OF RESERVE FLEET", DEPARTMENT OF THE NAVY, 9-15-45
3. "REPAIRS TO LOW PRESSURE COMPRESSED AIR LINE NORTH OF PIER 17", DEPARTMENT OF THE NAVY, 11-4-54
NOTE: MORRISON GEOTECHNICAL BORING LOCATIONS ARE SHOWN.
B-39
B-37
B-35
B-40
B-32
B-34
B-36
APPROX. LOCATION OF 250 GAL. UNDERGROUND STORAGE TANK FOR GENERATOR DIESEL FUEL
N.BLDG.157
157
BERTH 16
PIER 15
ALBACORE ROAD
106
103
173
(LOCATION APPROX.)
FORMER DIESEL FUEL OIL LINE (ABANDONED)
DORADO ROAD
153
FENCE
LEGEND
B-19 EXISTING TEST BORING LOCATION
N.BLDG.175 EXISTING SOIL SAMPLE
STM STORM SEWER
10 EXISTING CONTOUR
123 BUILDING NUMBER
UNDERGROUND STORAGE TANK
RAILROAD TRACKS
DIESEL FUEL OIL
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT
FIGURE 1-6
SITE PLAN
BERTH 16/FORMER INCINERATOR
ATLANTIC ENVIRONMENTAL SERVICES, INC.

The southern portion of this site has been developed since the early days of Navy activity at the site. In a 1918 map, Building 40 (Engineering Laboratory) is shown in its current location. Barracks are located to the east of Building 40. The northern portion of this site was used for coal storage in 1918. Sometime between 1918 and 1944, Buildings 103, 173, 157, 106, and the former garbage incinerator were constructed. All materials generated by base operations that were not salvageable were incinerated, and the residues were disposed in the Area A Landfill. These structures are shown in Figure 1-6. Locations are based on public works drawings. Adjacent to the incinerator was a dumpster-cleaning operation. The incinerator became inoperable in 1963 and ceased operations. In 1946 the waterfront was developed extensively to accommodate berthing of the reserve fleet. Sometime between 1974 and 1986 the incinerator was demolished, and Buildings 456 and 478 were constructed. Original and present uses of the six main buildings at this site are presented herein:

BUILDING	ORIGINAL USE	CURRENT USE
103	Instruction	Instruction
173	Substation	Electrical distribution
106	Photolab and electronics	Storage
157	Periscope Shop	Optical Shop
456, 478	Maintenance Shop	Maintenance Shop

Source: Navy Master Plan, Public Works Drawings and Interviews

Transformers, which formerly contained PCBs, were located at Building 173 (electrical substation) and in an outdoor electrical vault at Building 157.

The only known underground tanks in this area are: a tank near Building 157 to power the emergency generator for the sewage-lift station (250-gallon capacity for diesel - age, type unknown) and a former septic tank with a leaching field that serviced Building 173. No other underground tank locations were reported by Navy Public Works Department personnel or are

evident on engineering drawings on file. The exact locations of the former septic tank and leaching field that serviced Building 173 are unclear, as several maps indicated different positions.

As late as 1954 there were underground diesel fuel lines that serviced Berth 16. Presently, underground diesel lines do not go further north than Pier 13. The method of abandonment for these lines is unknown.

During the geotechnical investigation conducted by Morrison Geotechnical Engineering in 1989, number two fuel oil was detected in subsurface soil at the Berth 16. Total petroleum hydrocarbons were detected at 1,200 ppm at test boring 32. Fluorescence analysis indicated the hydrocarbons present to be number two fuel oil. Another soil sample was collected from this site from a trench dug to the north of Building 157. This sample (N.BLDG.157) contained 490 ppm of total petroleum hydrocarbons, 1.1 ppm of trichloroethene, and lead at 245 ppm (TCLP). The locations of boring 32 and sample N.BLDG.157, are shown in Figure 1-6. The laboratory reports for samples B-32A and N.BLDG.157, along with pertinent boring logs from the geotechnical investigation, are included in the approved Work Plan (Atlantic, February 1993). Sample results for sample B-32A and sample N.BLDG.157 are summarized in Table 1-1. Samples were not collected from any other boring locations; however, petroleum contamination was also evident, based on odor and visual examination in Borings B-34, B-36, B-37, B-39, and B-40.

A visual inspection of this area did not detect any evidence of contamination or spillage.

1.3 Report Organization

The following subsections provide a brief overview of the remaining major sections of this report.

1.3.1 Site Investigation

Section 2.0 provides detailed information on the procedures used to conduct the site investigation and laboratory analytical program. Procedures and sampling plan summaries are provided for the soil gas survey, soils investigation, and groundwater investigation. A summary of the quality assurance/quality control program is also included. Tables are also provided, listing samples collected and analyses performed for all samples by site and media.

1.3.2 Physical Characteristics of the Study Area

Section 3.0 describes the general physical features of the site and surrounding area. This major section includes discussions of the regional and site-specific bedrock and surficial geology, soils, ground and surface water hydrology, climatology, and demography. Site-specific, geologic cross-sections and groundwater contour maps are provided, as applicable.

1.3.3 Nature and Extent of Contamination

Section 4.0 presents the laboratory analytical results. Laboratory analytical data are presented for soil gas, surface soils, subsurface soils, sediment, and groundwater. Results are compared with site-specific applicable or relevant and appropriate requirements (ARARs) and to be considered (TBC) values, which are also discussed in Section 4.0 of this report. Within the scope of a Site Investigation, general comments are provided regarding the nature and extent of contamination and potential sources.

1.3.4 Contaminant Fate and Transport

Fate and transport data for the classes of chemicals identified are discussed in Section 5.0. These classes of chemicals include volatile organic compounds (VOCs), semivolatile organics (SVOs), pesticides/PCBs, and inorganics. General potential routes of contaminant migration are discussed as well as an evaluation of site-specific contaminant migration potential.

1.3.5 Summary and Conclusions

Section 6.0 provides a summary and conclusions of the investigations and evaluations at each site. Included are overviews of site history, nature, and extent of contamination. Based on this information, a recommendation is provided either for proceeding to a RI/FS or for no further action. A "no further action" recommendation is based on the identification of no significant contamination and no health or environmental risk. Recommendations to proceed to an RI/FS are based on the identification of contaminants above applicable standards and where health and/or environmental risk are of concern.

2.0 SITE INVESTIGATION

This section provides detailed information on the procedures used to conduct the site investigation and laboratory analytical program. Procedures and sampling plan summaries are provided for the soil gas surveys, soils investigation, groundwater investigation, and a summary of the quality assurance/quality control program. Tables are provided, listing samples collected and analyses performed for all samples by media. Figures illustrating sample locations at each site are provided in Section 4.0 of this report.

All field work was conducted in accordance with the Pier 33 and Berth 16/Former Incinerator Final Plan of Action report, prepared by Atlantic, dated February 1993, as modified by U.S. EPA and CTDEP comments, and as approved by the Navy. All survey and analytical results are provided in Section 4.0. Hydrogeologic data (e.g., estimated conductivity, water table maps) are provided in Section 3.0.

2.1 General Discussion

A sample designation format was developed for this project. Each sample was given a sample identification number in the field. Each sample identification number, such as 20MW1 (4-8), consists of the elements described below.

- **Site Number**: The site at which a sample was collected is identified by the site numbers used in the Work Plan and as noted in Section 1.2.5. As previously described, Site 19 = Pier 33, and Site 20 = Berth 16/Former Incinerator.

- **Sample Description**: Denoted by the following abbreviations:

  SS - Surface Soil
  TB - Test Boring (no well installed)
  MW - Monitoring well (used for both soil and groundwater samples)
  SD - Sediment
  SG - Soil Gas

- **Sample Number**: Individual sample numbers start at 1 for each medium at each site and are numbered consecutively.

- **Sample Depth**: Soil sampling interval is indicated parenthetically in feet below ground surface (4-6 feet).

2.2 Laboratory Analysis Program

The laboratory analysis program was conducted by PACE, Inc., Hampton, New Hampshire. The work was completed in accordance with the Quality Assurance Project Plan (prepared by PACE and dated February 1993), which complied with the Navy's NEESA document 20.2-047B, *Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program.*

All applicable organic analysis was performed in accordance with U.S. EPA CLP Statement of Work (SOW ILM01.8), *Organic Analysis for Multi-Media, Multi-Concentration, Statement of Work, U.S. Contract Laboratory Program, U.S. EPA, March 1990.* Dioxin analysis was performed in accordance with U.S. EPA Contract Laboratory Program Statement of Work DFLM01.01. Total recoverable petroleum hydrocarbons were analyzed by modified (for soil) EPA Method 418.1.

All applicable inorganic analysis was performed in accordance with the U.S. EPA CLP Statement of Work (SOW ILM01.8), dated March 1990. Toxicity Characteristic Leachate Procedure (TCLP) extractions were performed on some soil and sediment samples in accordance with the procedures specified in 40 CFR, Section 261, Appendix II. Arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver were analyzed in the TCLP extract following U.S. EPA SW-846 protocol. The TCLP was established by the U.S. EPA to simulate the leaching of chemicals from a material disposed in a solid waste disposal area.

Tables 2-1, 2-2, and 2-3 summarize the target compound list (TCL) parameters and contract-required quantitation limits (CRQLs) for VOCs, SVOs, and PCBs/pesticides. Actual laboratory detection limits are in some cases lower than the CRQLs listed in Tables 2-1, 2-2, and 2-3 due to instrument capabilities. Values reported between this level and the CRQL are

TABLE 2-1
TARGET COMPOUND LIST VOLATILE ORGANICS

Compound	CAS Number	Contract Required Quantitation Limits (CRQL)	
		Water (ppb)	Soil/Sediment (ppb)
Chloromethane	74-87-3	2	10
Bromomethane	74-83-9	2	10
Vinyl Chloride	75-01-4	2	10
Chloroethane	75-00-3	2	10
Methylene Chloride	75-09-2	2	10
Acetone	67-64-1	5	10
Carbon Disulfide	75-15-0	1	10
1,1-Dichloroethene	75-35-4	1	10
1,1-Dichloroethane	75-34-3	5	10
1,2-Dichloroethene (total)	540-59-0	1	10
Chloroform	67-66-3	1	10
1,2-Dichloroethane	107-06-2	1	10
2-Butanone	78-93-2	5	10
1,1,1-Trichloroethane	71-55-6	1	10
Carbon Tetrachloride	56-23-5	1	10
Bromodichloromethane	75-27-4	1	10
1,2-Dichloropropane	78-87-5	1	10
cis-1,3-Dichloropropene	10061-01-5	1	10
Trichloroethene	79-01-6	1	10
Dibromochloromethane	124-48-1	1	10
1,1,2-Trichloroethane	79-00-5	1	10
Benzene	71-43-2	1	10
trans-1,3-Dichloropropene	10061-02-6	1	10
Bromoform	75-25-2	1	10
4-Methyl-2-pentanone	108-88-2	5	10
2-Hexanone	591-78-6	5	10
Tetrachloroethene	127-18-4	1	10
1,1,2,2-Tetrachloroethane	79-34-5	1	10
Toluene	108-88-2	1	10
Chlorobenzene	108-90-7	1	10
Ethyl Benzene	100-41-4	1	10
Styrene	100-42-5	1	10
Xylenes (total)	133-02-7	1	10

Notes:

1) Laboratory analysis procedures per U.S. EPA, 1990. *Organic Analysis for Multi-Media, Multi-Concentration, Statement of Work*, Revision 3/90. US Contract Laboratory Program. EPA/CLP, Washington, D.C.
2) Medium Concentration Soil/Sediment CRQLs for Volatile Compounds are 125 times the individual Low Concentration Soil/Sediment CRQL. The CRQL is the CLP Contract Required Quantitation Limit.
3) Specific detection limits are highly matrix-dependent. The Quantitation Limits listed herein are provided for guidance and may not always be achievable.
4) Quantitation Limits listed for soil/sediment are based on wet weight. The Quantitation Limits calculated by the laboratory for soil/sediment, calculated on a dry-weight basis as required by the contract, will be higher.
5) CAS number is chemical abstract service number.

TABLE 2-2 TARGET COMPOUND LIST SEMIVOLATILE ORGANICS			
Compound	CAS Number	Contract Required Quantitation Limits (CRQL)	
		Water (ppb)	Soil/Sediment (ppb)
Phenol	108-95-2	10	330
bis(2-chloroethyl)ether	111-4-4	10	330
2-Chlorophenol	95-57-8	10	330
1,3-Dichlorobenzene	541-73-1	10	330
1,4-Dichlorobenzene	106-46-7	10	330
1,2-Dichlorobenzene	95-50-1	10	330
2-Methylphenol	95-48-7	10	330
bis(2-chloroisopropyl)ether	39638-32-9	10	330
4-Methylphenol	106-44-5	10	330
N-nitroso-di-n-propylamine	621-64-7	10	330
Hexachloroethane	67-72-1	10	330
Nitrobenzene	98-95-3	10	330
Isophorone	78-59-1	10	330
2-Nitrophenol	88-75-5	10	330
2,4-Dimethylphenol	105-67-9	10	330
bis(2-chloroethoxy)methane	111-91-1	10	330
2,4-Dichlorophenol	120-83-2	10	330
1,2,4-Trichlorobenzene	120-82-1	10	330
Naphthalene	91-20-3	10	330
4-Chloroaniline	106-47-8	10	330
Hexachlorobutadiene	87-68-3	10	330
4-Chloro-3-methylphenol	59-50-7	10	330
2-Methylnaphthalene	91-57-6	10	330
Hexachlorocyclopentadiene	77-47-4	10	330
2,4,6-Trichlorophenol	88-06-2	10	330
2,4,5-Trichlorophenol	95-95-4	25	800
2-Chloronaphthalene	91-58-7	10	330
2-Nitroaniline	88-74-4	25	800
Dimethyl Phthalate	131-11-3	10	330
Acenaphthylene	208-96-8	10	330
2,6-Dinitrotoluene	606-20-2	10	330
3-Nitroaniline	99-09-2	25	800
Acenaphthene	83-32-9	10	330
2,4-Dinitrophenol	51-28-5	25	800
4-Nitrophenol	100-02-7	25	800
Dibenzofuran	132-64-9	10	330

TABLE 2-2 (continued)
TARGET COMPOUND LIST SEMIVOLATILE ORGANICS

Compound	CAS Number	Contract Required Quantitation Limits (CRQL)	
		Water (ppb)	Soil/Sediment (ppb)
2,4-Dinitrotoluene	121-14-2	10	330
Dicthylphthalate	84-66-2	10	330
4-Chlorophenyl-phenylether	7005-72-3	10	330
Fluorene	86-73-7	10	330
4-Nitroaniline	100-10-6	25	800
4,6-Dinitro-2-methylphenol	534-52-1	25	800
N-nitrosodiphenylamine	86-30-6	10	330
4-Bromophenyl-phenylether	101-55-3	10	330
Hexachlorobenzene	118-74-1	10	330
Pentachlorophenol	87-86-5	25	800
Phenanthrene	85-01-8	10	330
Anthracene	120-12-7	10	330
Di-n-butylphthalate	86-74-2	10	330
Fluoranthene	206-44-0	10	330
Pyrene	129-00-0	10	330
Butylbenzylphthalate	85-68-7	10	330
3,3-Dichlorobenzidine	91-94-1	10	330
Benzo(a)anthracene	56-55-3	10	330
Chrysene	218-01-9	10	330
bis(2-Ethylhexyl)phthalate	117-81-7	10	330
Di-n-octylphthalate	117-84-0	10	330
Benzo(b)fluoranthene	205-99-2	10	330
Benzo(k)fluoranthene	207-08-9	10	330
Benzo(a)pyrene	50-32-8	10	330
Indeno(1,2,3-cd)pyrene	193-39-5	10	330
Dibenz(a,h)anthracene	53-70-3	10	330
Benzo(g,h,i)perylene	191-24-2	10	330
Carbazole	86-74-8	10	330

Notes:

1) Laboratory analysis procedures per U.S. EPA, 1990. *Organic Analysis for Multi-Media, Multi-Concentration, Statement of Work,* Revision 3/90. US Contract Laboratory Program. EPA/CLP, Washington, D.C.
2) Medium Concentration Soil/Sediment CRQLs for Semi-Volatile Organics are 60 times the individual Low Concentration Soil/Sediment CRQL. The CRQL is the CLP Contract Required Quantitation Limit. The CRQL is the CLP Contract Required Quantitation Limit.
3) Specific detection limits are highly matrix-dependent. The Quantitation Limits listed herein are provided for guidance and may not always be achievable.
4) Quantitation Limits listed for soil/sediment are based on wet weight. The Quantitation Limits calculated by the laboratory for soil/sediment, calculated on a dry-weight basis as required by the contract, will be higher.
5) CAS number is chemical abstract service number.

TABLE 2-3
TARGET COMPOUND LIST PESTICIDES/PCBs

Compound	CAS Number	Contract Required Quantitation Limits (CRQL)	
		Water (ppb)	Soil/Sediment (ppb)
alpha-BHC	319-84-6	0.05	1.7
beta-BHC	319-85-7	0.05	1.7
delta-BHC	319-86-8	0.05	1.7
gamma-BHC	58-89-9	0.05	1.7
Heptachlor	76-44-8	0.05	1.7
Aldrin	309-00-2	0.05	1.7
Heptachlor Epoxide	1024-57-3	0.05	1.7
Endosulfan I	959-98-8	0.05	1.7
Dieldrin	60-57-1	0.10	3.3
4,4'DDE	72-55-9	0.10	3.3
Endrin	72-20-8	0.10	3.3
Endosulfan II	33213-65-9	0.10	3.3
4,4'DDD	72-54-8	0.10	3.3
Endosulfan Sulfate	1031-07-8	0.10	3.3
4,4'DDT	50-29-3	0.10	3.3
Methoxychlor	72-43-5	0.50	17.0
Endrin Ketone	53494-70-5	0.10	3.3
Endrin Aldehyde	7421-36-3	0.10	3.3
alpha-chlordane	5103-71-9	0.05	1.7
gamma-chlordane	5103-74-2	0.05	1.7
Toxaphene	8001-35-2	5.0	170.0
PCB Aroclor-1016	12674-11-2	1.0	33.0
PCB Aroclor-1221	11104-28-2	2.0	67.0
PCB Aroclor-1232	11141-16-5	1.0	33.0
PCB Aroclor-1242	53469-21-9	1.0	33.0
PCB Aroclor-1248	12672-29-6	1.0	33.0
PCB Aroclor-1254	11097-69-1	1.0	33.0
PCB Aroclor-1260	11096-82-5	1.0	33.0

Notes:

1) Laboratory analysis procedures per U.S. EPA, 1990. *Organic Analysis for Multi-Media, Multi-Concentration, Statement of Work,* Revision 3/90. US Contract Laboratory Program. EPA/CLP, Washington, D.C.
2) Medium Concentration Soil/Sediment CRQLs for Pesticide/PCB TCL Compounds are 15 times the individual Low Concentration Soil/Sediment CRQL. The CRQL is the CLP Contract Required Quantitation Limit. The CRQL is the CLP Contract Required Quantitation Limit.
3) Specific detection limits are highly matrix-dependent. The Quantitation Limits listed herein are provided for guidance and may not always be achievable.
4) Quantitation Limits listed for soil/sediment are based on wet weight. The Quantitation Limits calculated by the laboratory for soil/sediment, calculated on a dry-weight basis as required by the contract, will be higher.
5) CAS number is chemical abstract service number.

reported estimated values by the laboratory.

Table 2-4 summarizes the target analyte list (TAL) parameters and contract-required detection limits (CRDLs) for inorganics. Actual laboratory detection limits are in most cases lower than the CRDLs listed in Table 2-4. Values reported between these limits are qualified with a B flag.

2.3 Surveying and Mapping

Methodologies and references used for surveying and mapping are described in subsections 2.3.1 and 2.3.2, respectively.

2.3.1 Surveying

Surveying for the project was provided by a licensed surveyor employed by Atlantic.

Elevations and coordinates were established for all monitoring wells and test borings. Twenty-five foot grid points were painted or staked in the field for the soil-gas surveys. Some deviations in the grid spacing were required due to site-specific conflicts, which were primarily utility-related.

All elevations are based on trigonometric leveling between established geodetic monuments. All vertical control was double-run to confirm final elevations. Elevations are accurate to Class V-2. The geodetic control is shown on a map titled, Base Traverse and Monuments, NAVFAC Drawing No. 2,037,619; Code Identification No. 80091; Size: F; Contract No. N62472-78-C-3422(ES), Sheet 1 of 2, prepared for the Department of the Navy by Kieltyka, Woodis & Pike Land Surveyors. The datum is mean low water, which is 1.41 ± feet below the standard USGS datum.

Locations are based on field methods that conform to the standards of a Class A-2 survey. The Connecticut State Plane Coordinate System was used based on the above-mentioned monumentation.

TABLE 2-4 TARGET ANALYTE LIST - INORGANICS	
Compound	**Contract Required Detection Limit (CRDL) Water (ppb)**
Aluminum	200
Antimony	60
Arsenic	10
Barium	200
Beryllium	5
Cadmium	5
Calcium	5,000
Chromium	10
Cobalt	50
Copper	25
Iron	100
Lead	3
Magnesium	5,000
Manganese	15
Mercury	0.2
Nickel	40
Potassium	5,000
Selenium	5
Silver	10
Sodium	5,000
Thallium	10
Vanadium	50
Zinc	20
Boron	500
Cyanide	10

Notes:

1) Laboratory analysis procedure per *Contract Laboratory Program Inorganic Analysis for Multi-Media, Multi-Concentration, Statement of Work*, Revision 3/90, U.S. Contract Laboratory Program, U.S. EPA, 1990.
2) Boron is not a TAL Compound under CLP and, therefore, the value reported is a method detection limit and not a CRDL.

2.3.2 Mapping

Map information (e.g., topography, buildings) was developed, based on maps of NSB-NLON, and prepared by Loureiro Engineering Associates, December 1980. These maps are scaled so that 1 inch = 40 feet; the maps have a two-foot contour interval.

AutoCAD™, a computer-aided design software package, was used to develop site plans, sampling plans, groundwater contour maps, and other data presentation plans. The base maps were digitized from the Loureiro Engineering Associates maps. Scales are noted on the plans; contour intervals are at two feet except as noted on the plans.

2.4 Soil-Gas Survey

Soil-gas surveys were conducted at both the Pier 33 and Berth 16/Former Incinerator sites. The purpose of the soil-gas survey is to detect and estimate the lateral extent and relative concentration of subsurface VOCs. This is accomplished by collecting and analyzing soil vapors for selected constituents that result from the volatilization of subsurface VOCs. Samples were collected at node locations of a 25-foot by 25-foot grid. Atlantic Technical Procedures 1052 and 1053 were followed in performing the soil-gas surveys.

2.4.1 Sample Collection and Analysis

The soil-gas survey was conducted using a Photovac Model 10S50 portable gas chromatograph (GC) with a capillary column and a photoionization detector. The daily GC conditions were as follows: oven temperature 40°C; column flow of 10 mls/minute-ultra zero air; gain of 50; and analysis time of 1500 seconds maximum.

The sample chromatograms were compared to the following standards, as appropriate:

- benzene 0.924 ppm in air
- ethyl benzene 0.975 ppm in air
- toluene 0.950 ppm in air
- m-xylene 0.968 ppm in air

- o xylene 0.950 ppm in air
- p-xylene 0.950 ppm in air
- trichloroethylene headspace standard
- tetrachloroethylene headspace standard

2.4.2 Data Utilization

Each chromatogram produced during the soil-gas survey was interpreted with respect to peak identification and relative quantitation. The peaks generated by each sample were identified by a retention time comparison to the known standards.

Soil-gas data were compiled using two different methods. Using the first method quantitation of peaks identified by retention time as benzene, toluene, ethyl benzene, or xylene is performed and gives the concentration of these compounds as ppm in air. Using the second method, quantitation of all peaks (including unknown peaks) is performed and gives the concentration in Volt seconds (Vs). The higher VOC concentration, the higher number of Vs it will produce. The following guidelines were established to classify ranges of concentration using the second method at the sites.

QUANTITATION OF SOIL GAS DATA	
Assigned Sample Concentration	**Range of Concentrations/ Peak Areas (Vs)**
None Detected	< 0.3
Trace	0.3 - 2.0
Low	2.1 - 50
Moderate	50.1 - 300
High	> 300

The soil-gas data tables for each site investigated are included in Appendix A. The tables list the retention times, peak areas (volt-seconds), ppm BTEX, and assigned sample concentration classifications (e.g., moderate) for each soil-gas component detected at the various sites. The sample concentration classification assigned for each sample is based upon the

dominant peak from each sample, denoted as the indicator peak. Based on previous experience with soil-gas surveys, moderate-to-high detections are most likely to be indicative of contamination. Soil-gas data were used as a screening tool for refinement of the boring program. Areas where total Vs concentrations were in the moderate-to-high- range are most likely to be indicative of contamination and were therefore considered as areas for boring relocation. The originally chosen locations for borings at the Pier 33 site were not affected by the soil gas results. The Berth 16/Former Incinerator boring program was revised, based on soil-gas results. Three boring locations were adjusted, as indicated in subsection 4.5.1.

Soil-gas data were also used to quantify benzene, toluene, ethylbenzene, and xylene concentrations in air, based on a comparison to known concentrations of these compounds in an air standard. The data were also considered in deciding boring placement.

2.5 Soils Investigation

This section describes the objectives, methodologies, and scope of work for sampling and analysis of test borings, surface soils, and sediments.

2.5.1 Test Borings

The objectives of the test-boring program were to characterize physical properties and classifications of subsurface soils, to identify potential areas of soil contamination, and to identify soil contaminants present.

In total, 22 test borings/monitoring wells were drilled at the Pier 33 and Berth 16/Former Incinerator sites. The drilling was performed in March and April of 1993 by the Columbia Environmental Drilling Company of Columbia, Connecticut. Atlantic personnel inspected the drilling, logged and screened soil samples, and collected samples for analysis.

The boring location for boring 20TB7 was moved from the location shown in the Plan

of Action due to an addition to Building 456 made subsequent to the survey on which the figures shown in the Plan of Action and this report are based. The boring (20TB7) was put as close as possible to the approximate location of the former dumpster washing operation.

At most locations, soil borings were extended to auger refusal or a maximum depth of 10 feet below the groundwater surface. Auger refusal does not necessarily confirm the top of bedrock elevation for the shallow monitoring wells or borings.

The borings were advanced with 4.25-inch (inner diameter) hollow-stem augers. Samples were collected continuously with a three-inch diameter, two-foot long, split-spoon sampler. Atlantic personnel logged physical characteristics such as color, density, lithology, and moisture, as well as any visual evidence of contamination (i.e., staining or sheen) according to Atlantic Procedure 1030. Each sample was screened with an HNu PI 101 Organic Vapor Analyzer. Select samples were also screened in the field for pH.

Atlantic personnel selected a total of 43 subsurface-soil samples from 22 of the borings/monitoring wells for laboratory analysis. It should be noted that, at the direction of the U.S. EPA Oversight Contractor, several days into the boring program a change in the soil sampling procedure was made regarding the 0 to 4 foot interval. The approved Work Plan specified that soils collected from the 0 to 2 foot and 2 to 4 foot intervals be composited with the exception of the VOCs, which would be collected from a discrete interval. The EPA Oversight Contractor stated that Atlantic should choose a sample from either the 0 to 2 foot or 2 to 4 foot interval for complete analysis using the criteria for selecting the VOC sample. The following borings were sampled according to the original approved Work Plan: 19TB2, 19MW4, and 19TB1; all other samples were collected as directed by the U.S. EPA Oversight.

Other samples were collected and evaluated for the visual presence of contamination and for pH screening.

Selection criteria, as specified in the Plan of Action, included the following:

- the highest HNu reading within the boring;
- visible contamination;
- geologic characteristic (e.g., change in stratigraphy or grain size); and
- lacking organic vapors, visible contamination, or any geologic characteristic representative of intervals where contaminants might accumulate, a soil sample was collected immediately above or at the water table.

Samples collected from the 0 to 4 foot interval were chosen according to the following criteria:

- the highest HNu reading;
- visible contamination;
- geologic characteristic (e.g., change in stratigraphy or grain size); and
- lacking organic vapors, visible contamination, or any geologic characteristic representative of intervals where contaminants might accumulate, the sample was collected at random.

Some or all of the following parameters were analyzed for: VOCs, SVOs, inorganics, pesticides, PCBs, dioxin, total petroleum hydrocarbons (TPH), fluorescence oil identification, and pH. Selected soil samples were also analyzed for metals by Toxicity Characteristic Leachate Procedure (TCLP). Specific analyses performed and soil-sampling intervals are provided for each site in Table 2-5.

Test boring logs are provided in Appendix B. The test boring logs provide the physical characteristics and soil classification, density information, observations of visual contamination, and organic vapor-screening results.

TABLE 2-5
SUMMARY OF SOIL SAMPLING PROGRAM
PIER 33 AND BERTH 16/FORMER INCINERATOR

Sample ID	Sample Depth	Sample Selection Rationale or Comments	Lead Only	Dioxin	Grain Size	VOC	SVO	Inor-ganics	Pesti-cides	PCB	TCLP Metals	TPH	Fluore-scence	pH
						Pier 33								
19TB1	0-4	Composite (0-2) and (2-4) as specified in Work Plan					●	●	●	●				
	0-2	Discrete interval for VOCs selected at random				●								6.8
	2-4													6.5
	4-6													6.5
	6-8	Highest HNu reading in boring (2.0 ppm)				●	●	●	●	●	●	●	●	6.3
	8-10													6.9
	10-12													6.8
	12-14													7.6
	14-16													6.3
19TB2	0-4	Composite (0-2) and (2-4) as specified in Work Plan					●	●	●	●				
	0-2	Discrete interval for VOCs selected at random				●								6.9
	2-4													6.8
	4-6													6.5
	6-8	Highest HNu reading in boring (17.0 ppm)				●	●	●	●	●	●	●	●	6.8
	8-10													6.6
	10-12													6.8
	12-13.5													6.7
19TB3	0-2													7.6
	2-4	HNu reading 4.0 ppm				●	●	●	●	●				7.6
	4-6													6.3
	6-8													6.9
	8-10													7.6
	10-12	Change in lithology				●	●	●	●	●	●	●	●	6.7
	12-13													NA
19TB4	0-4	Composite (0-2) and (2-4) as specified in Work Plan	●				●	●	●	●				6.7
	0-2	Discrete interval for VOCs selected at random				●								
	2-4	Sampled for lead only as specified in Work Plan	●											6.4
	4-5.7	Apparent bedrock interface; sample is at water table	●			●	●	●	●	●	●	●	●	6.4

TABLE 2-5 (continued)
SUMMARY OF SOIL SAMPLING PROGRAM
PIER 33 AND BERTH 16/FORMER INCINERATOR

Sample ID	Sample Depth	Sample Selection Rationale or Comments	Lead Only	Dioxin	Grain Size	VOC	SVO	Inor-ganics	Pesti-cides	PCB	TCLP Metals	TPH	Fluore-scence	pH
19MW1	.25-2.25	Interval above auger refusal and water table			●		●	●	●	●	●	●	●	5.33
	1.75-2.25	Discrete interval for VOCs as specified in Work Plan				●								
19MW2	0-2													6.9
	2-4	Interval above water table				●	●	●	●	●				6.6
	4-5.75	Interval above bedrock only sample available			●	●	●	●	●	●	●	●	●	6.7
19MW3	0-2	Best recovery of 0-4 interval				●	●	●	●	●				NA
	2-4													6.24
	4-6	Highest HNu reading in boring (50 ppm)			●	●	●	●	●	●	●	●	●	NA
	6-6.6													5.34
19MW4	0-4	Composite (0-2) and (2-4) as specified in Work Plan					●	●	●	●				NA
	0-2													6.9
	2-4	Discrete interval for VOCs; highest HNu reading of 0-4' interval (10 ppm)				●								6.5
	4-5.75	Highest HNu reading of boring (10 ppm)			●	●	●	●	●	●	●	●	●	6.8
19SS1	0-6"	Strong petroleum odor and stain				●	●	●	●	●	●	●	●	6.37
19SD1	0-6"	Slight petroleum odor				●	●	●	●	●		●	●	6.57
19SD2	0-6"	Slight petroleum odor				●	●	●	●	●		●	●	6.99
Berth 16/Former Incinerator														
20TB1	0-2													8.75
	2-4	Sample selected at random as specified in Work Plan				●	●	●	●	●				7.62
	4-6													7.44
	6-8	Sample selected based on dark staining observed				●	●	●	●	●	●	●	●	7.46
	8-10													7.18
	10-12													7.34
	12-14													7.13
	14-16													6.96
20TB2	0-2													7.44
	2-4	Highest HNu reading of 0-4' interval (4.0 ppm)				●	●	●	●	●				8.06
	4-6													7.20

TABLE 2-5 (continued)
SUMMARY OF SOIL SAMPLING PROGRAM
PIER 33 AND BERTH 16/FORMER INCINERATOR

Sample ID	Sample Depth	Sample Selection Rationale or Comments	Lead Only	Dioxin	Grain Size	VOC	SVO	Inor-ganics	Pesti-cides	PCB	TCLP Metals	TPH	Fluore-scence	pH
20TB2 (cont'd)	6-8													7.51
	8-10													7.88
	10-12													7.85
	12-14													7.42
	14-16	Highest HNu reading in boring (11.0 ppm), slight petroleum odor				●	●	●	●	●	●	●	●	7.62
20TB3	0-2													7.99
	2-4	Interval above water table				●	●	●	●	●				7.65
	4-6													7.96
	6-8													7.76
	8-10													7.20
	10-12	Highest HNu reading in boring (10.5 ppm)				●	●	●	●	●	●	●	●	7.27
	12-14													-
	14-14.5													-
20TB4	0-2	Highest HNu reading of 0-4' interval (9.0 ppm)				●	●	●	●	●				7.95
	2-4													7.42
	4-6	Good ash sample obtained		●										7.65
	6-8													6.75
	8-10													6.90
	10-12													6.62
	12-14													7.07
	14-16	Highest HNu reading in boring (6.0 ppm), also petroleum odor and sheen				●	●	●	●	●	●	●	●	-
20TB5	0-2	Good recovery, split with U.S. EPA; highest HNu reading of 0-4; interval (6.5 ppm)		●		●	●	●	●	●				-
	2-4													7.73
	4-6	Highest HNu reading from 4-14' interval (5.0 ppm)				●	●	●	●	●	●	●	●	7.71
	6-8													7.13
	8-10													7.61
	10-12													7.53
	12-14													7.80

TABLE 2-5 (continued)
SUMMARY OF SOIL SAMPLING PROGRAM
PIER 33 AND BERTH 16/FORMER INCINERATOR

Sample ID	Sample Depth	Sample Selection Rationale or Comments	Lead Only	Dioxin	Grain Size	VOC	SVO	Inor-ganics	Pesti-cides	PCB	TCLP Metals	TPH	Fluore-scence	pH
20TB6	0-2	Sample selected at random as specified in Work Plan		●		●	●	●	●	●				8.03
	2-4													7.80
	4-6													7.50
	6-8													7.60
	8-10	Best recovery in water table, possible petroleum odor		●		●	●	●	●	●	●	●	●	6.24
	10-12													NA
	12-14													6.92
	14-14.25													
20TB7	0-2													8.22
	2-4													8.30
	4-4.6													NA
	(32-42")	Change from sand and gravel to coarse sand				●	●	●	●	●				
	(48-52")	Discrete VOC sample interval				●								
	(48-56")	Interval above refusal, just at the water table					●	●	●	●	●	●	●	
20MW1	0-2													5.25
	0.5-2.5	Interval above refusal/water table			●		●	●	●	●	●	●	●	
	2.0-2.5	Discrete VOC sample interval				●								5.36
20MW2	0-2	Highest HNu of 0-4' interval (4.0 ppm)				●	●	●	●	●				7.67
	2-4													NA
	4-6													7.72
	6-8													NA
	8-10													NA
	10-12													7.48
	12-14													7.24
	14-16	Second highest HNu reading in boring (11.0 ppm) interval above refusal (highest reading was 19.0 ppm but soil was possibly washback)			●	●	●	●	●	●	●	●	●	NA
20MW3	0-2													7.65
	2-4	Sample collected randomly from 0-4' interval as specified in Work Plan; moderate solvent odor				●	●	●	●	●				7.88

TABLE 2-5 (continued)
SUMMARY OF SOIL SAMPLING PROGRAM
PIER 33 AND BERTH 16/FORMER INCINERATOR

Sample ID	Sample Depth	Sample Selection Rationale or Comments	Lead Only	Dioxin	Grain Size	VOC	SVO	Inor-ganics	Pesti-cides	PCB	TCLP Metals	TPH	Fluore-scence	pH
20MW3 (cont'd)	4-6													5.79
	6-8													8.22
	8-10	Sample collected based on heavy petroleum odor and visible contamination (sheen)			●	●	●	●	●	●	●	●	●	NA
	10-12													7.38
	12-14													7.54
	14-16													NA
20MW4	0-2													7.26
	2-4	Highest HNu reading in boring (27.0 ppm) slight petroleum odor				●	●	●	●	●				8.00
	4-6	Interval at water table and also second highest HNu reading of 6.0 ppm (highest reading was 7.0 ppm with less sample recovery)			●	●	●	●	●	●	●	●	●	7.37
	6-8													NA
	8-10													7.21
	10-12													8.00
	12-14													7.54
	14-16													7.35
20MW5	0-2	Sample selected randomly from 0-4' interval HNu were 1.5 ppm for 0-2' and 1.8 ppm for 2-4')		●		●	●	●	●	●				7.82
	2-4													8.03
	4-6													10.09
	6-8	Sample collected based on visual contamination, also third highest HNu sample selected based on sample recovery (highest HNu was 13.0 ppm off piece of stained wood; second highest 2.0 ppm but poor sample recovery)			●	●	●	●	●	●	●	●	●	7.81
	8-10													9.66
	10-12													9.86
	12-14													7.80
	14-16													
20MW6	0-2													8.15

TABLE 2-5 (continued)
SUMMARY OF SOIL SAMPLING PROGRAM
PIER 33 AND BERTH 16/FORMER INCINERATOR

Sample ID	Sample Depth	Sample Selection Rationale or Comments	Lead Only	Dioxin	Grain Size	VOC	SVO	Inor-ganics	Pesti-cides	PCB	TCLP Metals	TPH	Fluore-scence	pH
20MW6	2-4	Best sample recovery of 0-4' interval sample selected randomly		●		●	●	●	●	●				7.33
(cont'd)	4-6													7.77
	6-8													NA
	8-10													7.02
	10-12													NA
	12-14	Highest HNu reading in boring (6.2 ppm)			●	●	●	●	●	●	●	●	●	7.60
	14-16													7.70
20MW7	0-2													8.10
	2-4	Interval above water table, second highest HNu sample in boring (10.0 ppm)		●		●	●	●	●	●				7.09
	4-6	Moderate petroleum odor, Highest HNu sample from 4-14' interval (7.0 ppm)			●	●	●	●	●	●	●	●	●	7.08
	6-8													7.17
	8-10													7.38
	10-12													7.74
	12-14													7.60
20SD1	(0-6")	Slight organic odor, sheen on water				●	●	●	●	●		●	●	7.45
20SD2	(0-6")	Slight organic odor, sheen on water				●	●	●	●	●		●	●	7.30

2.5.2 Surface Soils

Surface-soil sampling was limited to one sample at the Pier 33 and designed to screen for contamination within the upper six inches of stained soil on the south side of Building 175. Surface soils represent a potential human health risk due to the possibility of direct contact, ingestion and/or inhalation of soils by on-site workers, maintenance or construction crews, and site visitors. The surface-soil sampling location was selected because of visual evidence of staining in the area. The surface-soil sample was collected from the Pier 33 site as specified in Atlantic Procedure 1020. A discrete sample was collected from 0-6 inches in depth. Atlantic personnel collected the samples with a 6-inch, stainless steel hand-auger and stainless steel spoons.

Table 2-5 provides a listing of the laboratory analytical parameters.

2.5.3 Sediments

The objective of sediment sampling was to determine if measurable quantities of contaminants from the site are present in storm drains, which may transport potential contaminants off-site to the Thames River. Atlantic personnel collected two sediment samples from storm drains at each of the Pier 33 and Berth 16/Former Incinerator sites.

Atlantic personnel collected the on-site sediment samples in April of 1993. Atlantic Procedure 1022 was followed for the collection of sediment samples. The samples were screened in the field, logged, and then sent to the laboratory to be analyzed for VOCs, SVOs, pesticides, PCBs, inorganics, TPH, and fluorescence (oil fingerprint).

2.6 Groundwater Investigation

The goals of the groundwater investigation were to characterize the groundwater quality beneath, upgradient and downgradient of each site. Nine groundwater monitoring wells were

installed. These nine wells were sampled and analyzed for some or all of the following: VOCs, SVOs, pesticides, PCBs, inorganics, TPH, fluorescence, and pH.

2.6.1 Monitoring Well Installation

A total of nine groundwater monitoring wells were installed at NSB-NLON. Table 2-6 summarizes well construction information by site. The table provides the elevation of the top and bottom of each well, screened interval elevation, water table, depth elevation, bedrock elevation (if encountered), screen length, and well type. Two of the wells proposed in the Work Plan were not installed. The two wells not installed, 19MW1 and 20MW1, were the upgradient wells for each site (i.e., Pier 33 and Berth 16/Former Incinerator). These wells were proposed as overburden wells and were not installed due to the lack of any groundwater in the overburden materials at both of these locations.

The Columbia Environmental Drilling Company installed the monitoring wells during March and April 1993. Atlantic personnel inspected the installation of the wells and logged soils and well construction details.

Overburden monitoring wells were installed by the hollow stem auger method using 4.25-inch (inner diameter) augers. During installation of the shallow wells, soil samples were collected continuously with a split spoon as described in Section 2.5.1. The wells were installed using two inch, Schedule 40 PVC riser and a two-inch PVC screen with 0.01-inch slots. Screen length is 10 feet except where noted. The placement of the screen was designed to intersect the top of the groundwater table. The annular space surrounding the screened interval was filled with outwashed Ottawa sand up to two feet above the top of the screen when possible; however, due to shallow groundwater, sand was typically no more than one foot above the top of the screen. A one-foot bentonite seal was placed above the sand. The remainder of the annular

TABLE 2-6
SUMMARY OF MONITORING WELL INFORMATION

Well ID	Well Type	Screen Length	Ground Surface Elevation	Bedrock Elevation	Elevation of Well Bottom	Top of Well Casing Elevation	Depth to Water	Elevation of Water	Elevation of Screened Interval	
									Bottom	Top
Pier 33										
19MW2	Overburden	4.0	7.28	1.5	1.5	6.98	4.03	2.95	1.5	5.5
19MW3	Overburden	4.0	7.18	0.9	0.9	6.89	3.88	3.01	0.9	4.9
19MW4	Overburden	4.0	7.33	1.6	1.6	7.09	3.92	3.17	1.6	5.6
Berth 16/Former Incinerator										
20MW2	Overburden	10.0	7.96	NA	-4.54	7.74	4.81	2.93	-4.54	5.46
20MW3	Overburden	10.0	6.83	NA	-5.67	6.66	3.98	2.68	-5.67	4.33
20MW4	Overburden	10.0	8.29	NA	-5.71	8.09	4.81	3.28	-5.71	4.29
20MW5	Overburden	10.0	6.79	NA	-6.71	6.46	2.98	3.48	-6.71	3.29
20MW6	Overburden	10.0	10.19	NA	-3.81	10.02	6.38	3.64	-3.81	6.19
20MW7	Overburden	10.0	6.18	NA	-6.32	5.96	2.67	3.29	-6.32	3.68

space was backfilled with cement-bentonite grout.

Construction details for each well are included in the boring logs, which are provided in Appendix B.

2.6.2 Monitoring Well Development

The purpose of well development is to restore the natural hydraulic conductivity of the subsurface materials surrounding a monitoring well and to ensure a low turbidity groundwater sample.

Atlantic personnel developed overburden monitoring wells using the surge block method in accordance with Atlantic Procedure 1070. A Honda centrifugal pump and a two inch (O.D.) teflon surge block were used for development. Each well was developed for a maximum of four hours or until the water remained clear after 20 strokes of the surge block. A turbidity meter was used to measure the clarity of the well water after surging; a value of 50 NTUs or less, measured ten minutes after surging, was considered adequately clear.

2.6.3 Groundwater Sampling

Atlantic personnel collected one round of groundwater samples from each of the nine wells installed for this investigation. Groundwater samples were analyzed for a variety of parameters including the following: VOCs, SVOs, pesticides, PCBs, inorganics (total and dissolved), TPH, and fluorescence. The sampling was performed in April 1993. Table 2-7 provides sample-specific analytical parameters; results are presented and discussed in Section 4.0.

TABLE 2-7
GROUNDWATER SAMPLING PARAMETERS

Sample ID	Laboratory Analyses[1]								
	VOC	SVO	Inorganics		Pesticides	PCBs	TPH	Fluorescence	pH
			Total	Dissolved					
Pier 33									
19MW2	•	•	•	•	•	•	•	•	6.8
19MW3	•	•	•	•	•	•	•	•	6.3
19MW4	•	•	•	•	•	•	•	•	6.5
Berth 16/Former Incinerator									
20MW2	•	•	•	•	•	•	•	•	6.7
20MW3	•	•	•	•	•	•	•	•	7.2
20MW4	•	•	•	•	•	•	•	•	7.5
20MW5	•	•	•	•	•	•	•	•	8.6
20MW6	•	•	•	•	•	•	•	•	6.4
20MW7	•	•	•	•	•	•	•	•	6.8

Notes:
1) VOC — Volatile Organic Compounds
2) SVO — Semivolatile Organic Compounds
3) Inorganics — Metals, cyanide, and boron
4) PCBs — Polychlorinated biphenyls
5) TPH — Total Petroleum Hydrocarbons

Wells were sampled according to Atlantic Procedure 1023. All overburden wells were purged and sampled with a peristaltic pump outfitted with disposable teflon tubing. VOC samples were collected using single-use Teflon bailers. All groundwater samples were collected at least two weeks after well development occurred.

Prior to the extraction of any groundwater, the depth to water was measured to the nearest 0.01 foot, using a Solinst electronic water-level indicator. If the depth of the well was unknown, the bottom was also sounded. The well volume was then calculated using such data. A minimum of three well volumes were purged while measuring pH, temperature, and conductivity at regular intervals. After the evacuation of the three well volumes, the sample was collected when these three parameters stabilized to within five percent fluctuation. In wells where a peristaltic pump was used for purging, the pump and tubing were used to collect

nonvolatile samples. Following the collection of the last nonvolatile sample, the peristaltic pump tubing was removed from the well and the VOC sample was collected with a single-use teflon bailer. All samples for dissolved metals analysis were field-filtered with an in-line 0.45 micron filter.

2.7 Quality Assurance/Quality Control (QA/QC)

This project was conducted in accordance with the approved Quality Assurance/Project Plan (QAPP), prepared by PACE and dated February 1993. Development of the QAPP was based on guidance provided in *Sample and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program,* NEESA 20.2-047B. The program implemented at the Subase was performed under NEESA Level D Guidelines. This is equivalent to Data Quality Objective (DQO) Level 4 as defined by the U.S. EPA. Level D requires the use of CLP analytical and validation procedures.

Data validation reports are provided in Appendix C. The Quality Assurance/Quality Control (QA/QC) program is summarized in subsections 2.7.1 through 2.7.3.

2.7.1 Field Quality Control (QC) Samples

The QA/QC specified the collection of field duplicates, referee duplicates, trip blanks, field blanks, and equipment rinsates. Matrix spike and matrix spike duplicates were also analyzed as a part of laboratory QA/QC. Quality control samples, specified frequencies to be collected, and actual sample quantity collected as part of this investigation are summarized in Table 2-8.

TABLE 2-8 SUMMARY OF QA/QC SAMPLES		
Sample Type	**Specified Frequency**	**Actual Sample Quantity**
Field Duplicates	10% per matrix	8
Referee Duplicates	As determined by U.S. EPA	8
Equipment Rinsates	Collect one per day, analyze every other day. Analyze remaining samples if pertinent analytes are found in the rinsates.	10
Trip Blanks	One per cooler containing VOC samples.	12
Field Blanks	One per source of decontamination and drilling water.	2

Notes:
1) Matrix spikes and matrix-spike duplicates were performed at a frequency of 5% per matrix for organic analyses.
2) Matrix spikes and duplicates were performed at a frequency of 5% per matrix for inorganic analyses.

The referee duplicates were collected by an EPA oversight contractor. To date, final results of the referee duplicate analyses have not been received; however, the U.S. EPA has indicated that preliminary results are acceptable. The trip blanks contained deionized laboratory water. The equipment rinsates consisted of distilled water utilized as a final rinse during decontamination procedures. The field blanks were samples of driller's water and water used during equipment decontamination.

The trip blanks contained low levels of volatile organics, but did not demonstrate any significant problems. The equipment rinsates were found to contain low levels of volatile organics and metals and therefore caused some results to be qualified as nondetected.

Matrix spikes and matrix-spike duplicates were analyzed for volatiles, semivolatiles, and pesticides/PCBs at a frequency of one in 20 samples of similar matrix or one per batch of samples sent to the laboratory, whichever was greater. Soil batch QC was performed for all but the volatiles analysis. A duplicate and a matrix spike is required to be analyzed for every 20 samples of similar matrix, or one per batch of samples. However, in one soil sample delivery group these analyses were not performed. Possible matrix interference and precision and accuracy could not be evaluated; all inorganic soil results were therefore estimated for this

batch. The duplicate and matrix spike analyses frequency for all other sample delivery groups was acceptable.

Upon review of the validation reports covering 25 percent of the project samples, several common laboratory and/or field contaminants are seen. The contaminant levels should be considered upon review of the invalidated sample results. Sample levels below the contaminant action levels should be considered as nondetected. The following are common laboratory contaminants: methylene chloride, acetone, toluene, total xylenes, and boron.

2.7.2 Data Validation

Data validation involved the checking of laboratory-generated forms and raw data for laboratory and field sample quality control, standards results, matrix effects, and assigning the data qualifiers if appropriate. A total of 25 percent of the data generated was validated under Navy Level D requirements (DQO Level 4) as presented in the NEESA document entitled *Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program,* NEESA 20.2-047B.

The resulting data qualifiers were transcribed onto the laboratory data base and subsequently added to any data tables generated. A summary of the data qualifiers is provided in Table 2-9. As indicated in Table 2-9, two sets of data qualifiers are presented in the report analytical summaries, and both sets of qualifiers are presented in the data summaries in Appendix D. Only 25 percent of the data was validated; therefore, 25 percent of the data has data validation qualifiers, and 75 percent of the data has laboratory analytical data qualifiers.

It is important to note that there are a variety of reasons for estimating or rejecting data. Reasons for qualification of data are discussed in further detail in Appendix C.

TABLE 2-9 DATA QUALIFIERS	
Laboratory Data Qualifiers	
A	(semi-volatiles) The tentatively identified compound is a suspected aldol-condensation product.
B	(organics) Compound was detected in the associated blank.
B	(inorganics) Compound concentration is between the instrument detection limit and the CRDL.
C	GC result was confirmed by GC/MS.
D	On a Form 2: surrogate was diluted out.
E	Compound was detected above the upper limit of the instrument calibration.
I	Interference prevents quantitation.
J	Compound concentration is an estimate. Either the compound was positively identified at a trace value, or it is a nontarget for which no calibration was performed.
N	The identification given for the GC/MS nontarget compound is based on presumptive evidence (mass-spectral matching) only.
P	There is greater than a 25% concentration difference between quantitation on the primary and confirmatory GC columns. The lower value was reported.
U	Compound was analyzed for but not detected at the listed concentration.
X-Z	Qualifiers with definitions explained in the narrative.
Validated Data Qualifiers	
J	Estimated value.
U	Non-detected.
R	Rejected result based on data validation guidelines.

2.7.3 Data Quality Objectives

Data validation was used to evaluate whether the data quality objectives (DQO) for all measurements (field and laboratory) had been reached. The DQOs include considerations of precision, accuracy, and completeness, as summarized in the following paragraphs of this subsection. Appendix C summarizes the qualifications made to the analytical data.

Precision is a test of the repeatability of a measurement, and it is based upon the results of field or laboratory duplicates. Precision is considered acceptable if the relative percent difference (RPD) between two duplicate samples is within ±30 percent (aqueous samples) or ±50 percent (soil samples). RPDs were calculated as part of the data validation process. Because duplicate soil analyses were not performed in one sample delivery group for inorganic

analyses, all of the positive results in this group were estimated. Therefore, nine percent of the validated analytical results were estimated due to precision.

Accuracy of analysis was determined by the evaluation of matrix spike and matrix spike-duplicate samples of known quantities. The degree of accuracy and recovery of an analyte expected for the analysis of QA samples and spiked samples is dependent upon the matrix, method of analysis, and compound or element being determined in the analysis. Unless otherwise specified, the QC objective for accuracy is a recovery of 75 to 125 percent. Accuracy calculations, prepared by the laboratory, are provided in the laboratory analytical package. Analytes exhibiting values lower or higher than this range were estimated in associated samples. Soil sample results for inorganic analysis in one sample delivery group were estimated because matrix spike data were not submitted. No results were rejected based on accuracy considerations.

Completeness is a measurement of valid data obtained relative to the total amount of data generated. The QC objective for data completeness, as a percentage of valid data reported, was equal to or more than 90 percent. Only 0.3% of all data was rejected, corresponding to a completeness of 99.7%.

Based upon consideration of precision, accuracy, and completeness, the data quality objectives for this project were met or exceeded.

3.0 PHYSICAL CHARACTERISTICS OF THE STUDY AREA

This section describes the characteristics of the subject site study area, including topography, soils, geology, hydrology, climatology, and demography. Detailed, site-specific discussions (i.e., for both the Pier 33 and the Berth 16/Former Incinerator sites) are provided, addressing geological and hydrogeological characteristics. The hydrogeology subsection includes an evaluation of groundwater flow direction.

3.1 Topography

The land around NSB-NLON is a series of low bedrock ridges that trend generally north-to-south. Lowlands between the ridges are commonly wetlands and poorly drained stream valleys. The Thames River, adjacent to the west of NSB-NLON, is flanked by glacially derived terrace deposits and more recent flood-plain deposits.

The topography of NSB-NLON (see Figure 1-3) is dominated by bedrock ridges in the northern (elevation 180 feet MSL) and central (elevation 230 feet MSL) portions of the site as well as an off-site ridge (Baldwin Hill, elevation 245 feet MSL) that is located adjacently east of the site. The low-lying area (elevation 50 feet MSL) between these ridges slopes to the west (USGS, 1984). The eastern portion of this area is a wetland (Area A), which drains through an earthen dike into an area that is thirty-to-forty feet below the elevation of the wetland. A review of historical topographic maps and other historical information suggests that the construction of the dike in 1957, and the subsequent filling of the area east of the dike with sediments dredged from the Thames River, contributed to this difference in elevation.

The southern and western portions of NSB-NLON are generally flat with sparse bedrock outcrops.

The topography in several areas of the site has been altered by landfilling and quarrying.

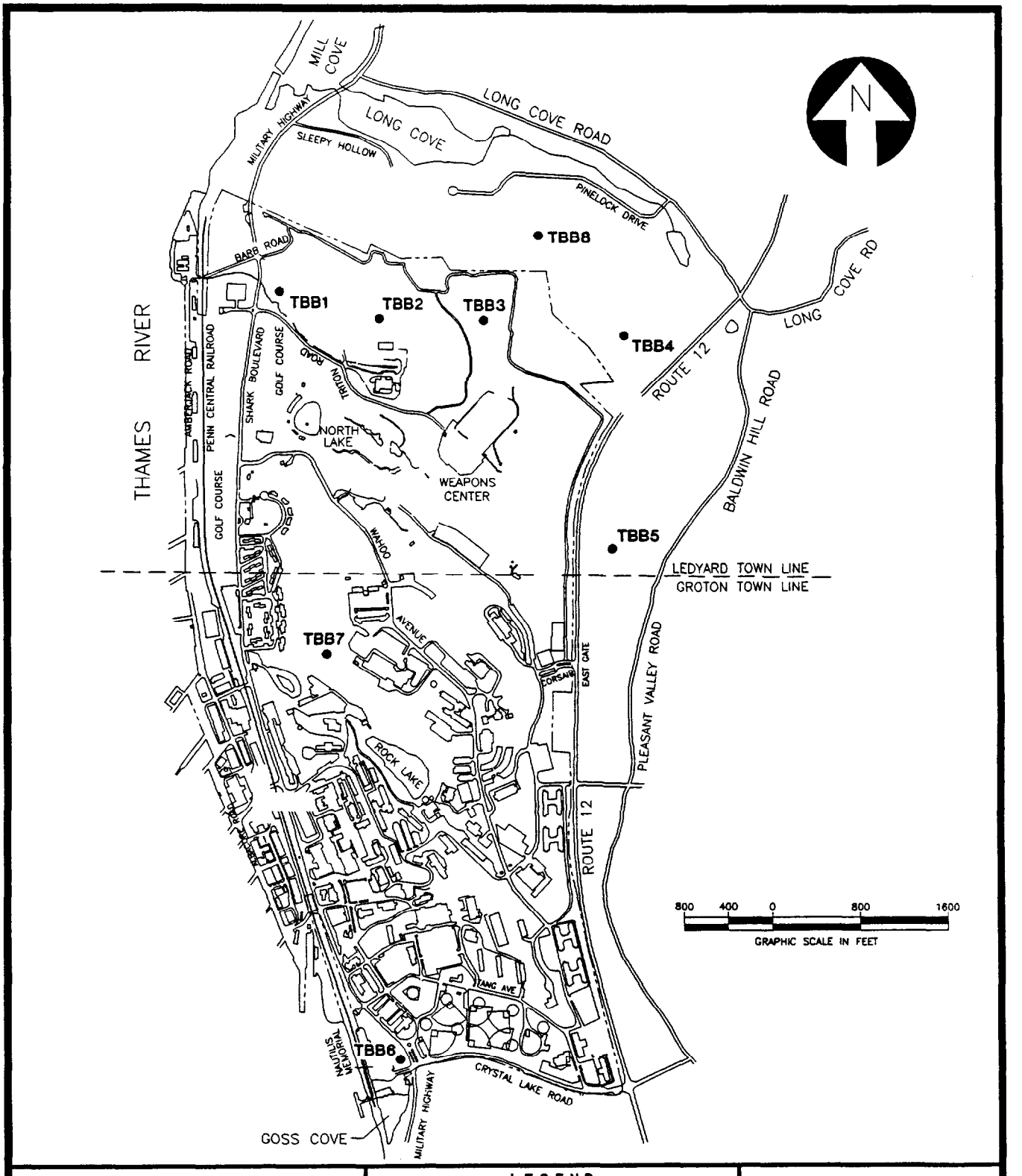
A review of topographic maps from 1893, 1938, 1939, and 1952 and other historical information provided the following information.

The Lower Subase, which includes the Pier 33 and Berth 16/Former Incinerator sites, is built primarily on fill material. A review of 1893 and 1938 topographic maps and 1934 aerial photographs shows that the original pier was constructed on a parcel of land that protruded into the Thames River. As more buildings and piers were added, fill material was also added. Subsurface, soil-sampling information from previous investigations indicate that the fill consists of clean sand and gravel. Fill is thickest (20 feet) on the west side of the Lower Subase, adjacent to the bulkhead. The fill thins to the east.

3.2 Soils

Figure 3-1 is a soils map of NSB-NLON prepared by the Soil Conservation Service (SCS, 1983). In general, soils at NSB-NLON have moderate to moderately rapid permeability according to the SCS information. Available water capacity is moderate to low, and runoff is rapid or very rapid. The pH is strongly-to-moderately acidic. Erosion hazard is severe. The Pier 33 site is mapped as Udorthents-Urban Land, and the Berth 16/Former Incinerator site is mapped as Urban Land. Figure 3-1 shows which soil classifications are found at each of the sites at NSB-NLON.

Regarding SCS soil descriptions, the following is noted: (a) SCS soil grain size ranges are different from those used in geological and engineering practices; (b) SCS descriptions are only based upon the first five feet of soil from the surface; and (c) descriptive permeability ranges for a given soil type correspond to specific numerical values. A detailed description of each soil type follows (SCS, 1983).



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND ● TBB7 – TEST BORING	FIGURE 3-1 BACKGROUND SAMPLING LOCATIONS ATLANTIC ENVIRONMENTAL SERVICES, INC.

3.2.1 Ud - Udorthents-Urban Land, 0-15 Percent Slopes

This complex consists of excessively drained to moderately well drained soils that have been disturbed by cutting and filling, along with areas that are covered by buildings or pavement. Mapped acres are mostly 5 to 40 acres in size. About 60 percent of the complex is Udorthents, 25 percent is urban land, and 15 percent is other soils.

Some areas of Udorthents have been cut to a depth of two feet or more, and some have been covered with more than two feet of fill. Permeability of the Udorthents is slow to very rapid. The available water capacity and runoff are variable.

Urban land consists mainly of areas of developed or disturbed land.

3.2.2 Ur - Urban Land

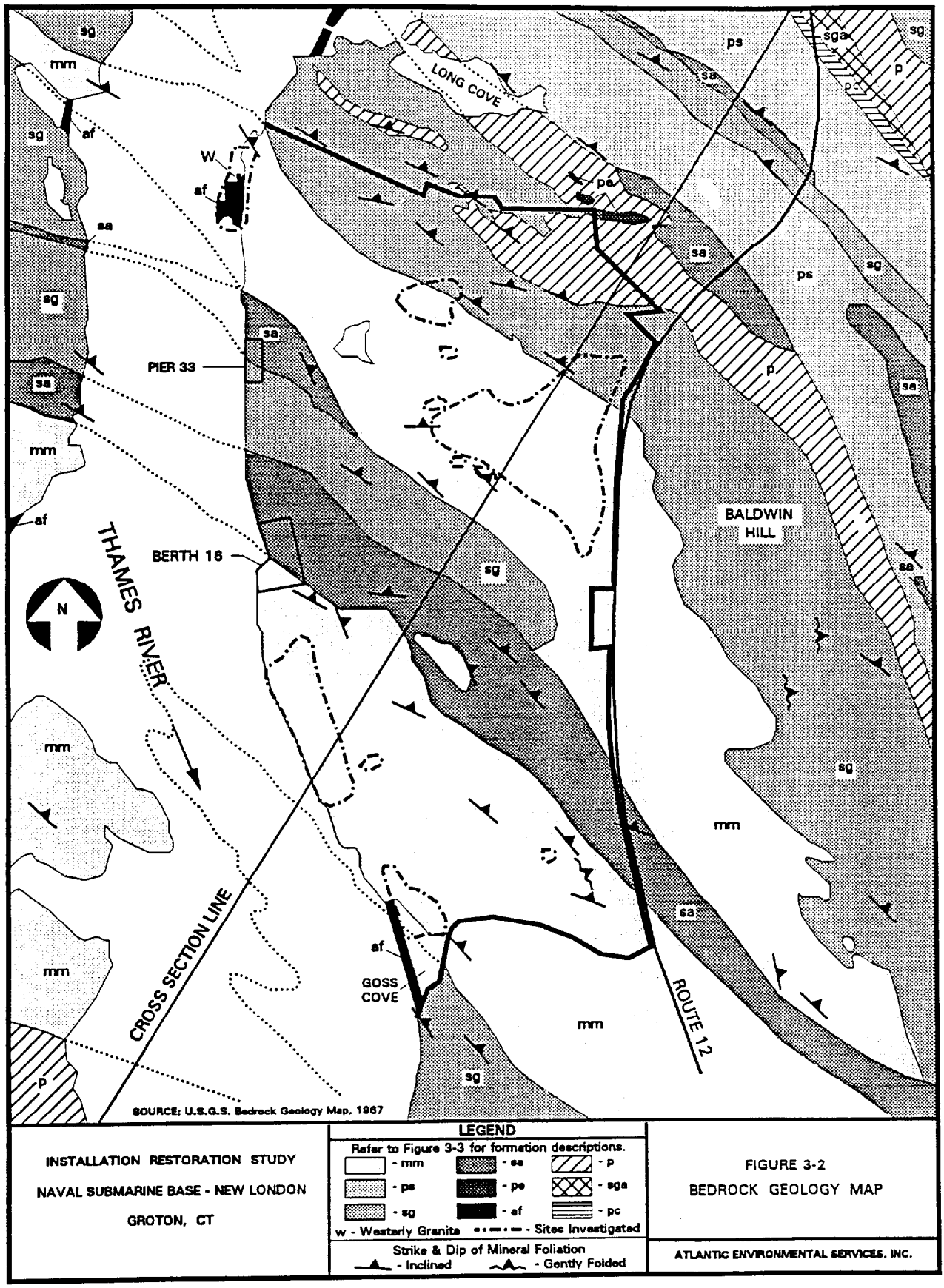
This group consists of land where more than 85 percent of the surface is covered by streets, parking lots, buildings, and other structures. Most urban land is in densely populated areas and units are 5 to 30 acres in size.

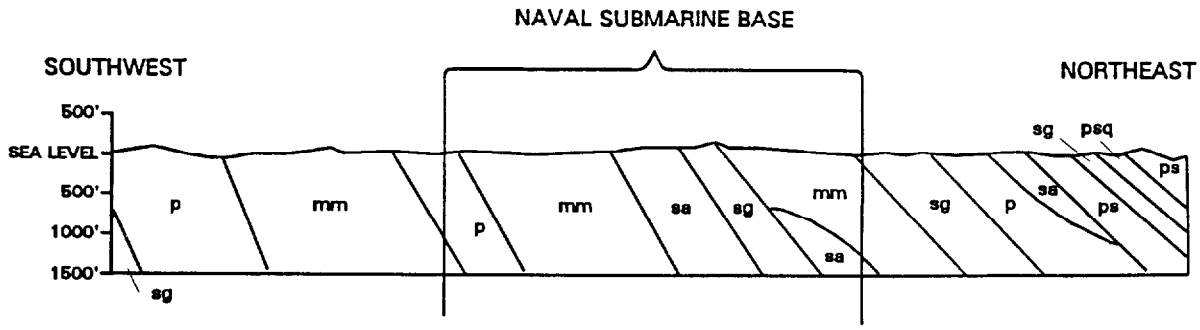
Most of the underlying soils have been altered by excavating or have been covered with fill material.

3.3 Bedrock Geology

Information regarding the geology of the site and surrounding area is based on data published by the United States Geological Survey (USGS, 1967).

According to the USGS Bedrock Geologic Map (USGS, 1967), the bedrock at NSB-NLON can be divided into three age groups: Pre-Silurian, Pre-Pennsylvanian, and Pennsylvanian or younger. The local bedrock contains a complex series of folds, faults, anticlines and synclines. Figure 3-2 shows the bedrock geology of NSB-NLON which includes the Pier 33 and Berth 16/Former Incinerator sites. Figure 3-3 presents a generalized geologic cross-section of the NSB-NLON area.


LONG COVE
PIER 33
BERTH 16
THAMES RIVER
N
BALDWIN HILL
GOSS COVE
CROSS SECTION LINE
ROUTE 12
W
sg
mm
af
sa
ps
sga
p
pe
SOURCE: U.S.G.S. Bedrock Geology Map, 1967
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT
LEGEND
Refer to Figure 3-3 for formation descriptions.
- mm
- sa
- p
- ps
- pe
- sga
- sg
- af
- pc
w - Westerly Granite
- Sites Investigated
Strike & Dip of Mineral Foliation
- Inclined
- Gently Folded
FIGURE 3-2
BEDROCK GEOLOGY MAP
ATLANTIC ENVIRONMENTAL SERVICES, INC.



Cross-section location shown on Figure 3-2

Legend

Alaskite gneiss

sa - orange-pink to light-grey, fine to medium-grained, equigranular gneissic granite composed of about equal amounts of quartz, microcline and albite to sodic oligoclase, and about 1 percent magnetite or as much as 2 percent magnetite and biotite.

Granite gneiss

sg - orange-pink to light-grey, medium-grained, gneissic biotite granite, main constituents quartz - microcline oligoclase with 2-7 percent biotite and iron oxides. Locally contains muscovite and garnet; somewhat uneven in mineral distribution. Foliation typically marked by parallelism of alternate flat lenses of quartz and feldspars, and parallelism of biotite flakes. Biotite tends to be concentrated on surfaces between lenses. Some masses have slightly coarser grained streaks rich in orange-pink microcline in finer grained grey quartz-microcline-plagioclase rock. Locally mafic-poor similar to biotitic phases of the alaskite gneiss (sob).

Mamacoke Formation

mm - indistinctly layered light-to-darkgrey, biotite, quartz-feldspar gneiss and minor hornblende-biotite-quartz-feldspar gneiss; locally granitoid and migmatic. Thin layers of amphibolite and quartzite. Biotite flakes typically small and mostly evenly distributed.

Plainfield Formation

p - dark-green hornblende-biotite-quartz-plagioclase gneiss, in part diopsidic; dark biotite-quartz-plagioclase gneiss with variable amounts of microcline; garnet-biotite-quartz-feldspar schist and gneiss; amphibolite; light-grey sugary textured biotite- feldspar-quartz gneiss; thin grey quartzite, rare thick white quartzite.

pc - calc-silicate quartzite and gneiss.

pa - garnet-sillimanite-biotite-quartz-feldspar schist and gneiss; garnet- biotite-quartz-feldspar gneiss; biotite-quartz-feldspar gneiss; minor biotite-quartz-andesine gneiss with diopside and colorless amphibole; thin-bedded quartzite, locally pyritic.

psq - thick- to thin-bedded, white or tan, to lightgrey, rarely greenish quartzite; thin-bedded micaceous quartzite, locally graphitic; thin interlayers of garnet and sillimanite-bearing schist and gneiss.

INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND SOURCE: U.S.G.S. Bedrock Geology Map, 1967 N	FIGURE 3-3 BEDROCK GEOLOGY CROSS-SECTION LINE ATLANTIC ENVIRONMENTAL SERVICES, INC.

Bedrock at both the Pier 33 and the Berth 16/Former Incinerator sites is mapped as Pre-Pennsylvanian in age.

Bedrock at the Pier 33 site is mapped as the Alaskite gneiss to the north and as Granite gneiss to the south. No bedrock coring was performed as part of this investigation to confirm these determinations.

Bedrock at the Berth 16/Former Incinerator site is mapped as Alaskite gneiss to the north and the Mamacoke Formation to the south. This information has not been confirmed by bedrock coring.

Pre-Pennsylvanian rocks present at NSB-NLON are members of the Sterling Plutonic Group and consist of igneous intrusives that have been metamorphosed to granitic gneisses. The Sterling Plutonic Group is further divided into the Alaskite Gneiss and the Granite Gneiss.

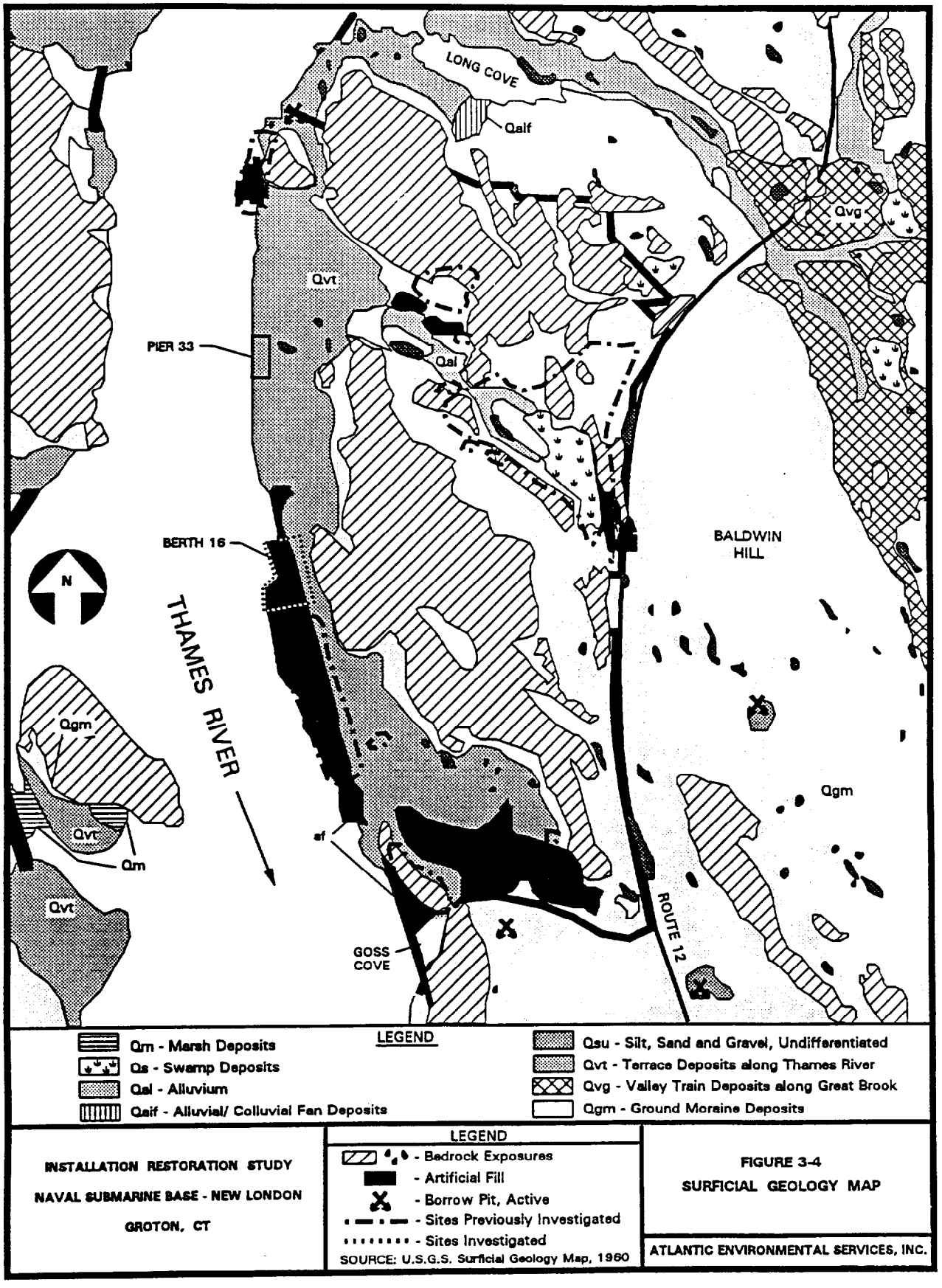
The Alaskite Gneiss is an orange-pink to light gray, fine-to-medium grained, equigranular, gneissic granite composed of equal amounts of quartz, microcline and albitic-to-sodic oligoclase, with small amounts of magnetite and biotite.

The Granitic Gneiss is an orange-pink to light gray, medium-grained gneissic biotite granite. The main constituents are equal amounts of quartz and microcline, oligoclase, and from two-to-seven percent biotite and iron oxides. In both the Granitic and Alaskite Gneisses, the biotite tends to be concentrated on the boundaries of lenses.

3.4 Surficial Geology

Information regarding the surficial geology present at the site was obtained from the USGS Surficial Geology of the Uncasville Quadrangle Map (USGS, 1960). Figure 3-4 shows the surficial geology of NSB-NLON, which includes the Pier 33 and Berth 16/Former Incinerator sites.

Most of the surficial deposits on site are unconsolidated glacial materials deposited during


LONG COVE
Qalf
Qvg
Qvt
PIER 33
Qal
BERTH 16
N
THAMES RIVER
BALDWIN HILL
Qgm
Qvt
Qm
Qvt
af
Qgm
ROUTE 12
GOSS COVE
LEGEND
Qm - Marsh Deposits
Qs - Swamp Deposits
Qal - Alluvium
Qalf - Alluvial/ Colluvial Fan Deposits
Qsu - Silt, Sand and Gravel, Undifferentiated
Qvt - Terrace Deposits along Thames River
Qvg - Valley Train Deposits along Great Brook
Qgm - Ground Moraine Deposits
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT
LEGEND
- Bedrock Exposures
- Artificial Fill
- Borrow Pit, Active
- Sites Previously Investigated
- Sites Investigated
SOURCE: U.S.G.S. Surficial Geology Map, 1960
FIGURE 3-4
SURFICIAL GEOLOGY MAP
ATLANTIC ENVIRONMENTAL SERVICES, INC.

the Pleistocene Age. The remainder of the surficial deposits are the products of post-glacial geologic processes and man-made modifications.

The glacial deposits are divided into two types: nonstratified drift (also known as till or ground moraine) and stratified drift (also known as outwash). Nonstratified drift was deposited in direct contact with the glaciers. Stratified drift was deposited by meltwater streams from a near or distant ice mass.

Stratified drift is stratified silt, sand, and gravel that was deposited by glacial meltwater. As the ice melted and local base levels of streams were lowered, the stratified deposits were left as ridges, mounds, terraces and pitted valley floors. Stratified drift is shown as terrace deposits of the Thames River and is mapped at the Pier 33 and the Berth 16/Former Incinerator sites. The Berth 16/Former Incinerator site is located on a contact between stratified drift and artificial fill.

There were no bedrock outcrops mapped or observed at the Pier 33 or the Berth 16/Former Incinerator sites.

3.5 Surface-Water Hydrology

NSB-NLON is located on the east bank of the Thames River within the Thames River Watershed. The Thames River and its tributaries drain approximately 1,400 square miles of eastern Connecticut, western Rhode Island, and south-central Massachusetts. The Thames River originates at the City of Norwich Harbor, at the confluence of the Shetucket and Yantic Rivers, and discharges into Long Island Sound approximately six miles south of NSB-NLON. The Thames River estuary extends from Long Island Sound to 16 miles north to Norwich. Width of the river varies from 1.5 miles at New London Harbor to approximately 500 feet at Norwich Harbor.

Surface water from the site drains west toward the Thames River via streams and storm

sewers. Figure 3-5 shows site drainage basins. The off-site portion of these watersheds includes a sparsely developed residential area located to the east along Route 12 and an area with limited commercial development located north of the intersection of Crystal Lake Road and Route 12.

The Pier 33 site is located directly adjacent to the Thames River. Surface water at the site drains directly into the river via storm sewers. Surface waters which originate to the west at the Area A Wetland drain via a stream located just north of the site.

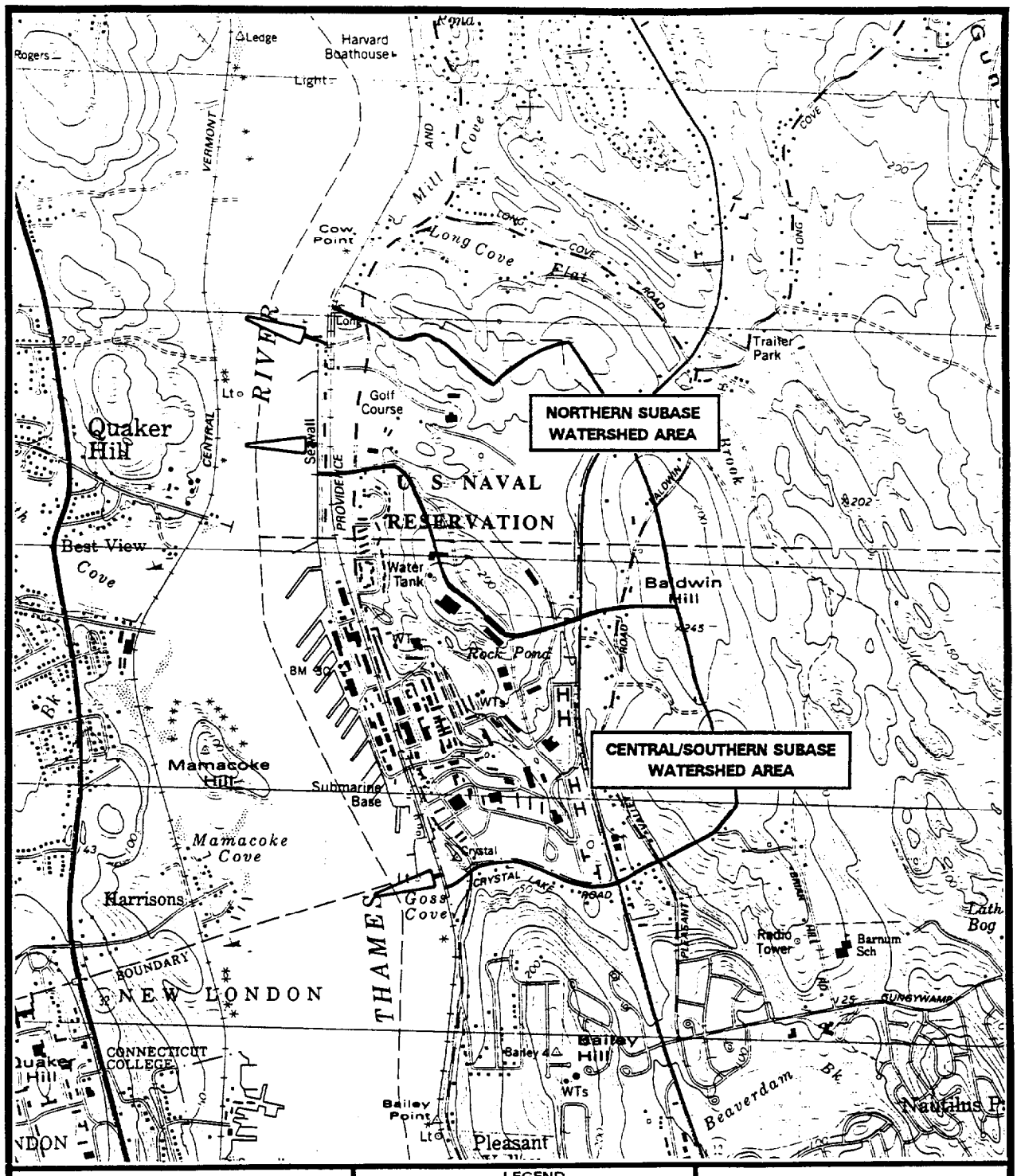
The Berth 16/Former Incinerator site is also located adjacent to the Thames River. Surface water at the site drains directly into the river via an extensive storm sewer system. The storm sewers at the site primarily drain extensive areas of pavement used for roadways and parking at the Lower Subase.

3.6 Groundwater Hydrology

Information on area aquifers was obtained from the Connecticut Water Resource Bulletin Numbers 15 and 16 (USGS/CWRC, 1968).

In the site vicinity, groundwater is present in stratified drift, bedrock and, to a lesser extent, till. General aquifer characteristics for each type encountered on-site are described as follows. A fine-grained, stratified drift aquifer is mapped on the western and southwestern portions of the site. Mapped thickness of stratified drift ranges from ten feet along the banks of the Thames River to a maximum depth of 80 feet at the former location of Crystal Lake in the southwestern portion of NSB-NLON. Average estimated permeabilities of wells in stratified drift in the area range from 250 to 1400 gallons per day per square foot (gpd/ft^2). Well yields in the area range from 40 to 200 gallons per minute (gpm).

The bedrock in the site area consists of fractured metamorphic rock covered by glacial material that is thick in the lowlands and thinner in the uplands. In bedrock aquifers, groundwater movement is along joint planes rather than through intergranular openings. Well



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND SOURCE: U.S.G.S. Topographic Map, 1984 Uncasville, Ct. N Major Surface Water Discharge Points	FIGURE 3-5 WATERSHED AREAS IN THE VICINITY OF NSB-NLON ATLANTIC ENVIRONMENTAL SERVICES, INC.

records indicate that bedrock wells in the site vicinity yield from between one and 65 gpm. Potential well yields in bedrock wells are dependent on degree of fracturing, topography, and type and thickness of overburden. In general, the greatest well yields occur in valleys where bedrock is highly fractured and overlain by over 50 feet of stratified drift.

3.7 Site-Specific Geology and Hydrogeology

The following section provides site-specific geology and hydrogeology data. Information discussed includes soils classification, subsurface geology, bedrock information, and groundwater hydrology. Test boring logs and monitoring well details are provided in Appendix B.

3.7.1 Pier 33

A total of eight soil borings were installed in the Pier 33 area of the Lower Subase. All of the soil borings were extended to auger refusal.

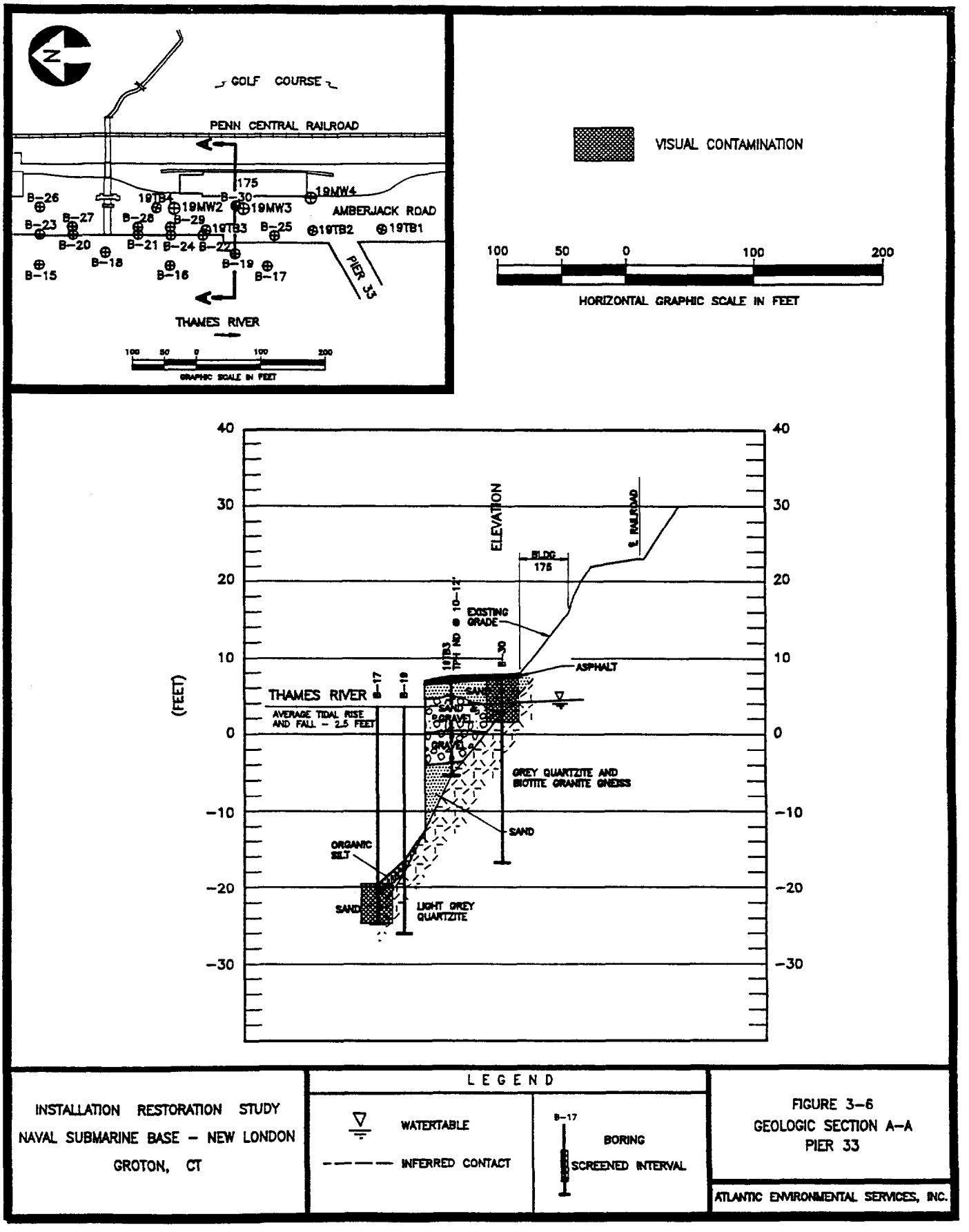
Geologic cross-sections were prepared from boring data. Cross-sections for the Pier 33 site are presented in Figures 3-6 and 3-7; cross-section locations are also indicated in each figure.

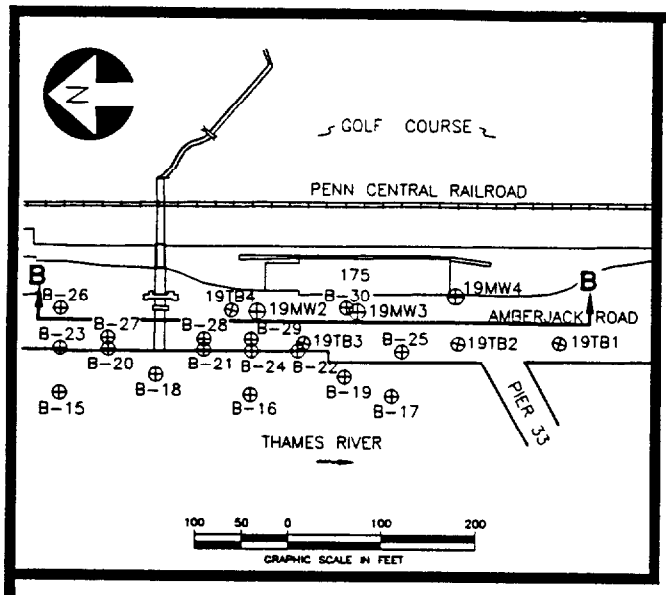
The 1967 USGS Bedrock Geology map (Figure 3-2) shows that the Pier 33 area of the Lower Subase is underlain by a biotite-quartz-feldspar gneiss of the Mamacoke Formation. Geotechnical borings performed in 1989 by Morrison Geotechnical Engineering confirmed the 1967 determination. No bedrock coring was performed as part of Atlantic's investigation.

The 1983 SCS Soils Map (Figure 3-1) depicts the Pier 33 site as Urban Land. This classification is consistent with the current site development.

The 1960 USGS Surficial Geology Map (Figure 3-4) depicts the surficial deposits at the Pier 33 site as artificial fill. This classification is consistent with information obtained during the installation of test borings and monitoring wells.

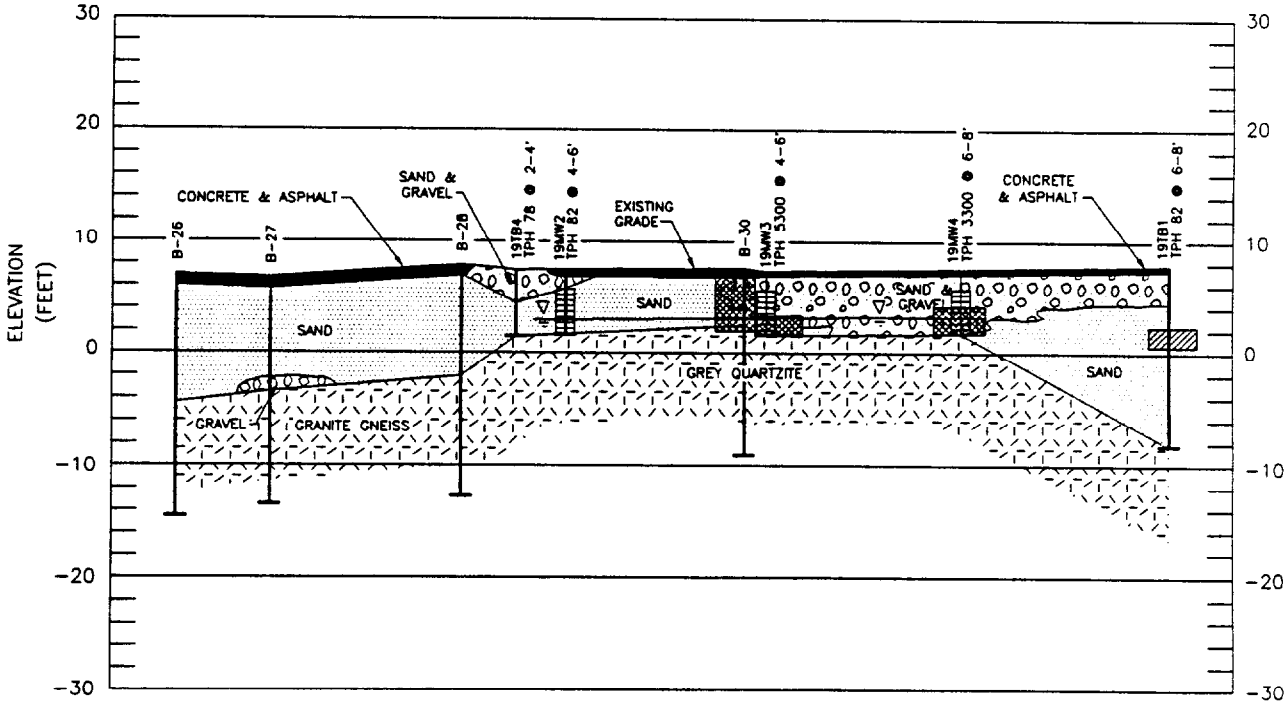
Geologic cross-sections (Figures 3-6 and 3-7) indicate that the Pier 33 area of the Lower


GOLF COURSE
PENN CENTRAL RAILROAD
175
B-26
19TB4
19MW2
B-30
19MW3
19MW4
AMBERJACK ROAD
B-23
B-27
B-28
B-29
19TB3
B-25
19TB2
19TB1
B-20
B-21
B-24
B-22
B-18
B-19
B-15
B-16
B-17
PIER 33
THAMES RIVER
GRAPHIC SCALE IN FEET
VISUAL CONTAMINATION
HORIZONTAL GRAPHIC SCALE IN FEET
ELEVATION
(FEET)
BLDG 175
℄ RAILROAD
EXISTING GRADE
ASPHALT
THAMES RIVER
AVERAGE TIDAL RISE AND FALL - 2.5 FEET
SAND
GRAVEL
GREY QUARTZITE AND BIOTITE GRANITE GNEISS
ORGANIC SILT
LIGHT GREY QUARTZITE
LEGEND
WATERTABLE
INFERRED CONTACT
BORING
SCREENED INTERVAL
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT
FIGURE 3-6
GEOLOGIC SECTION A-A
PIER 33
ATLANTIC ENVIRONMENTAL SERVICES, INC.



VISUAL CONTAMINATION

OLFACTORY CONTAMINATION



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND WATERTABLE INFERRED CONTACT B-17 BORING SCREENED INTERVAL	FIGURE 3-7 GEOLOGIC SECTION B-B PIER 33 ATLANTIC ENVIRONMENTAL SERVICES, INC.

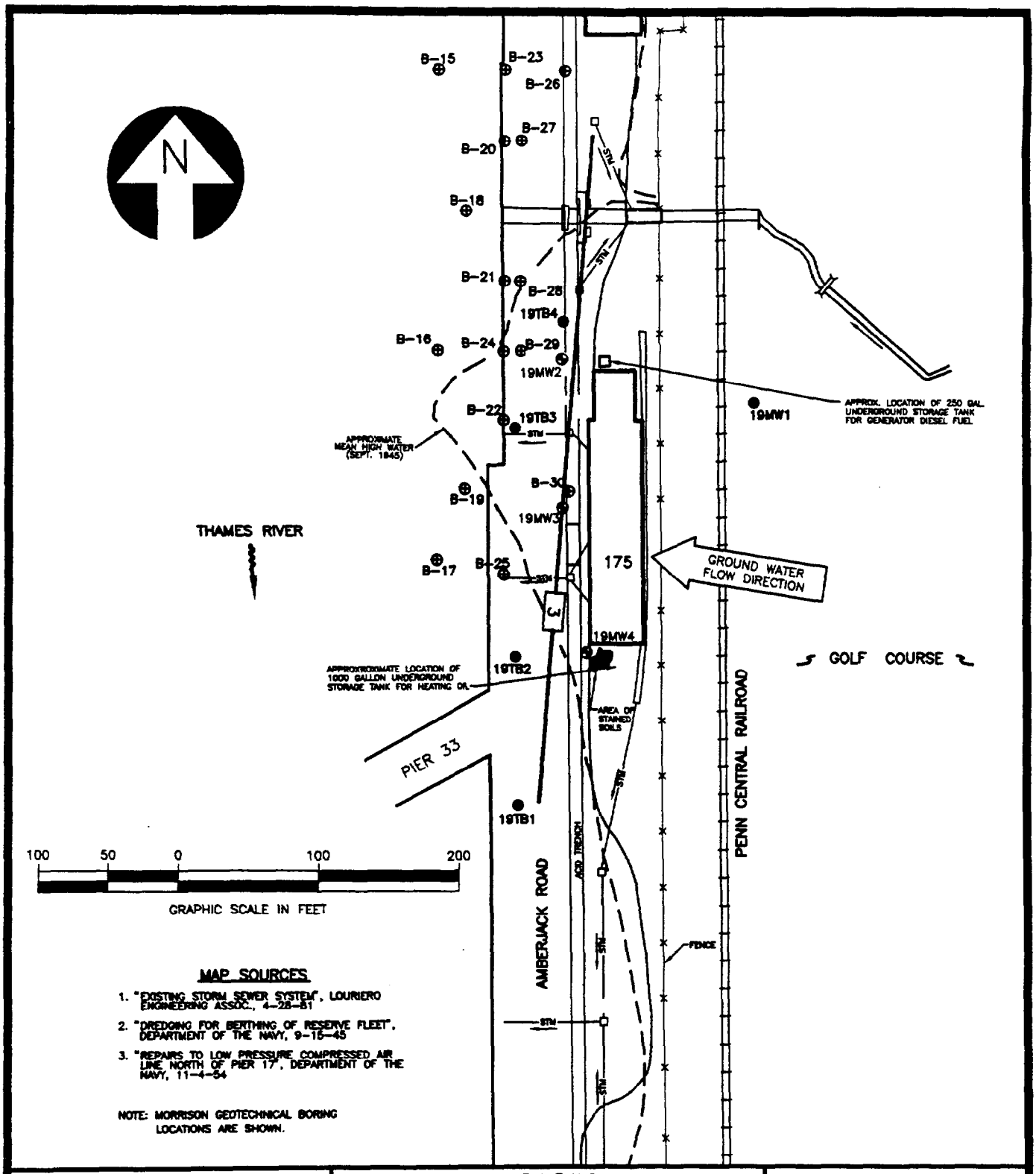
Subase is underlain by fill consisting of sand or sand and gravel. Cross-section B-B (Figure 3-7) is a north-to-south cross-section which indicates a bedrock high in the vicinity of Building 175; this bedrock high drops off to the north and south. Cross-section B-B indicates that fill material extends to bedrock. Cross-section A-A (Figure 3-6) is an east-to-west cross-section which also indicates that fill material behind the quay wall extends to bedrock. The fill material is indicated as sand, sand and gravel, and gravel. Fill material thickens to the west, ranging from approximately 5 feet in the eastern portion of the site to approximately 20 feet at the edge of the quay wall.

Groundwater flow direction at the site was determined to be to the west toward the Thames River, as depicted in Figure 3-8. Groundwater flow velocity was not determined as part of this investigation per the approved Work Plan; however, it is estimated to be 1.3 feet/day based on previous investigations at the Lower Subase. Previous investigations have identified a 200-foot wide zone extending inland from the shore, which is influenced by the ebb and flood of tides; therefore, flow velocities will vary with tidal fluctuation.

3.7.2 Berth 16/Former Incinerator

A total of 14 soil borings were installed in the Berth 16/Former Incinerator area of the Lower Subase. All the soil borings, with the exception of 20MW1 and 20TB7, were extended to 10 feet below the groundwater surface. Boring 20MW1 was hand-augered due to shallow refusal. Due to access restrictions, 20TB7 was also hand-augered to refusal.

The 1967 USGS Bedrock Geology Map (Figure 3-2) shows that the Berth 16/Former Incinerator area of the Lower Subase is underlain by a biotite-quartz-feldspar gneiss of the Mamacoke Formation. Geotechnical borings performed in 1989 by Morrison Geotechnical Engineering confirmed the 1967 determination. No bedrock coring was performed as part of this investigation.

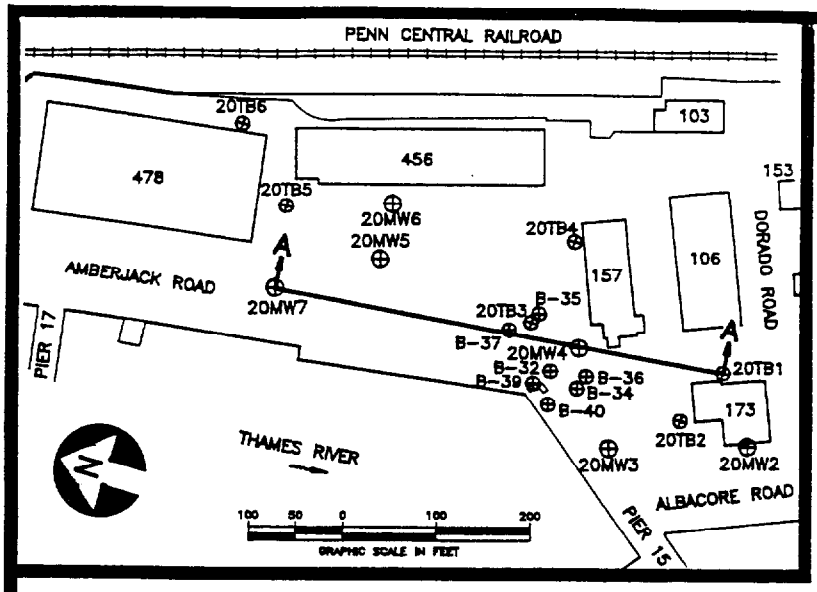

N
B-15
B-23
B-26
B-27
B-20
B-18
B-21
B-28
19TB4
B-16
B-24
B-29
19MW2
B-22
19TB3
19MW1
APPROX. LOCATION OF 250 GAL. UNDERGROUND STORAGE TANK FOR GENERATOR DIESEL FUEL
APPROXIMATE MEAN HIGH WATER (SEPT. 1945)
B-30
B-19
19MW3
THAMES RIVER
B-17
B-25
175
GROUND WATER FLOW DIRECTION
19MW4
GOLF COURSE
APPROXIMATE LOCATION OF 1000 GALLON UNDERGROUND STORAGE TANK FOR HEATING OIL
19TB2
AREA OF STAINED SOILS
PIER 33
19TB1
PENN CENTRAL RAILROAD
AMBERJACK ROAD
ACID TRENCH
FENCE
STM
100 50 0 100 200
GRAPHIC SCALE IN FEET
MAP SOURCES
1. "EXISTING STORM SEWER SYSTEM", LOURIERO ENGINEERING ASSOC., 4-28-81
2. "DREDGING FOR BERTHING OF RESERVE FLEET", DEPARTMENT OF THE NAVY, 9-15-45
3. "REPAIRS TO LOW PRESSURE COMPRESSED AIR LINE NORTH OF PIER 17", DEPARTMENT OF THE NAVY, 11-4-54
NOTE: MORRISON GEOTECHNICAL BORING LOCATIONS ARE SHOWN.
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONN
LEGEND
EXIST.
19MW1 MONITORING WELL
19TB1 TEST BORING
B-19 PREVIOUS BORING PERFORMED BY MORRISON GEOTECHNICAL INC.
3 GROUNDWATER ELEVATION (ft.) ABOVE SUBBASE DATUM
123 BUILDING No.
STORM SEWER
FIGURE 3-8
GROUNDWATER FLOW DIRECTION
PIER 33
ATLANTIC ENVIRONMENTAL SERVICES, INC.

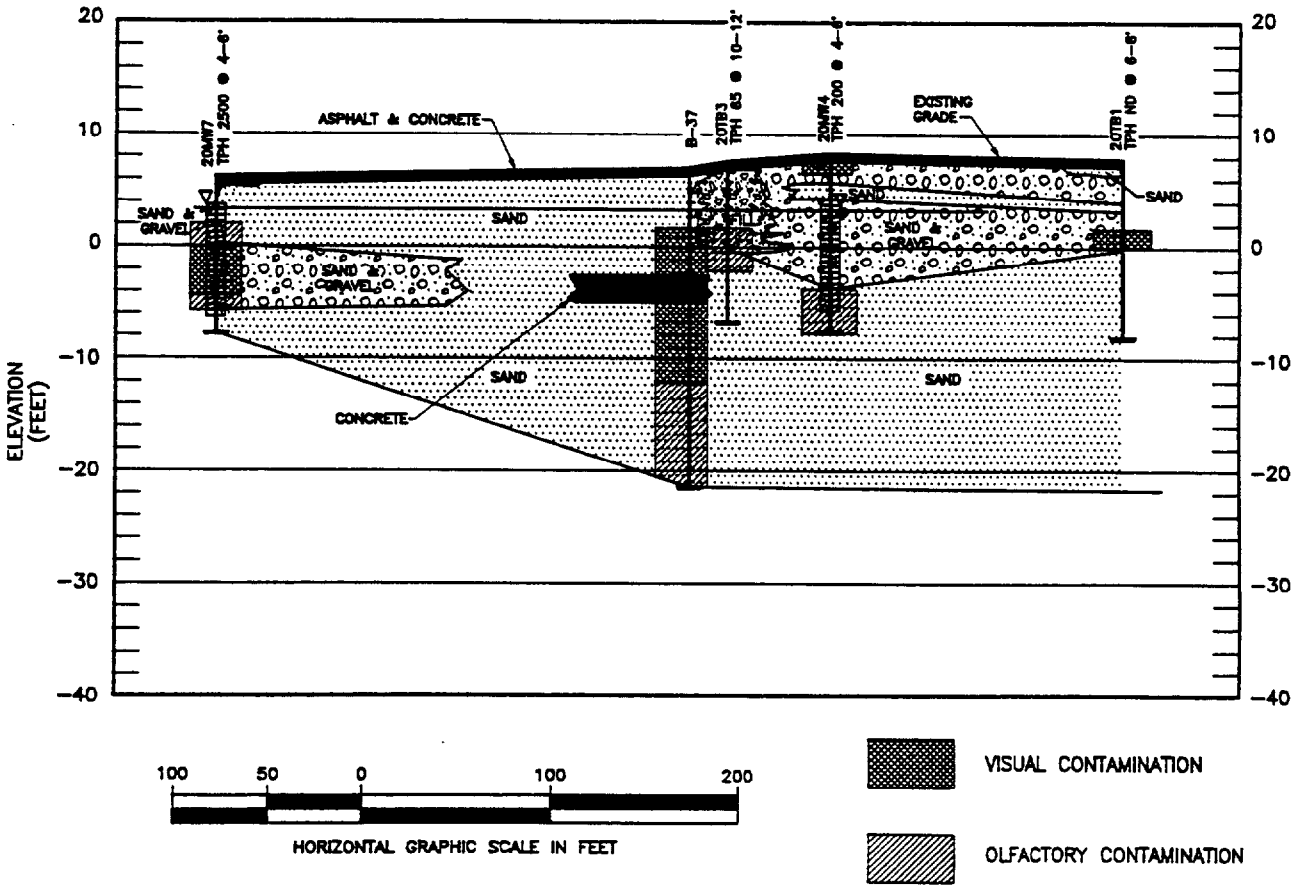
The 1983 SCS Soils Map (Figure 3-1) depicts the Berth 16/Former Incinerator site as urban land. This classification is consistent with current site development.

The 1960 USGS Surficial Geology map (Figure 3-4) depicts the surficial deposits at the Berth 16/Former Incinerator site as artificial fill. This classification is consistent with information obtained during the installation of test borings and monitoring wells.

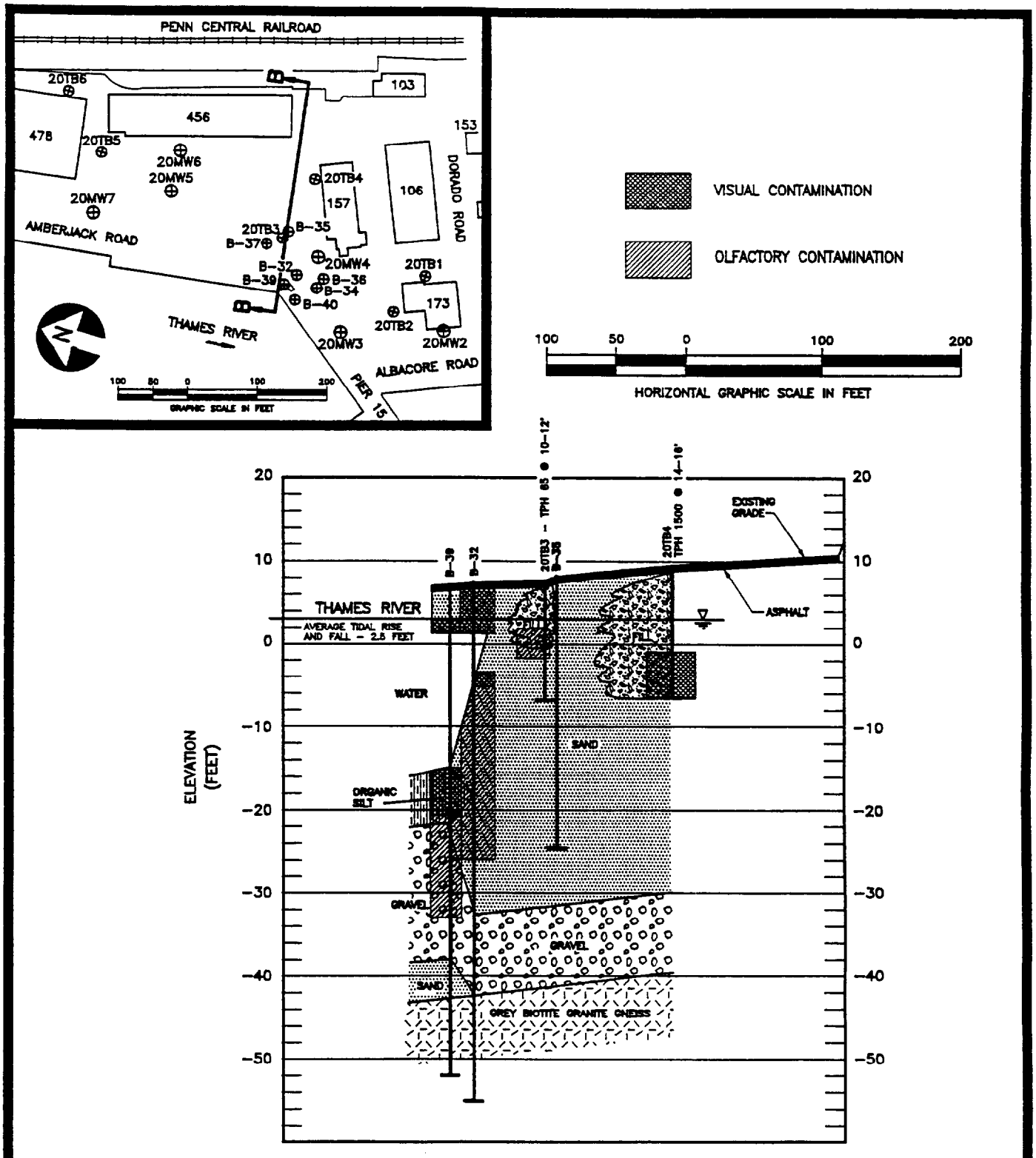
Geologic cross-sections constructed for the Berth 16 site are presented in Figures 3-9 and 3-10. Data collected for this investigation indicate that the Berth 16 area of the Lower Subase is underlain by fill material which extends as deep as 16 feet below ground surface. As previously discussed (Section 3.1), the Lower Subase is largely constructed on fill material; the sand-and-gravel and sand units observed in soil borings and cross-sections are likely artificial fill material. Only fill material which contained anthropogenic evidence (i.e., fire brick, glass, metal, plastic, debris, etc.) was identified in boring logs or cross-sections as fill. Cross-section A-A (Figure 3-9) is a north-to-south cross-section, which was constructed using information from the latest borings. The cross-section indicates the many different layers of fill in the area. Cross-section B-B (Figure 3-10) is an east-to-west cross-section. Fill material in this area is primarily sand, with pockets of debris in the area around 20TB4 and 20TB3. Fill material thins to the east, based on historical information indicating that most of the Lower Subase was built on fill which was extended out into the former river.

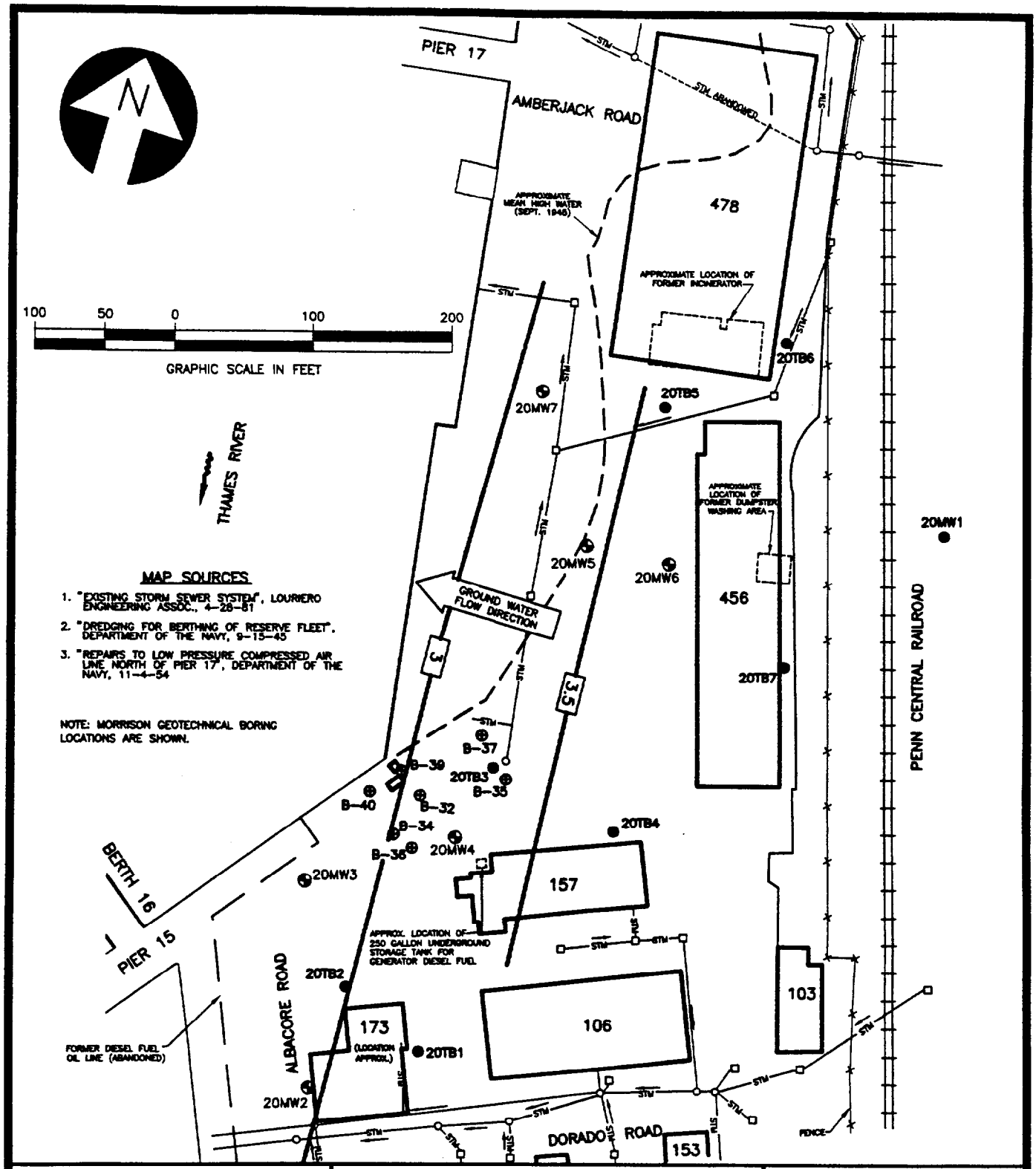
Groundwater flow direction at the site was determined to be to the west toward the Thames River, as depicted in Figure 3-11. Groundwater flow velocity was not determined as part of this investigation; however, it is estimated to be 1.3 feet/day based on previous investigations at the Lower Subase. It should be noted that an approximately 200-foot wide zone extending inland from the Thames River is influenced by the ebb and flood of the tides; therefore, flow velocities will vary with tidal fluctuation.





INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE – NEW LONDON GROTON, CT	LEGEND WATERTABLE INFERRED CONTACT B-17 BORING SCREENED INTERVAL	FIGURE 3-9 GEOLOGIC SECTION A-A BERTH 16/FORMER INCINERATOR ATLANTIC ENVIRONMENTAL SERVICES, INC.


PENN CENTRAL RAILROAD
20TB6
103
456
478
20TB5
153
20MW6
20MW5
20TB4
106
DORADO ROAD
20MW7
157
AMBERJACK ROAD
20TB3
B-35
B-37
B-32
20MW4
20TB1
B-39
B-36
B-34
B-40
173
THAMES RIVER
20TB2
20MW3
20MW2
ALBACORE ROAD
PIER 15
GRAPHIC SCALE IN FEET
VISUAL CONTAMINATION
OLFACTORY CONTAMINATION
HORIZONTAL GRAPHIC SCALE IN FEET
ELEVATION (FEET)
EXISTING GRADE
ASPHALT
THAMES RIVER
AVERAGE TIDAL RISE AND FALL - 2.5 FEET
WATER
FILL
SAND
ORGANIC SILT
GRAVEL
GREY BIOTITE GRANITE GNEISS
LEGEND
WATERTABLE
INFERRED CONTACT
BORING
SCREENED INTERVAL
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT
FIGURE 3-10
GEOLOGIC SECTION B-B
BERTH 16/FORMER INCINERATOR
ATLANTIC ENVIRONMENTAL SERVICES, INC.



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE – NEW LONDON GROTON, CT	LEGEND EXIST. ⊕ 20MW1 MONITORING WELL ● 20TB1 TEST BORING ⊕ B-19 PREVIOUS BORING PERFORMED BY MORRISON GEOTECHNICAL INC. 123 BUILDING No. —STM— STORM SEWER	FIGURE 3-11 GROUNDWATER FLOW DIRECTION BERTH 16/FORMER INCINERATOR ATLANTIC ENVIRONMENTAL SERVICES, INC.

3.8 Climatology

Southeastern Connecticut has a variable climate that is defined by both continental and maritime air masses and modified by the region's proximity to the Atlantic Ocean. The region lies in the path of prevailing westerlies and cyclonic disturbances that cross the country from the west or southwest toward the east and northeast. The prevailing winds are southwesterly in the summer and northwesterly in the winter. The average wind speed is around ten miles per hour. The region is exposed to occasional storms that travel up the Atlantic coast. Storms in the region are laden with moisture from the ocean; in addition, some storms are tropical and occasional storms are of hurricane intensity.

According to data from New London, Connecticut, the average annual temperature is approximately 50°F. Average monthly temperatures vary from 58 to 72°F in July and August, and from 23 to 30°F in January and February.

Precipitation averages approximately 44 inches per year, as measured at New London over an 81-year interval. Precipitation ranges from 32 to 65 inches per year. The greatest amount of precipitation occurs in the months of March and August; the least amount occurs in June and September. Evaporation averages approximately 23 inches per year (NSB-NLON Master Plan, 1988).

4.0 NATURE AND EXTENT OF CONTAMINATION

4.1 Introduction

This section presents an evaluation of the chemical analytical data on a site-by-site basis for all media sampled. The chemical concentrations are compared to Applicable or Relevant and Appropriate Requirements (ARARs) and "to be considered" (TBC) values. These regulations refer to cleanup standards and other substantive environmental protection criteria promulgated by law, along with relevant guidance criteria. For metals in soils analyzed on a mass weight basis, soil concentrations are also compared to estimated background metal concentrations in soils. Further discussion on state-and-federal laws and guidance is presented in Section 4.2. Background concentrations for metals are discussed in Section 4.3.

Several analytes tested as part of the analytical program include compounds which are recognized as potential laboratory contaminants. These compounds include acetone, methylene chloride, toluene, total xylenes, and boron. Although data validation guidelines provide measures for minimizing the reporting of laboratory contaminants, some questionable results are not rejected, based on data validation procedures, and only 25 percent of the data were validated in this investigation. Therefore, low levels of these compounds may not be representative of the sample, but rather due to laboratory contamination. Data validation is further discussed in subsection 2.7.2 and the reports provided in Appendix C. Complete laboratory analytical summary reports are provided in Appendix D.

4.2 Applicable or Relevant and Appropriate Requirements

CERCLA, or Superfund, cleanups pursuant to Section 121 (d) of SARA must attain Federal and State ARARs (Applicable, Relevant and Appropriate Requirements). As defined further in the National Contingency Plan, applicable requirements mean those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or

limitations promulgated under federal-or-state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, requirement, or other circumstance at a CERCLA site.

If a requirement is not applicable, it still may be relevant and appropriate. Relevant and appropriate requirements mean those cleanup standards that address problems or situations sufficiently similar to those encountered at the CERCLA site, in that their use is well suited to the particular site.

In addition to ARARs, other state-or-federal advisories, criteria, or guidance can be identified as "to be considered" for a particular release. The "to be considered" (TBC) category consists of any state or federal guidance that may be useful in evaluating site chemical concentrations or developing a remedy. The chemical-specific values for TBCs are included as a screening criteria. Final decisions will consider these TBCs; however, they will weigh more heavily on ARARs and any future health-and-environmental risk assessment. It is noted that most soil TBC values are based on a CTDEP Contaminated Soils Removal and Disposal Guideline. This policy is under revision and a new soil cleanup guide is anticipated in 1994.

In accordance with EPA guidance (CERCLA Compliance with Other Laws Manual, USEPA, August 1989), ARARs are grouped into three categories: chemical-specific, location-specific, and action-specific. Location-specific ARARs have been developed previously for the Lower Subase and are presented in the Phase I Remedial Investigation (Atlantic 1992). The subject sites are part of the Lower Subase. If an RI/FS is required for these sites, action and location-specific ARARs will be developed and presented in the RI/FS Report.

Table 4-1 provides a list of the chemical-specific ARARs and TBCs by media. These values are used in this report section to screen sample media concentrations for each site to identify potential risks to human health or the environment. The tables list all identified

TABLE 4-1
SUMMARY OF CHEMICAL SPECIFIC ARARs AND TBCs BY MEDIA

PARAMETER	MEDIA				SOURCE OF ARAR OR TBC2							
	Ground Water ppb		*Soil* ppb1		MCL	PMCL	USEPA	WQC	CTDOHS	WQS	CTDEP	OTHER OR COMMENTS
	ARAR	TBC	ARAR	TBC								
VOLATILE ORGANICS												
Acetone												
Benzene	5				•							
		1							•			Action Level
				1							•	
2-Butanone		1000							•			Action Level
(Methy ethyl ketone)				1000							•	
Carbon Disulfide												
Chloroform	100				•							CTDOHS Std. for Total Trihalomethanes
				100							•	
Chloromethane		3					•					Draft Lifetime Health Advisory
2-Chlorophenol		40					•					Draft Lifetime Health Advisory
4-Chloroniline												
1,1 Dichloroethane												
1,2 Dichloroethane	5				•							
		1							•			Action Level
				1							•	
1,1 Dichloroethene	7				•							
				7							•	
1,2 Dichloroethene	70				•							
				70							•	
Ethylbenzene	700				•							
				700							•	
Methylene Chloride				5							•	
(Dichloromethane)	5				•							
4-Methyl-2-Pentanone												
Styrene	100				•							
				100							•	
Toluene	1000				•							CTDOHS Action Level
				1000							•	
1,1,1 Trichloroethane	200				•							
				200							•	
Trichloroethene	5				•							
				5							•	
Xylene	10000				•							
				10000							•	
Petroleum Hydrocarbons	Remove Free Product			100							•	RCRA UST
SEMIVOLATILE ORGANICS												
Other SemiVolatile Organics												
Bis(2-ethyl-hexylphthalate)												
Dibenzofuran												
Di-n-butylphthalate		400					•					DWEL (Drinking Water Equivalent Level)
Butyl benzyl phthalate		100				•						
Di-n-octylphthalate												
Carbazole												Draft
Polyaromatic Hydrocarbons												
Acenaphthene												
Acenaphthylene		0.0028								•		Water and Fish Ingestion
Anthracene		9600								•		Water and Fish Ingestion
Benzo(a)anthracene		0.1				•						
Benzo(b)fluoranthene		0.2				•						

TABLE 4-1
SUMMARY OF CHEMICAL SPECIFIC ARARs AND TBCs BY MEDIA

PARAMETER	MEDIA				SOURCE OF ARAR OR TBC2							
	Ground Water ppb		*Soil* ppb1		MCL	PMCL	USEPA	WQC	CTDOHS	WQS	CTDEP	OTHER OR COMMENTS
	ARAR	TBC	ARAR	TBC								
Benzo(k)fluoranthene		0.2				•						
Benzo(g,h,i)perylene												
Benzo(a)pyrene		0.2			•							
Chyrsene		0.2				•						
Dibenz(a,h)anthracene		0.3				•						
Fluoranthene		42						•				Water and Fish Ingestion
Fluorene		1300								•		Water and Fish Ingestion
Indeno(1,2,3-cd)pyrene		0.4				•						
2-Methyl-naphthalene												
Naphthalene		20					•					Draft Lifetime Health Advisory
Phenanthrene		0.0028								•		Water and Fish Ingestion
Pyrene		960								•		Water and Fish Ingestion
PESTICIDES/PCBs												
Alpha-chlordane	2				•							Standard for Chlordane
4,4-DDD		0.00083								•		Water and Fish Ingestion
4,4-DDE		0.00059								•		Water and Fish Ingestion
4,4-DDT		0.00059								•		Water and Fish Ingestion
				500								FFDC Act Tolerance Level
Gamma-chlordane	2				•							Standard for Chlordane
Heptachloro epoxide	0.2				•							
PCBs		1							•			Action Level
				10000								TSCA Spill Clean-up Guidance
				2000							•	
	0.5				•							
INORGANICS												
Aluminum		200					•					Secondary MCL
Antimony	6				•							
Arsenic	50				•							
				50 TCLP							•	
Barium	1000				•							CT DOHS
	2000				•							U.S. EPA
				1000 TCLP							•	
Beryllium	4				•							
Cadmium	10				•							CT DOHS
	5				•							U.S. EPA
				10 TCLP							•	
Calcium												
Chromium	50				•							CT DOHS
	100				•							U.S. EPA
				50 TCLP							•	
Cobalt												
Copper	1000				•							CT DOHS
	1300						•					U.S. EPA Action Level
				1000 TCLP							•	
Iron		300					•					Secondary MCL
Lead	15						•					U.S. EPA Action Level
	50				•							CT DOHS
				15 TCLP							•	
Manganese		50					•					Secondary MCL
		200					•					MCL Listed for Regulation
Mercury	2				•							

TABLE 4-1 (continued)
SUMMARY OF CHEMICAL SPECIFIC ARARs AND TBCs BY MEDIA

PARAMETER	MEDIA				SOURCE OF ARAR OR TBC2							
	Ground Water ppb		*Soil* ppb1		MCL	PMCL	USEPA	WQC	CTDOHS	WQS	CTDEP	OTHER OR COMMENTS
	ARAR	TBC	ARAR	TBC								
				2 TCLP							•	
Nickel		100				•						
Potassium												
Selenium	10				•							CT DOHS
	50				•							U.S. EPA
				10 TCLP							•	
Silver	50				•							CT DOHS
		100					•					Lifetime Health Advisory
				50 TCLP							•	
Sodium		28000			•							Notification Level
		20000					•					Drinking Water Equivalent Level (20,000)
Thallium	2				•							
Vanadium		20					•					Lifetime Health Advisory
Zinc		5000					•					Secondary MCL
		2000					•					Lifetime Health Advisory
Boron		600					•					Lifetime Health Advisory
Cyanide	200				•							

Values current as of June 1994

NOTES:

1) Values given are on a mass basis (ug/kg) unless TCLP is indicated. Where TCLP is indicated, values area measured in a TCLP extract.

2) **MCL:** Maximum contaminant level pursuant to the USEPA Safe Drinking Water Act or CTDOHS Standards of Water Quality (Reference 1 and Reference 2).
PMCL: Proposed maximum contaminant level proposed by the USEPA under the Safe Drinking Water Act (Reference 1).
U.S. EPA: United States Environmental Protection Agency (Reference 1).
WQC: Water quality criteria pursuant to Section 304 of the Clean Water Act (Reference 3).
CTDOHS: Connecticut Department of Health Services (Reference 4).
WQS: CTDEP Numerical Water Quality Standard (Reference 5).
CTDEP: Connecticut Department of Environmental Protection guidance (Reference 6 and Reference 7).

REFERENCES:

1. USEPA, November 1992, *Drinking Water Regulations and Health Advisories,* Office of Water.
2. CTDOHS, January 28, 1992, *Section 19-13-B102(e), Regulations of Connecticut State Agencies* Water Supply Section.
3. U.S. EPA, 1986, *Quality Criteria for Water 1986,* EPA 440/5-86-001.
4. CTDOHS, June 1990, *Water Quality Standards for Public Water Supply Wells,* Water Supply Section.
5. CTDEP, January 1992, *Water Quality Standards,* Water Management Bureau.
6. CTDEP, undated, *Contaminated Soils Removal & Disposal Guidelines.*
7. CTDEP, March 24, 1993, letter to the Navy regarding work plans for the CBU and OBDANE sites.

ARARs, TBCs for soil, and only the most appropriate TBC value for groundwater. This was done to simplify the tables as each parameter may have several TBC values for groundwater. The most appropriate TBC value for groundwater was selected based on the following hierarchy of the sources for each value: MCL (lower of EPA or CTDOHS MCL), secondary MCL, proposed MCL, lifetime health advisory or CTDOHS action level (whichever is lower), draft lifetime health advisory, drinking water equivalent level, CTDEP water quality standard for consumption of water and organisms, and U.S. EPA water quality criteria for consumption of water and organisms. For example, if a parameter has a proposed MCL and a water quality standard the proposed MCL would be the most appropriate TBC and be the value presented in Table 4-1.

4.3 Inorganics Background Concentrations

Inorganic background concentrations were established using procedures outlined in the Atlantic Work Plan (Atlantic, October 1992) as modified by a memorandum dated February 10, 1993 and as approved a memorandum dated March 24, 1993 to allow for a comparison of metal concentrations (mass weight basis) detected at each site to naturally occurring background concentrations. These background concentrations do not fall in the ARAR or TBC category because they are not federal-or-state law or guidance. However, this method is an established procedure to evaluate inorganic concentrations at a site. Values above background are most likely related to site usage.

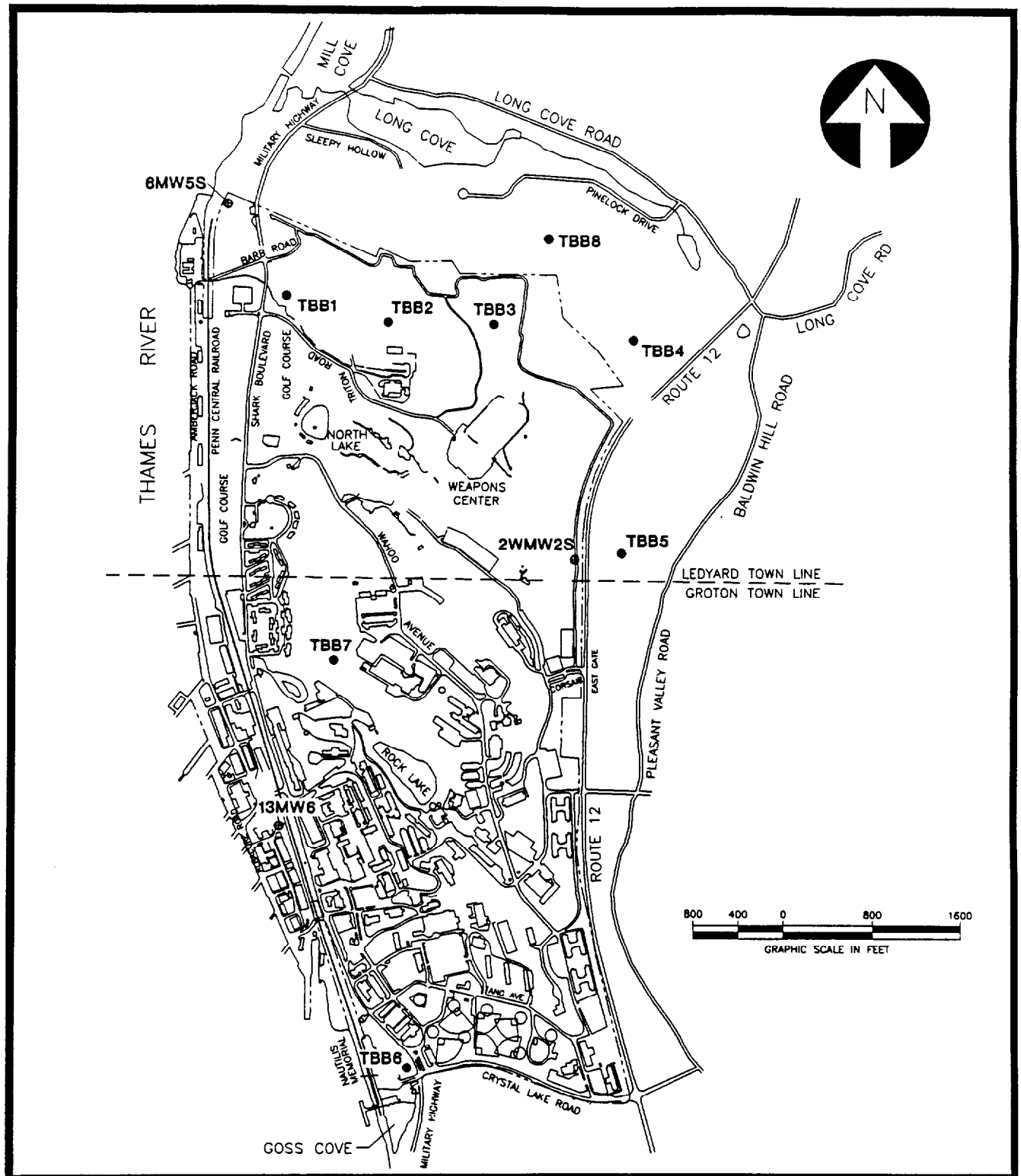
The upper value in the range of values measured for each inorganic constituent in background soils are presented in Table 4-2. Background soil samples were collected from undisturbed areas on and around the base. Sample locations are indicated in Figure 4-1. Two samples at a discrete depth (0-2 feet and 2-4 feet) were collected at each of 8 locations. The site-specific background levels presented have not yet been approved by EPA.

TABLE 4-2
NATURAL BACKGROUND LEVELS FOR INORGANIC COMPOUNDS[1]

Parameter	Site-Specific Background (ppm)[2]
Aluminum	17,600
Antimony	2.05[3]
Arsenic	3.6
Barium	57.2
Beryllium	0.72
Cadmium	0.24[3]
Calcium	499
Chromium	21.5
Cobalt	8
Copper	25.6
Iron	17,200
Lead	17.5
Magnesium	3,650
Manganese	188
Mercury	0.05
Nickel	10
Potassium	2,580
Selenium	0.8
Silver	0.385[3]
Sodium	41
Thallium	0.29
Vanadium	35.1
Zinc	31.3
Boron	5.8

Notes:

1) The site-specific background value is the highest value detected from among all the background soil samples collected in April 1993.
2) ppm - parts per million.
3) Value based on one-half of the highest detection level from among all the background soil samples collected in April 1993.



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND ● 13MW6 – EXISTING MONITORING WELL ● TBB7 – TEST BORING	FIGURE 4-1 BACKGROUND SAMPLING LOCATIONS ATLANTIC ENVIRONMENTAL SERVICES, INC.

confidence limit. The site-specific values developed are lower than those prepared by USGS for the Eastern U.S. (Shacklette and Boerngen), which were used for previous IR investigations.

4.4 Pier 33

The field investigation at this site consisted of a soil-gas survey, a utility-manhole inspection, test borings, groundwater monitoring wells, soil-and-groundwater analysis, and sediment and surface-soil sampling and analysis. Sampling locations are depicted in Figure 4-2.

4.4.1 Soil Gas

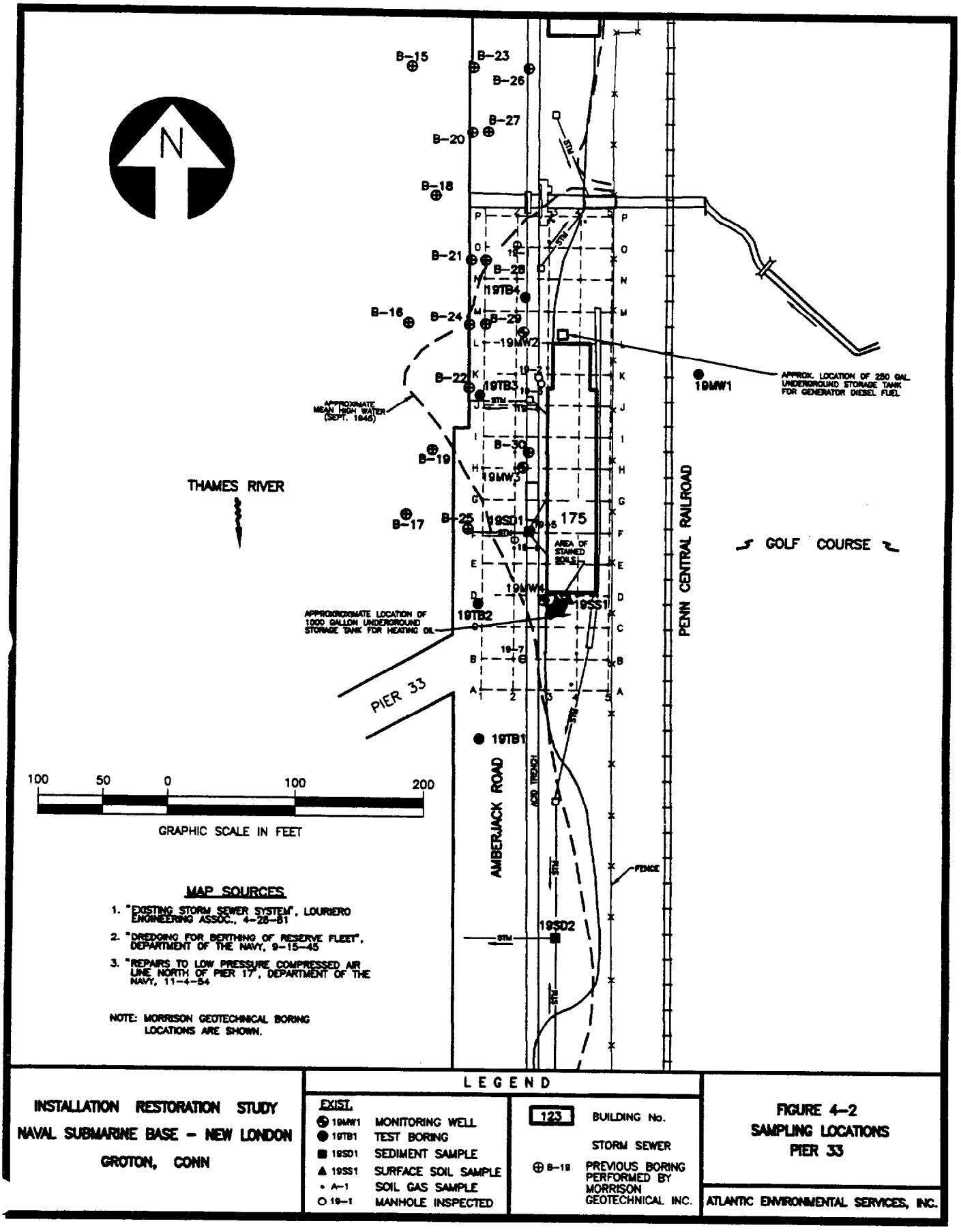
Soil-gas analyses were performed at a total of 63 points within the site boundaries, as indicated on Plate 1.

Benzene, toluene, ethyl benzene, xylenes, tetrachloroethylene, and unknown volatile organics were found at low-to-high levels at several locations across the site. The only chlorinated compound identified at a trace level per Section 2.4 was tetrachloroethylene at location D2. The following locations were determined to have elevated levels (moderate to high per Section 2.4) of benzene, toluene, ethyl benzene, and xylenes (BTEX): combined B3, D3, H1, H2, H3, and GG-2. The highest concentration of BTEX was found at location H3. This location also had the highest concentration of total volatile organics, including unknown compounds. Soil-gas total BTEX in air concentrations (ppm) and total volatile organic concentrations (Vs) are shown on Plate 1. Soil-gas results are often used to relocate borings to areas of suspected contamination. Original boring placements were used at this site as soil-gas data confirmed the original locations to be adequate.

Complete soil gas data are provided in Appendix A.

4.4.2 Subsurface and Surface Soil

Fifteen subsurface soil samples were collected from eight test boring/monitoring well locations at this site. One surface soil sample was also collected and analyzed. The site


N
B-15
B-23
B-26
B-27
B-20
B-18
B-21
B-28
19TB4
B-16
B-24
B-29
19MW2
B-22
19TB3
19MW1
APPROX. LOCATION OF 250 GAL. UNDERGROUND STORAGE TANK FOR GENERATOR DIESEL FUEL
APPROXIMATE MEAN HIGH WATER (SEPT. 1946)
B-30
B-19
19MW3
THAMES RIVER
B-17
B-25
19SD1
175
AREA OF STAINED SOILS
GOLF COURSE
PENN CENTRAL RAILROAD
19MW4
19SS1
APPROXIMATE LOCATION OF 1000 GALLON UNDERGROUND STORAGE TANK FOR HEATING OIL
19TB2
PIER 33
19TB1
AMBERJACK ROAD
ACB TRENCH
FENCE
19SD2
100 50 0 100 200
GRAPHIC SCALE IN FEET
MAP SOURCES
1. "EXISTING STORM SEWER SYSTEM", LOURIERO ENGINEERING ASSOC., 4-28-81
2. "DREDGING FOR BERTHING OF RESERVE FLEET", DEPARTMENT OF THE NAVY, 9-15-45
3. "REPAIRS TO LOW PRESSURE COMPRESSED AIR LINE NORTH OF PIER 17", DEPARTMENT OF THE NAVY, 11-4-54
NOTE: MORRISON GEOTECHNICAL BORING LOCATIONS ARE SHOWN.
INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CONN
LEGEND
EXIST.
19MW1 MONITORING WELL
19TB1 TEST BORING
19SD1 SEDIMENT SAMPLE
19SS1 SURFACE SOIL SAMPLE
A-1 SOIL GAS SAMPLE
19-1 MANHOLE INSPECTED
123 BUILDING No.
STORM SEWER
B-19 PREVIOUS BORING PERFORMED BY MORRISON GEOTECHNICAL INC.
FIGURE 4-2
SAMPLING LOCATIONS
PIER 33
ATLANTIC ENVIRONMENTAL SERVICES, INC.

analytical programs for the subsurface and surface soil samples are summarized in Section 2.0, Table 2-5.

Subsurface-soil analytical results are summarized in Table 4-3. Sampling locations are indicated on Plate 1 and Figure 4-2. The distribution of selected contaminants in subsurface soils is indicated on Plate 1.

The soil borings showed the depth of fill to range from approximately 6 to 16 feet. Fill materials consist of sand and gravel and fine-to-coarse sand. Minor oil staining or sheens were observed in three of the borings (19MW3, 19MW4, and 19TB2).

The highest concentrations of VOCs are present in samples 19MW2 (2-4), 19MW3 (4-6), 19MW4 (0-2), 19MW4 (6-8) and 19TB2 (6-8), where values ranging from 7 to 1900 ppb for methylene chloride (believed to be laboratory contaminant except the 1900 ppb at 19MW3); from 3 to 38 ppb for ethyl benzene; from 3 to 10 ppb for toluene; from 7 to 150 ppb for total xylenes; and 5 ppb of 2-butanone are present. The sample was collected at the groundwater table and had field-measured organic vapor readings above background. It should also be noted that high VOC readings were detected in the vicinity of 19MW3 during the soil gas investigation. The levels of ethylbenzene, toluene, and xylenes are low-to-moderate (below TBC values) and are likely associated with the petroleum staining, which was noted in borings 19MW3, 19MW4, and 19TB2.

Total petroleum hydrocarbon (TPH) analysis was performed at each of the boring locations and on the surface-soil sample. Elevated levels ranging from 3300 to 6200 ppm are present at samples 19MW3, 19MW4 and 19TB2, where samples were taken at, or immediately below, the water table. The highest level of TPH at the site (6800 ppm) is present at sample 19SS1, which was collected from an area of soil staining near the fill pipe of the 1,000-gallon underground tank on the south end of Building 175. The TPH findings correlate well with the

TABLE 4-3
NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
SUMMARY OF SOIL ANALYTICAL RESULTS (VOLATILE ORGANICS)

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)								
			19MW1 (0.5-2.5)	19MW2 (2-4)	19MW2 (4-6)	19MW3 (0-2)	19MW3 (4-6)	19MW4 (0-2)	19MW4 (4-6)	19SD1	19SD2
TCL VOLATILE ORGANIC COMPOUNDS (ppb)											
2-Butanone	1000 TBC	CTDEP	12 <	11 <	11 <	10 <	2800 <	55 <	57 <	13 <	13 <
4-Methyl-2-pentanone	--		12 <	11 <	11 <	10 <	2800 <	55 <	57 <	13 <	13 <
Acetone	--		12 <	7 J	8 J	23 B	2800 <	140	180	220	58
Carbon Disulfide	--		12 <	11 <	11 <	10 <	2800 <	55 <	57 <	13 <	13 <
Chloroform	100 TBC	CTDEP	12 <	11 <	11 <	10 <	2800 <	55 <	57 <	13 <	13 <
Ethylbenzene	700 TBC	CTDEP	12 <	11 <	11 <	10 <	2800 <	38 J	33 J	13 <	13 <
Methylene_Chloride	5 TBC	CTDEP	9 BJ	6 BJ	5 BJ	7 BJ	1900 BJ	20 BJ	19 BJ	9 JB	12 JB
Toluene	1000 TBC	CTDEP	12 <	3 J	11 <	10 <	2800 <	10 J	57 <	4 J	13 <
Xylene (total)	10000 TBC	CTDEP	12 <	11 <	11 <	10 <	2800 <	150	32 J	13 <	13 <

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)						
			19SS1	19TB1 (0-2)	19TB1 (6-8)	19TB2 (0-2)	19TB2 (6-8)	19TB3 (2-4)	19TB4 (4-6)
TCL VOLATILE ORGANIC COMPOUNDS (ppb)									
2-Butanone	1000 TBC	CTDEP	11 <	10 <	13 <	10 <	5 BJ	11 <	11 <
4-Methyl-2-pentanone	--		11 <	10 <	13 <	10 <	11 <	11 <	11 <
Acetone	--		140	25	28	8 J	44	20	120 B
Carbon Disulfide	--		11 <	10 <	13 <	10 <	11 <	11 <	11 <
Chloroform	100 TBC	CTDEP	11 <	10 <	13 <	10 <	11 <	11 <	11 <
Ethylbenzene	700 TBC	CTDEP	11 <	10 <	13 <	10 <	11 <	11 <	11 <
Methylene_Chloride	5 TBC	CTDEP	8 JB	6 BJ	6 BJ	4 BJ	7 BJ	6 BJ	5 BJ
Toluene	1000 TBC	CTDEP	11 <	10 <	13 <	10 <	3 J	11 <	11 <
Xylene (total)	10000 TBC	CTDEP	11 <	10 <	13 <	10 <	7 J	11 <	11 <

SUMMARY OF SOIL ANALYTICAL DATA (TOTAL PETROLEUM HYDROCARBONS)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE ID/DEPTH (Feet)							
			19MW3 (4-6)	19MW4 (4-6)	19SD1	19SD2	19SS1	19TB1 (6-8)	19TB2 (6-8)	19TB4 (4-6)
TOTAL PETROLEUM HYDROCARBONS (ppm)										
Petroleum Hydrocarbons by IR	100/TBC	CTDEP	5300	3300	3300	1800	6800	82	6200	78

TABLE 4-3 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
SUMMARY OF SOIL ANALYTICAL DATA (SEMIVOLATILE ORGANICS)

PARAMETER	SAMPLE ID/DEPTH (Feet)							
	19MW1 (0.5-2.5)	19MW2 (2-4)	19MW3 (0-2)	19MW3 (4-6)	19MW4 (0-4)	19MW4 (4-6)	19SD1	19SD2
TCL SEMIVOLATILE ORGANIC COMPOUNDS (ppb)								
2-Methylnaphthalene	32 J	360 <	370 <	23000	960 J	9700 J	14000 <	870 <
Acenaphthene	410 <	360 <	370 <	12000 <	1400 <	10000 <	7300 J	870 <
Anthracene	1 J	360 <	370 <	12000 <	1400 <	10000 <	9500 J	870 <
Benzo(a)anthracene	24 J	360 <	230 J	12000 <	1400 <	10000 <	17000	870 <
Benzo(a)pyrene	38 J	360 <	370 <	12000 <	1400 <	10000 <	18000	870 <
Benzo(b)fluoranthene	32 J	360 <	200 J	12000 <	1400 <	10000 <	26000	530 J
Benzo(g,h,i)perylene	410 <	360 <	370 <	12000 <	1400 <	10000 <	10000 J	870 <
Benzo(k)fluoranthene	25 J	360 <	370 <	12000 <	1400 <	10000 <	14000 <	870 <
Butylbenzylphthalate	410 <	360 <	370 <	12000 <	1400 <	10000 <	14000 <	870 <
Carbazole	410 <	360 <	370 <	12000 <	1400 <	10000 <	8100 J	870 <
Chrysene	62 J	360 <	370 <	12000 <	1400 <	10000 <	19000	870 <
Di-n-butylphthalate	410 <	360 <	370 <	12000 <	1400 <	10000 <	14000 <	870 <
Di-n-octylphthalate	410 <	360 <	370 <	12000 <	1400 <	10000 <	14000 <	870 <
Dibenz(a,h)anthracene	410 <	360 <	370 <	12000 <	1400 <	10000 <	14000 <	870 <
Dibenzofuran	410 <	360 <	370 <	12000 <	1400 <	10000 <	14000 <	870 <
Fluoranthene	72 J	220 J	480	12000 <	1400 <	10000 <	44000	630 J
Fluorene	410 <	360 <	370 <	12000 <	1400 <	10000 <	8000 J	870 <
Indeno(1,2,3-cd)pyrene	410 <	360 <	370 <	12000 <	1400 <	10000 <	9900 J	870 <
Naphthalene	22 J	360 <	370 <	12000 <	1400 <	10000 <	8600 J	870 <
Phenanthrene	64 J	360 <	370 <	7000 J	1400 <	10000 <	40000	510 J
Pyrene	41 J	200 J	420	12000 <	1400 <	10000 <	31000	680 J
bis(2-Ethylhexyl)phthalate	20 J	360 <	370 <	12000 <	1400 <	10000 <	14000 <	2100

SUMMARY OF SOIL ANALYTICAL DATA (PESTICIDES/PCBs)

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)							
			19MW1 (0.5-2.5)	19MW1DL (0.5-2.5)	19MW2 (2-4)	19MW3 (0-2)	19SS1	19TB2 (6-8)	19TB4 (0-4)	19TB4 (4-6)
TCL PESTICIDES (ppb)										
4,4'-DDD	--		10	79 <	3.6 <	3.6 <	36 <	3.6 <	3.5 <	3.7 <
4,4'-DDE	--		360	350	3.6 <	3.6 <	56	3.6 <	3.5 <	3.7 <
4,4'-DDT	500 TBC		480	520	3.6 <	3.6 <	36 <	3.6 <	3.5 <	3.7 <
Aroclor-1260	2000 TBC		79 <	790 <	140	56	360 <	130	55	120
alpha-Chlordane	--		5	41 <	1.8 <	1.8 <	1.8 <	1.9 <	1.8 <	1.9 <

TABLE 4-3 (continued)
NAVAL SUBMARINE BASE-NEW LONDON
PIER 33
SUMMARY OF SOIL ANALYTICAL DATA (INORGANICS)

PARAMETER	BACKGROUND	SAMPLE ID/DEPTH (Feet)									
		19SD1	19SD2	19SS1	19TB1 (0-4)	19TB1 (6-8)	19TB2 (0-2)	19TB2 (0-4)	19TB3 (2-4)	19TB3 (10-12)	19TB4 (0-4)
TAL INORGANICS (ppm)											
Aluminum	17,600	2740	2610	4290	3360	1880	1940	5250	6930 J	5500	4300 J
Antimony	2.05	9270	3.3 <	2.5 <	2.6 <	2.8 <	2.7 <	2.3 <	2.7 <	2.9 <	2.9 <
Arsenic	3.6	3	2.1 J	1.5 J	0.52 J	0.39 J	1 J	2.2	0.46 J	2.4	0.52 J
Barium	57.2	28.8 J	22.5 J	24.9 J	23.4 J	13.6 J	33.1 J	34.4	53.6 J	40.7	33.1 J
Beryllium	0.72	0.18 J	0.23 J	0.27 J	0.16 J	0.08 <	0.09 J	0.2 J	0.24 <	0.12 J	0.29 <
Boron	5.8	2.1 <	2.4 <	1.8 <	3 <	3.3 <	3.2 <	2.7 <	3.2 <	3.5 <	3.4 <
Cadmium	0.24	12.4	0.48 <	0.36 <	0.44 <	0.48 <	0.47 <	0.39 <	0.46 <	0.51 <	0.5 <
Calcium	499	915 J	1930	760 J	1360	706 J	881 J	633 J	842 J	936 J	753 J
Chromium	21.5	20.8	25.1	8.5	7.7	2.5	5	9.2	15.9 J	11.6	7.1 J
Cobalt	8	4.2 J	2.7 J	3.1 J	2.6 J	0.98 J	1.9 J	4.3 J	4.8 J	4 J	3.4 J
Copper	25.6	74	342	19.7	9.4	2.7 J	5.5	8	5.6 J	12.7	18.1 J
Iron	17,200	8570	6330	6520	5820	3450	4290	8620	10400 J	7010	5890 J
Lead	17.5	85600	185	48.4	13.7	1.3	6.1	2.7	1.7 J	1.9	13 J
Magnesium	3,650	1720	1120 J	1630	1570	796 J	882 J	2160	3160 J	2550	1670 J
Manganese	188	72.8	69.9	84.9	90.2	48.4	120	101	148 J	144	150 J
Mercury	0.05	0.05 <	0.11 J	0.02 <	0.04 <	0.07 <	0.06 <	0.07 <	0.11 <	0.09 <	0.12 <
Nickel	10	8.9 J	11	8.1	4 J	2 <	2 <	6.1 J	6.4 J	7.5 J	5.7 J
Potassium	2,580	1110 J	560 J	1060	1360	765 J	655 J	1910	3100 J	1670	993 J
Selenium	0.8	0.19 <	0.2 <	0.15 <	0.19 <	0.22 <	0.18 <	0.19 <	0.2 <	0.17 <	0.19 <
Silver	0.385	14.4	0.78 <	0.59 <	0.44 <	0.48 <	0.47 <	0.39 <	0.46 <	0.51 <	0.5 <
Sodium	41	134 J	622 J	60.9 J	63.2 J	59.7 J	73.8 J	125 J	318 J	529 J	277 J
Thallium	0.29	0.14 J	0.15 <	0.18 J	0.11 <	0.13 <	0.11 <	0.11 <	0.13 UJ	0.1 <	0.11 <
Vanadium	35.1	13.1	8.7 J	12.1	8.9	4.3 J	5.9 J	14.3	18.3 J	13.6	9.2 J
Zinc	31.3	107	168	38.7	26.5	10.9	14	20	22.9 J	17.2	36.3 J
Cyanide		0.55 J	1.1	0.15 <	0.16 <	0.18 <	0.16 <	0.15 <	0.15 <	0.17 J	0.17 <

TABLE 4-3 (continued)
NAVAL SUBMARINE BASE-NEW LONDON
PIER 33
SUMMARY OF SOIL ANALYTICAL DATA (INORGANICS)

PARAMETER	BACKGROUND	SAMPLE ID/DEPTH (Feet)								
		19TB4 (2-4)	19TB4 (4-6)	19MW1 (0.5-2.5)	19MW2 (2-4)	19MW2 (4-6)	19MW3 (0-2)	19MW3 (4-6)	19MW4 (0-4)	19MW4 (4-6)
TAL INORGANICS (ppm)										
Aluminum	17,600	NA	4610	12200	4300	5120	4980	3190	4770	3210
Antimony	2.05	NA	2.3 <	6.5 <	2.7 <	2.8 <	2.8 <	2.8 <	2.8 <	2.7 <
Arsenic	3.6	NA	0.74 J	3.5	1.5 J	1.1 J	1 J	0.34 J	1.3 J	1.7 J
Barium	57.2	NA	36 J	44.7	29.6 J	29.2 J	35.4 J	26.4 J	23.7 J	17.4 J
Beryllium	0.72	NA	0.2 J	0.91 J	0.18 J	0.17 J	0.21 J	0.21 J	0.19 J	0.12 J
Boron	5.8	NA	3.2 <	109 <	2.7 <	3.3 <	19.7 J	3.3 <	3.3 <	3.2 <
Cadmium	0.24	NA	0.47 <	0.44 <	0.4 <	0.49 <	0.49 <	0.49 <	0.49 <	0.47 <
Calcium	499	NA	770	896 J	918	1770	849 J	1000	781 J	771 J
Chromium	21.5	NA	10.8	23.4	8.4	10.5	12.4	6.9	6.7	5.5
Cobalt	8	NA	4.9	3.9 J	4 J	4.7 J	4.7 J	3.1 J	3.5 J	2.1 J
Copper	25.6	NA	14.7	10.4	14.9	17.6	18.4	43.8	7.7	6.9
Iron	17,200	NA	6800	11300	5950	7580	10400	4580	6150	4270
Lead	17.5	31.5 <	12.3	15.6	6.6	6.4	13.3	14.6	12.5	4.4
Magnesium	3,650	NA	2160	1490	1970	2590	2860	1100	1680	1350
Manganese	188	NA	209	300	112	121	94.1	48.2	96.5	57
Mercury	0.05	NA	0.06 <	0.1	0.04 <	0.05 <	0.33 <	0.08 <	0.06 <	0.05 <
Nickel	10	NA	5.9 J	7 J	7.6	7.2 J	9.4	8.1	4.6 J	3 J
Potassium	2,580	NA	1450	239 J	1260	1070	1240	544 J	1090	1010
Selenium	0.8	NA	0.21 <	1.1 J	0.18 <	0.17 <	0.19 <	0.2 <	0.16 <	0.2 <
Silver	0.385	NA	0.47 <	0.87 <	0.4 <	0.49 <	0.49 <	0.49 <	0.49 <	0.47 <
Sodium	41	NA	235 J	11.9 J	179 J	313 J	296 J	116 J	94.6 J	50.7 J
Thallium	0.29	NA	0.12 <	0.23 <	0.1 <	0.11 <	0.11 <	0.12 <	0.1 <	0.12 <
Vanadium	35.1	NA	11.9	19.7	10.9	14.6	15.6	7.9 J	11	7.7 J
Zinc	31.3	NA	29.3	32.4	22.8	22	32.2	43	21.7	13
Cyanide		NA	0.19 <	1.1 <	0.24 J	0.17 <	0.17 <	0.16 <	0.16 <	0.19 <

TABLE 4-3 (continued)
NAVAL SUBMARINE BASE-NEW LONDON
PIER 33
SUMMARY OF SOIL ANALYTICAL DATA (INORGANICS)

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)								
			19MW1 (0.5-2.5)	19MW2 (4-6)	19MW3 (4-6)	19MW4 (4-6)	19SS1	19TB1 (6-8)	19TB2 (6-8)	19TB3 (10-12)	19TB4 (4-6)
TCLP INORGANICS (ppb)											
Arsenic	50 TBC	CTDEP	20 <	23.4 <	23.4 <	23.4 <	32.1 <	23.4 <	23.4 <	23.4 <	23.4 <
Barium	1000 TBC	CTDEP	305	333	275	277	557	217	265	417	304
Cadmium	10 TBC	CTDEP	2.8 J	2.5 <	2.5 <	2.5 <	1.8 <	2.5 <	2.5 <	2.5 <	2.5 <
Chromium	50 TBC	CTDEP	4 <	14.2	3.9 <	8.4 J	3.1 <	3.9 <	6 J	10.4	5.4 J
Lead	15 TBC	CTDEP	28 <	419	56.2	114	173	12.4	12.7	39.7	43.4
Silver	50 TBC	CTDEP	4 <	2.5 <	10.8	2.5 <	2.9 <	2.5 <	9.8 J	2.5 <	2.5 <

Notes:

1) ARARs/TBC Indicates applicable or relevant and appropriate requirements; TBC indicates to be considered values (refer to Section 4.2 for further explanation). Shaded numbers exceed ARAR/TBC values or for mass analysis of inorganics background values.
2) Assigned letters adjacent to numerical values are data qualifiers. Refer to Section 2.7.2 for further explanation.
3) ppb indicates a concentration of parts per billion; ppm in parts per million.
4) < indicates not detected, less than detection limit. Refer to Section 2.2 for further explanation. NA indicates not analyzed.
5) The acronym adjacent to the ARAR/TBC value indicates the source of the value. Refer to Table 4-2 or glossary for further explanation.
6) Only those samples in which a parameter was detected above the detection limit are included on this table.

VOC findings previously discussed. The CTDEP has indicated that they use a soil cleanup value of 100 ppm, although that value is unpublished.

SVOs, predominantly PAHs, with concentrations ranging from one to 480 ppb, were detected at low levels in soils collected from locations 19MW1 (0.5-2.5), 19MW2 (2-4 ft), and 19MW3 (0-2 ft). Moderate-to-high concentrations, ranging from 960-23000 ppb, were observed at locations 19MW4(0-4 ft), 19MW4 (6-8 ft), and 19MW3 (4-6 ft). The source of SVOs present in 19MW1 is unclear; however, there was apparent ash material in the fill material observed during augering. The low levels observed in 19MW2 (2-4 ft) and 19MW5 (0-2 ft) may be associated with petroleum contamination observed during drilling. The elevated levels found in locations 19MW4 (0-4 ft), 19MW4 (6-8 ft), and 19MW3 (4-6 ft) correlate well with the visual petroleum staining observed during drilling. Target compounds could not be quantified for the sample collected from 19TB2 (6-8) due to elevated tentatively identified compound (TIC) interference. It should be noted that SVOs are likely elevated in this area, based on visual observations of oil staining during drilling, high TIC levels, and above-background HNu readings.

In addition to VOC, SVO, and TPH analysis, soil samples were screened for "oil fingerprinting" by fluorescence spectroscopy. Two distinct fuel oil residuals in soil were detected, No. 2 diesel fuel oil and a heavier weight No. 6 fuel oil. The areas identified as containing No. 2 diesel fuel also were found to have elevated TPH values; conversely, the areas where No. 6 fuel oil was identified contained very low or nondetected levels of TPH. No. 2 diesel fuel oil was detected in samples 19SS1, 19TB2 (6-8 ft), 19MW3 (4-6 ft), and 19MW4 (6-8 ft). The remaining borings 19TB1 (6-8 ft), 19TB3 (10-12 ft), 19TB4 (4-6 ft), and 19MW2 (4-6 ft) were found to contain No. 6 fuel oil at very low concentrations (concentration based on TPH analyses).

PCBs (Arochlor 1260) were detected at low concentrations, ranging from between 42 ppb to 140 ppb at 19MW2 (2-4 ft), 19MW3 (0-2 ft), 19TB2 (6-8 ft), 19TB4 (0-2 ft), and 19TB4 (4-6 ft). There were no values detected above the TBC value of 2 ppm. The presence of PCBs may be associated with the fill material, contaminated oils, or unknown sources. Pesticides, predominantly DDT, DDD, and DDE (DDTR), were present at 19MW1 (0.5-2.5 ft) and 19SS1, with the highest concentration of DDTR (850 ppb) present at 19MW1 (0.5-2.5 ft); this concentrations is above the TBC value of 500 ppb. Pesticides detected in sample 19MW1 are likely due to pesticide application to the golf course. The pesticide DDE present at 19SS1, which was collected adjacent to the underground storage tank fill pipe on the south side of Building 175, may be a result of past application in this area or overspray from the golf course.

The total metals analytical results were compared to the established background levels. Eight of 24 metals that were analyzed for were detected above background at more than one location. They include: calcium, copper, lead, manganese, mercury, potassium, sodium, and zinc. Cyanide was also detected above background. Low-to-moderate levels of lead were detected in all of the borings, with concentrations ranging from 1.3 to 48.4 ppm. Lead levels were observed above established background only at location 19SS1. (However, the lead levels are not above soil cleanup levels established for other sites at NSB-NLON: 500 ppm - 1,000 ppm.)

Although there are inorganic compounds that are above background in soils at the site, it appears that some of the elevated inorganics, i.e., sodium, potassium, and calcium, are a result of the site's proximity to the Thames River. Elevated levels of inorganics at 19MW1 may be due to fill materials or unknown sources.

The following inorganics were detected by TCLP analysis at the Pier 33 site: barium, cadmium, chromium, lead, and silver. Lead was the only inorganic, which was present above

established TBC value (15 ppb) for the site. Lead was detected by TCLP analysis above TBC values at six sample locations (19SS1, 19MW2 (4-6 ft), 19MW3 (4-6 ft), 19MW4 (6-8 ft), 19TB3 (10-12 ft), and 19TB4 (4-6 ft), but below the RCRA hazardous waste level of 5,000 ppb. The TCLP data do not correlate well with the total mass-analysis values; however, of all these locations, except 19SS1, total (mass based) lead levels were below background concentrations. In addition, based on duplicate analyses performed, the mass analyses provide more precise results than TCLP-extracted analyses. Therefore, the lead TBC exceedances which are based on TCLP analysis, do not appear to be of concern because these soils do not contain sufficient lead to constitute a potential source of contamination to groundwater.

The range of pH values for soils collected at the site is between 5.33 and 7.60, with the majority of samples being slightly acidic, measuring between 6.3 and 7.0. The site background area 19MW1 was observed to have the most acidic soil value at 5.33. Soil samples from 19TB3 were observed to have the highest pH values; soils were very slightly acidic to alkaline at this location, with pH values ranging from 6.3 to 7.6.

4.4.3 Sediments

Two storm-sewer sediment samples were collected as part of the investigation to evaluate the chemical quality of sediments. Sample locations are depicted in Figure 4-2 and Plate 1. The sampling and analytical program is summarized in Section 2.0, Table 2-5. Sediment analytical results are summarized in Table 4-3.

Sediments collected at 19SD1 contain a low concentration of toluene (4 ppb), which is well below the TBC value of 1,000 ppb. There were no additional VOCs detected in sediments at the site. Toluene is a typical constituent of petroleum hydrocarbons, which have been detected at the site based on TPH analyses.

Total TPH analysis was performed on both sediment samples collected from the site.

Analytical results indicate that elevated levels of petroleum hydrocarbons are present in the sediments. Sample location 19SD1 contained 3,300 ppm TPH; a slightly lower concentration was quantified at 19SD2 (1,800 ppm). Both samples are above the TBC value of 100 ppm.

SVOs, predominantly PAHs, were detected at moderate levels in sediments collected at 19SD2 and high levels at 19SD1. The level of SVOs at 19SD1 was the highest at the site. The SVOs are likely due to petroleum constituents based on the TPH levels. Lacking groundwater infiltration, the levels are likely due to surface water runoff or spills.

In addition to VOC, SVO and TPH analyses, sediment samples were screened for "oil fingerprinting" by fluorescence spectroscopy. Results indicate that both sample locations have a heavyweight fuel oil present. The fuel oil was identified as either a No. 4 or No. 6 fuel oil at 19SD1. The analysis indicated No. 6 fuel oil to be present at 19SD2.

There were no detectable quantities of pesticides or PCBs in the sediments collected at the Pier 33 site.

Several inorganics that were detected above established background values in the sediments included: antimony, cadmium, calcium, copper, lead, mercury, silver, sodium, zinc, and cyanide. Of significance is the elevated lead value of 85,600 ppm at 19SD1. The source of such an elevated total lead value is unknown. Elevated lead was also present at 19SD2 (185 ppm), where a small amount of paint chips were observed in the sediments. It should also be noted that lead ballast is commonly used at NSB-NLON in the form of approximately 3 mm size balls. The hoppers used to transport and load the lead onto the ships are often stored in the paved area adjacent to the north side of Building 175. Lead balls were observed on the ground in this area in several locations and represent a source of lead. No lead balls were observed in the sediment samples which were collected from the site. Copper was also present in both samples above background levels; copper is a common additive in antifouling boat bottom paint.

Elevated levels of antimony, which is reportedly used in some munitions according to Public Works Department (Bill Mansfield), are present in 19SD1 (9,270 ppm); it is also unclear as to the source of this metal, since it was not detected elsewhere at the site. Cadmium and silver were also detected well above the background value at 19SD1 and, like antimony, were not detected elsewhere at the site. The elevated levels of inorganics in the sediment of the storm sewers appear to be largely unrelated to the inorganics found in the soils. Inorganics from undefined surficial sources appear to accumulate in catch basin sediments.

4.4.4 Groundwater

Samples were collected from three groundwater monitoring wells to evaluate groundwater quality. The groundwater sampling program is summarized in Section 2.0, Table 2-5. The analytical results for the groundwater are summarized in Table 4-4.

Volatile organic compounds (VOCs) were only detected in one of the three monitoring locations. Low levels of ethyl benzene were detected at monitoring well 19MW4 (4.0 ppb). Toluene and xylenes were also detected at very low concentrations in 19MW4. There were no exceedances of established ARAR/TBC values for VOCs in groundwater at this site.

Total petroleum hydrocarbon (TPH) analysis was performed on groundwater samples collected from the site. There were no detections of TPH in the groundwater from any of the Pier 33 wells. It is noted that no free-oil product was detected in any of the wells sampled.

Semivolatile organic compounds (SVOCs) were detected in monitoring wells 19MW3 and 19MW4. Each of the wells contained the same six compounds at low concentrations. The six SVOCs detected are as follows: naphthalene, 2-methylnaphthalene, acenaphthene, dibenzofuran, fluorene, and phenanthrene. Naphthalene was below the TBC value of 20 ppb in 19MW3 (15 ppb) but exceeded the TBC in 19MW4 with 73 ppb.

TABLE 4-4 NAVAL SUBMARINE BASE - NEW LONDON PIER 33 SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (VOLATILE ORGANICS)			
PARAMETER	ARARs/TBC	SOURCE	SAMPLE LOCATION 19MW4
TCL VOLATILE ORGANIC COMPOUNDS (ppb)			
1,1,1-Trichloroethane	200 ARAR	MCL	1 <
Chloroform	100 ARAR	CTDOHS MCL	1 <
Ethylbenzene	700 ARAR	MCL	4
Methylene Chloride	5 ARAR	MCL	1 <
Toluene	1,000 ARAR	MCL	0.8 J
Trichloroethene	5 ARAR	MCL	1 <
Xylene (total)	10,000 ARAR	MCL	13

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (SEMIVOLATILE ORGANICS)				
PARAMETER	ARARs/TBC	SOURCE	SAMPLE LOCATION 19MW3	19MW4
TCL SEMIVOLATILE ORGANIC COMPOUNDS				
2-Methylnaphthalene	--		37	75
Acenaphthene	--		3 J	2 J
Acenaphthylene	0.0028 TBC	WQS	11 <	10 <
Dibenzofuran	--		2 J	2 J
Fluoranthene	42 TBC	WQC	11 <	10 <
Fluorene	1300 TBC	WQS	4 J	3 J
Naphthalene	20 TBC	U.S. EPA	15	73
Phenanthrene	0.0028 TBC	WQS	1 J	2 J
Pyrene	960 TBC	WQS	11 <	10 <

TABLE 4-4 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (DISSOLVED INORGANICS)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE LOCATION		
			19MW2	19MW3	19MW4
TAL DISSOLVED METALS					
Aluminum	200 TBC	Secondary MCL	136 J	172 J	153 J
Arsenic	50 ARAR	MCL	2 <	2 <	34.3
Barium	1,000 ARAR	CTDOHS MCL	43.7 J	72.8 J	58.2 J
Boron	600 TBC	Draft Health Advisory	162 J	184 J	206 J
Cadmium	5 ARAR	MCL	2 <	2 <	2 <
Calcium	--		23900	36400	68300
Cobalt	--		3 <	3 <	3 <
Copper	1,000 ARAR	CTDOHS MCL	3 <	3 <	3 <
Iron	300 TBC	Secondary MCL	42.5 J	11600	31100
Lead	15 ARAR	Action Level	1.4 J	2.2 J	1 <
Magnesium	--		3410 J	4850 J	4010 J
Manganese	50 TBC	Secondary MCL	7.6 J	1000	4090
Nickel	100 TBC	PMCL	9 <	9 <	9 <
Potassium	--		4030 J	4980 J	6440
Selenium	10 ARAR	CTDOHS MCL	1 <	1 <	1 <
Sodium	20000 TBC	Draft Health Advisory	66700	63100	21600
Thallium	2 ARAR	MCL	1 <	1 <	1 <
Zinc	5000 TBC	Secondary MCL	3.3 J	11 J	4.8 J

TABLE 4-4 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (TOTAL INORGANICS)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE LOCATION		
			19MW2	19MW3	19MW4
TAL INORGANICS					
Aluminum	200 TBC	Secondary MCL	56 <	56 <	56 <
Arsenic	50 ARAR	MCL	2 <	2 <	2 <
Barium	1000 ARAR	CTDOHS MCL	1 <	1 <	1 <
Boron	600 TBC	Draft Health Advisory	500 <	500 <	500 <
Cadmium	5 ARAR	MCL	2 <	2 <	2 <
Calcium	--		22700 J	33300 J	72800 J
Cobalt	--		3 <	3 <	11.5 J
Copper	1000 ARAR	CTDOHS MCL	3 <	3 <	3 <
Iron	300 TBC	Secondary MCL	13 <	10700 J	31900 J
Lead	15 ARAR	Action Level	1 <	1 <	1 <
Magnesium	--		3360 J	4410 J	4090 J
Manganese	50 TBC	Secondary MCL	1 J	912 J	4140 J
Potassium	--		3840 J	4540 J	6480 J
Selenium	10 ARAR	CTDOHS MCL	1 <	1 <	1 <
Sodium	20000 TBC	Draft Health Advisory	63400 J	57400 J	21900
Thallium	2 ARAR	MCL	1 <	1 <	1 <
Zinc	5000 TBC	Secondary MCL	3 <	11 J	4.8 J

NOTES:
1) ARARs/TBC Indicates applicable or relevant and appropriate requirements; TBC indicates to be considered values (refer to Section 4.2 for further explanation. Shaded numbers exceed ARAR/TBC values.
2) Assigned letters adjacent to numerical values are data qualifiers. Refer to Section 2.7.2 for further explanation.
3) ppb indicates a concentration of parts per billion; ppm in parts per million.
4) < indicates not detected, less than detection limit. Refer to Section 2.2 for further explanation. NA indicates not analyzed.
5) The acronym adjacent to the ARAR/TBC value indicates the source of the value. Refer to Table 4-2 or glossary for further explanation.
6) Only those samples in which a parameter was detected above the detection limit are included on this table.

Concentrations of both fluorene and phenanthrene were above the TBC value of 0.0028 ppb, which is based on CTDEP's Water Quality Standards for the consumption of water and organisms. The value is below the Contract Required Quantitation Limit (CRQL) of 10 ppb.

Groundwater samples were also analyzed for "oil fingerprinting" by fluorescence spectroscopy. A residual fuel oil or road tar was identified at 19MW2. Groundwater from 19MW3 and 19MW4 may contain No. 4 or No. 6 fuel oil, according to analytical results. The fluorescence data for groundwater does not correspond well with the fluorescence data obtained for soils at the site. Total petroleum hydrocarbons were not detected in groundwater at the site, which indicates that the fluorescence method is identifying a very low concentration of oil. In general, it is evident that the soil containing fuel oil residues and TPH and VOCs do not have a significant effect on groundwater quality.

Groundwater was sampled and analyzed for pesticides and PCBs. There were no pesticides or PCBs detected in groundwater.

Both total and dissolved inorganics were analyzed for at the Pier 33 site. In general, the values for the total metals were very close to the values reported for the dissolved metals, which indicate that measurements of dissolved metals accurately represent the amount of mobile inorganics present. TBCs for iron, manganese, and sodium are exceeded at both 19MW3 and 19MW4 locations. The TBC for sodium is also exceeded at 19MW2. No ARARs were exceeded for inorganics in groundwater. The source of elevated iron and manganese in monitoring wells 19MW3 and 19MW4 is likely fill material; however, elevated concentrations of sodium in 19MW2 and 19MW3 and 19MW4 are likely due to a high concentration in sea water.

4.4.5 Utility Manhole Inspection

A total of seven utility manholes were inspected on May 21, 1993. The study area is

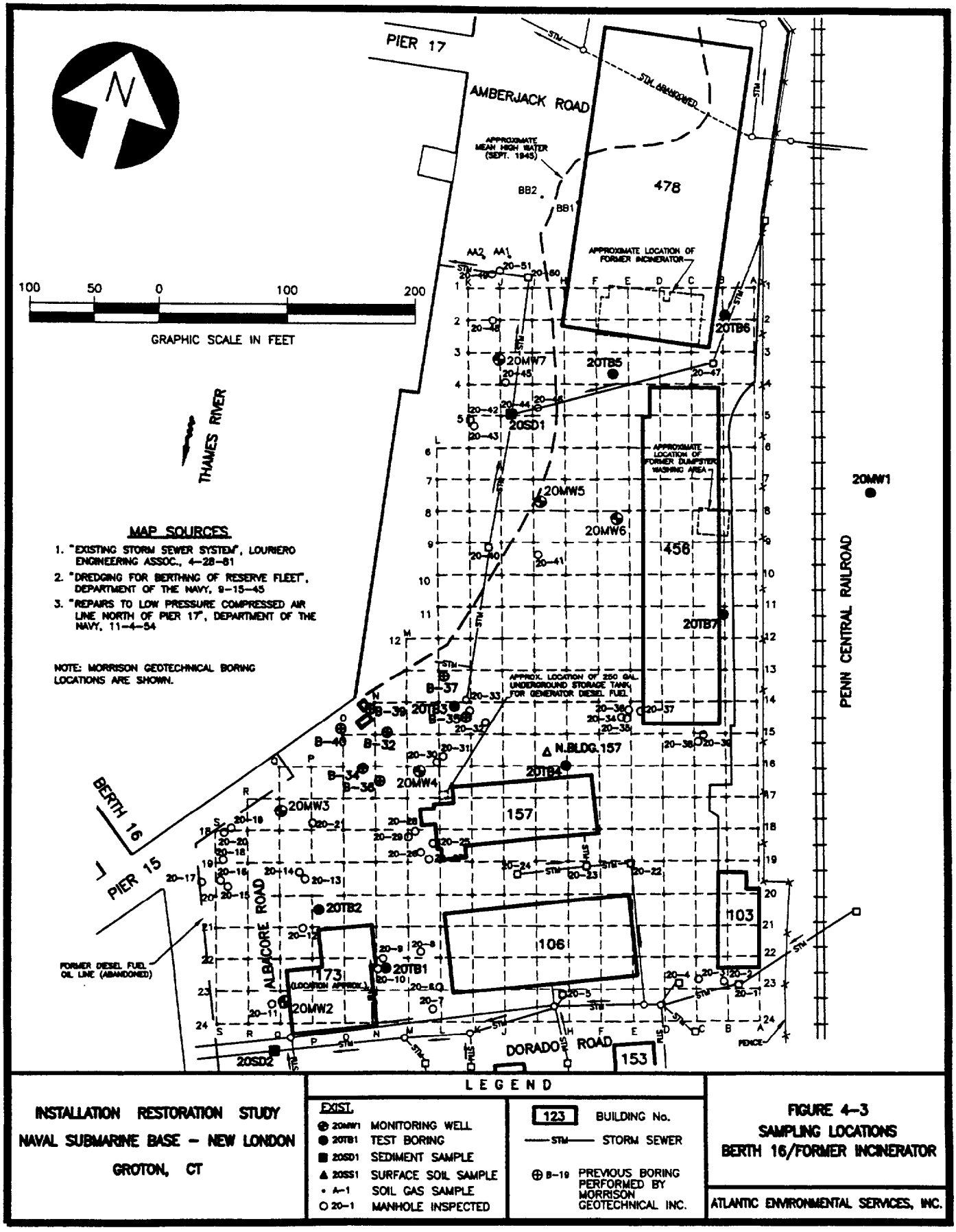
depicted in Figure 4-2. The utilities observed consisted of storm sewer, sanitary sewer, electric, and telephone manholes. All accessible manholes in the study area were opened and inspected. The inspection consisted of removing manhole covers and noting manhole type, if possible, and any visual evidence of oil contamination such as an oil sheen on water, discolored sediments, or any petroleum odors. A steel rod was used to probe the sediments. Observations were noted in a field log book, and a video recording of each manhole was made. The only significant observation noted during the inspection was the presence of a slight sheen on the water at 19-1. Station 19-1 is a sanitary sewer; therefore, it is not clear whether the sheen is due to site conditions or a result of disposal into the sewer from an outside source. In general, it does not appear that fuel oil is migrating in the inspected utilities.

4.5 Berth 16

The field investigation at this site consisted of a soil-gas survey, a utility manhole inspection, test borings, groundwater monitoring wells, soil-and-groundwater analysis, and sediment sampling and analysis. Sampling locations are indicated in Figure 4-3.

4.5.1 Soil Gas

A total of 211 soil gas locations were sampled and analyzed at the site. The soil-gas sampling locations are indicated in Figure 4-3 and Plate 2. Due to the high incidence of utilities, steam trenches, and thick concrete pads, there are a number of points on the grid which could not be sampled. There were 15 soil-gas points which contained quantifiable BTEX concentrations ranging from 0.027 ppm to 5.82 ppm in the air. The total concentration of volatile organics including unknowns ranged from none detected to 5,800 volt seconds (Vs). The following locations were determined to have elevated levels (moderate to high per subsection 2.4) of benzene, toluene, ethyl benzene, and xylenes (BTEX) combined: AA-1, AA-2, J-1, J-2, J-3, K-2, K-3, K-4, N-18, N-16, and P-16. The soil-gas survey results were used



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE – NEW LONDON GROTON, CT	LEGEND		FIGURE 4-3 SAMPLING LOCATIONS BERTH 16/FORMER INCINERATOR
	EXIST. ⊕ 20MW1 MONITORING WELL ● 20TB1 TEST BORING ■ 20SD1 SEDIMENT SAMPLE ▲ 20SS1 SURFACE SOIL SAMPLE • A-1 SOIL GAS SAMPLE ○ 20-1 MANHOLE INSPECTED	123 BUILDING No. —STM— STORM SEWER ⊕ B-19 PREVIOUS BORING PERFORMED BY MORRISON GEOTECHNICAL INC.	ATLANTIC ENVIRONMENTAL SERVICES, INC.

to aid in the placement of borings at the site. The following boring locations were changed, based on these results: 20MW4, 20MW7, and 20TB4. The following information relates to boring relocations, based on soil-gas results.

Boring Number	Distance/Direction Moved	Soil Gas Point/Concentration
20MW4	±25 feet west	M-16/59.1Vs
20MW7	±25 feet southwest	J-3/1,100 Vs, 5.82 ppm BTEX
20TB4	±25 feet east	H-16/200 Vs

Soil gas total BTEX in air concentrations (ppm) and total VOC concentrations (Vs) are shown in Plate 2. A summary of soil-gas data is provided in Appendix A.

4.5.2 Subsurface Soil

Twenty-seven subsurface soil samples were collected from 14 test-boring/monitoring-well locations at this site. The site analytical program for the subsurface soil samples is summarized in Section 2.0, Table 2-5. Sampling locations are indicated in Figure 4-3. The distribution of selected contaminants in subsurface soils is indicated on Plate 2. As explained in subsection 2.5.1, the location of boring 20TB7 was relocated due to a recent addition to Building 456, which is not shown in the figure or plate. Subsurface soil analytical results are summarized in Table 4-5.

The soil borings showed fill containing ash, fire brick, stained wood, machine cuttings, metal wire, brass screws, concrete, etc., as deep as 16 feet below surface. It is likely that fill extends to an elevation of at least 10 feet below MSL or deeper; however, there is no anthropogenic evidence to confirm that the underlying sand and gravel is not indigenous.

Petroleum odors and sheen or staining was observed in borings 20MW3, 20MW4, 20MW5, 20MW7, 20TB1, 20TB4, and 20TB5.

TABLE 4-5
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL RESULTS (VOLATILE ORGANICS)

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)										
			20MW1 (2.0-2.5)	20MW2 (0-2)	20MW2 (14-16)	20MW3 (2-4)	20MW3 (8-10)	20MW4 (2-4)	20MW4 (4-6)	20MW5 (0-2)	20MW5 (6-8)	20MW6 (2-4)	20MW6 (12-14)
TCL VOLATILE ORGANIC COMPOUNDS (ppb)													
2-Butanone	1000 TBC	CTDEP	11 <	11 <	12 <	11 <	11 <	11 <	11 <	11 <	12 <	12 <	11 <
4-Methyl-2-pentanone	--		11 <	11 <	12 <	11 <	11 <	11 <	11 <	11 <	12 <	12 <	11 <
Acetone	--		7 BJ	14 <	12 <	12 <	19 <	18 <	17 <	32 <	35 <	12 <	20 <
Carbon Disulfide	--		11 <	11 <	12 <	11 <	11 <	11 <	11 <	11 <	7 J	12 <	11 <
Chloroform	100 TBC	CTDEP	11 <	11 <	12 <	11 <	11 <	11 <	11 <	11 <	12 <	12 <	11 <
Ethylbenzene	700 TBC	CTDEP	11 <	11 <	12 <	11 <	11 <	11 <	11 <	11 <	12 <	12 <	11 <
Methylene_Chloride	5 TBC	CTDEP	9 BJ	11 <	12 <	11 <	11 <	11 <	11 <	11 <	13 <	12 <	11 <
Toluene	1000 TBC	CTDEP	11 <	11 <	12 <	11 <	11 <	11 <	11 <	11 <	12 <	12 <	11 <
Xylene (total)	10000 TBC	CTDEP	11 <	11 <	12 <	11 <	11 <	11 <	11 <	11 <	12 <	12 <	11 <

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)									
			20MW7 (2-4)	20MW7 (4-6)	20SD1	20SD2	20TB1 (2-4)	20TB1 (6-8)	20TB2 (2-4)	20TB2 (14-16)	20TB3 (2-4)	20TB3 (10-12)
TCL VOLATILE ORGANIC COMPOUNDS (ppb)												
2-Butanone	1000 TBC	CTDEP	11 <	12 <	13 <	13 <	11 <	11 <	10 <	11 <	11 <	11 <
4-Methyl-2-pentanone	--		11 <	12 <	13 <	6 J	11 <	11 <	10 <	11 <	11 <	11 <
Acetone	--		26 <	20 <	86	120	11 <	11 <	13 <	17 <	19 <	20 <
Carbon Disulfide	--		11 <	12 <	10 J	13 <	11 <	11 <	10 <	11 <	11 <	11 <
Chloroform	100 TBC	CTDEP	11 <	12 <	13 <	13 <	11 <	11 <	10 <	11 <	11 <	11 <
Ethylbenzene	700 TBC	CTDEP	11 <	12 <	13 <	13 <	11 <	11 <	10 <	11 <	11 <	11 <
Methylene_Chloride	5 TBC	CTDEP	11 <	12 <	11 JB	15 B	4 JB	7 JB	10 <	11 <	11 <	11 <
Toluene	1000 TBC	CTDEP	11 <	12 <	13 <	13 <	11 <	11 <	10 <	11 <	11 <	11 <
Xylene (total)	10000 TBC	CTDEP	11 <	12 <	13 <	13 <	11 <	11 <	10 <	11 <	11 <	11 <

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL RESULTS (VOLATILE ORGANICS)

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet) 20TB4 (0-2)	20TB4 (14-16)	20TB5 (0-2)	20TB5 (4-6)	20TB6 (0-2)	20TB6 (8-10)	20TB7 (32-42 IN)	20TB7 (48-52 IN)
TCL VOLATILE ORGANIC COMPOUNDS (ppb)										
2-Butanone	1000 TBC	CTDEP	11 <	14 <	10 <	11 <	10 <	20	10 <	11 <
4-Methyl-2-pentanone	--		11 <	14 <	10 <	11 <	10 <	13 <	10 <	11 <
Acetone	--		9 J	45	23	25	11	97 B	51	11 <
Carbon Disulfide	--		11 <	14 <	10 <	11 <	10 <	6 J	10 <	11 <
Chloroform	100 TBC	CTDEP	11 <	14 <	10 <	11 <	10 <	13 <	10 <	11 <
Ethylbenzene	700 TBC	CTDEP	11 <	14 <	10 <	11 <	10 <	13 <	10 <	11 <
Methylene_Chloride	5 TBC	CTDEP	5 BJ	7 BJ	5 BJ	5 BJ	6 BJ	11 BJ	10 BJ	9 BJ
Toluene	1000 TBC	CTDEP	11 <	14 <	10 <	11 <	10 <	13 <	10 <	11 <
Xylene (total)	10000 TBC	CTDEP	11 <	14 <	10 <	11 <	10 <	13 <	10 <	11 <

SUMMARY OF SOIL ANALYTICAL DATA (TOTAL PETROLEUM HYDROCARBONS)

PARAMETER	SAMPLE ID/DEPTH (Feet) 20MW1 (0.5-2.5)	20MW3 (8-10)	20MW4 (4-6)	20MW5 (6-8)	20MW6 (12-14)	20MW7 (4-6)	20SD1	20SD2	20TB4 (14-16)	20TB5 (4-6)	20TB6 (8-10)	20TB7 (48-56IN)
TOTAL PETROLEUM HYDROCARBONS (ppm)												
Petroleum Hydrocarbons by IR	70 <	970	200	720	150	2500	1300	1100	1500	170	220	86

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL DATA (SEMI-VOLATILE ORGANICS)

PARAMETER	SAMPLE ID/DEPTH (Feet)											
	20MW1 (0.5-2.5)	20MW2 (0-2)	20MW3 (2-4)	20MW3 (8-10)	20MW4 (2-4)	20MW5 (0-2)	20MW5 (6-8)	20MW6 (2-4)	20MW6 (12-14)	20MW11 (0.5-2.5)	20SD1	20SD2
TCL SEMI-VOLATILE ORGANIC COMPOUNDS (ppb)												
2-Methylnaphthalene	370 <	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Acenaphthene	370 <	340 <	11000 <	1100 J	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Anthracene	370 <	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	2 J	850 <	260 J
Benzo(a)anthracene	32 J	350	11000 <	1500 <	360 <	570 J	1500 <	9500 J	250 J	23 J	850 <	530
Benzo(a)pyrene	35 J	380 J	11000 <	1500 <	360 <	700	1500 <	14000 J	260 <	33 J	850 <	550
Benzo(b)fluoranthene	46 J	430 J	9500 J	1500 <	360 <	1400	1500 <	16000 J	230 <	36 J	440 J	1000
Benzo(g,h,i)perylene	370 <	340 <	11000 <	1500 <	360 <	560	1500 <	7300 J	370 <	390 <	850 <	310 J
Benzo(k)fluoranthene	30 J	330 J	11000 <	1500 <	360 <	350 <	1500 <	9700 J	290 <	23 J	850 <	440 <
Butylbenzylphthalate	370 <	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	390 <	470 J	520
Carbazole	370 <	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Chrysene	55 J	350	11000 <	1500 <	360 <	690	1500 <	11000 J	270 J	49 J	850 <	620
Di-n-butylphthalate	370 <	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Di-n-octylphthalate	41 J	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Dibenz(a,h)anthracene	370 <	340 <	11000 <	1500 <	360 <	190 R	1500 <	11000 <	370 <	390 <	850 <	440 <
Dibenzofuran	370 <	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Fluoranthene	76 J	670	15000	2100 J	200 J	910	1200 J	19000 J	660 J	66 J	520 J	1200
Fluorene	370 <	340 <	11000 <	1200 J	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Indeno(1,2,3-cd)pyrene	370 <	340 <	11000 <	1500 <	360 <	450	1500 <	7000 J	370 <	390 <	850 <	320 J
Naphthalene	370 <	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	390 <	850 <	440 <
Phenanthrene	60 J	220 J	13000	1500 <	360 <	310 J	1500 <	7600 J	400 J	42 J	850 <	1100
Pyrene	78 J	650	9400 J	1200 J	360 <	860 J	850 J	14000 J	560	59 J	580 J	1200
bis(2-Ethylhexyl)phthalate	93 J	340 <	11000 <	1500 <	360 <	350 <	1500 <	11000 <	370 <	32 J	2300	2400

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL DATA (SEMI-VOLATILE ORGANICS)

PARAMETER	SAMPLE ID/DEPTH (Feet)									
	20TB1 (2-4)	20TB3 (2-4)	205B3 (10-12)	20TB4 (14-16)	20TB5 (0-2)	20TB5 (4-6)	20TB6 (0-2)	20TB6 (8-10)	20TB7 (32-42 IN)	20TB7 (48-56 IN)
TCL SEMI-VOLATILE ORGANIC COMPOUNDS (ppb)										
2-Methylnaphthalene	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	340 <	340 <
Acenaphthene	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	610	340 <	850
Anthracene	350 <	350 <	360 <	1800 <	260 J	360 <	340 <	230 J	340 <	810
Benzo(a)anthracene	190 J	260 J	360 <	1800 <	610	310 J	300 J	340 J	340 <	570
Benzo(a)pyrene	350 <	210 J	360 <	1800 <	720	260 J	280 J	430 <	340 <	370
Benzo(b)fluoranthene	230 J	240 J	360 <	1800 <	720	320 J	350	430 <	240 J	720
Benzo(g,h,i)perylene	350 <	350 <	360 <	1800 <	320 J	360 <	340 <	430 <	340 <	340 <
Benzo(k)fluoranthene	350 <	230 J	360 <	1800 <	770	220 J	340 <	430 <	340 <	340 <
Butylbenzylphthalate	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	340 <	340 <
Carbazole	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	340 <	180 J
Chrysene	190 J	250 J	360 <	1800 <	630	350 J	290 J	330 J	340 <	640
Di-n-butylphthalate	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	320 J	340 <
Di-n-octylphthalate	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	320 J	340 <
Dibenz(a,h)anthracene	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	340 <	340 <
Dibenzofuran	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	340 <	490
Fluoranthene	340 J	400 J	290 J	1300 J	1100	540	480	590	220 J	2500
Fluorene	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	390 J	340 <	940
Indeno(1,2,3-cd)pyrene	350 <	350 <	360 <	1800 <	330 J	360 <	340 <	430 <	340 <	340 <
Naphthalene	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	340 <	340 <
Phenanthrene	350 <	190 J	360 <	1800 <	790	340 J	340 <	760	340 <	2800
Pyrene	290 J	410	230 J	1200 J	1200	590	490	720	180 J	1500
bis(2-Ethylhexyl)phthalate	350 <	350 <	360 <	1800 <	340 <	360 <	340 <	430 <	340 <	340 <

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL DATA (PESTICIDES/PCB)

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)				
			20MW1 (0.5-2.5)	20TB5 (0-2)	20TB6 (0-2)	20TB7 (32-42 IN)	20TB7 (48-56 IN)
TCL PESTICIDES (ppb)							
4,4'-DDD	--		3.7 <	3.4 <	3.5	35 <	35 <
4,4'-DDE	--		17	3.4 <	3.5 <	35 <	35 <
4,4'-DDT	500 TBC		31	14	17	43	61
PCB Aroclor-1260	2000 TBC	CTDEP	37 <	34 <	35 <	350 <	350 <
Heptachlor epoxide	--		4	1.7 <	1.8 <	18 <	18 <
alpha-Chlordane	--		12	1.7 <	1.8 <	18 <	18 <
gamma-Chlordane	--		7.5	1.7 <	1.8 <	18 <	18 <

SUMMARY OF SOIL ANALYTICAL DATA (DIOXIN)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE ID/DEPTH (Feet)					
			20MW5 (0-2)	20MW6 (2-4)	20MW7 (2-4)	20TB4 (4-6)	20TB5 (0-2)	20TB6 (8-10)
Dioxin	--		ND	0.16	ND	ND	ND	ND

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL DATA (INORGANICS)

Analyte Name	Background	Sample ID/Depth (feet)									
		20MW-1 (0.5-2.5)	20MW-2 (0-2)	20MW-2 (14-16)	20MW-3 (2-4)	20MW-3 (8-10)	20MW-4 (2-4)	20MW-4 (4-6)	20MW-5 (0-2)	20MW-5 (6-8)	20MW-6 (2-4)
TAL Inorganics (ppm)											
Aluminum	17,600	10300	4470 J	4350 J	4410 J	4620 J	7280 J	3590 J	3860 J	6530 J	136 J
Antimony	2.05	5.5 <	1.8 <	2.5 <	2.2 <	2.3 <	2.3 <	2.1 <	5.3 <	14.3 J	7580 <
Arsenic	3.6	3	1 J	0.79 J	1.2 J	1.1 J	0.4 J	0.32 J	0.89 J	2.2 J	1.9 J
Barium	57.2	46.3	25.2 J	29.6 J	27.3 J	33.8 J	56.8 J	20.3 J	30.7 J	101 J	170 J
Beryllium	0.72	0.67 J	0.22 <	0.19 <	0.29 <	0.33 J	0.31 J	0.18 <	0.17 <	0.3 J	0.05 <
Boron	5.8	91.5 <	1.2 <	5.7 <	3.7 <	3.4 <	1.8 <	1.5 <	1.6 <	2 <	2.3 <
Cadmium	0.24	0.37 <	0.25 <	0.37 <	0.32 <	0.34 <	0.33 <	0.31 <	0.34 <	0.5 J	6.8 <
Calcium	499	367 J	832 J	721 J	2590 J	896 J	1490 J	678 J	670 J	2410 J	631 J
Chromium	21.5	12.9	6.4 J	4.6 J	8 J	9.1 J	11 J	4.1 <	9.1 J	12.8 J	4.1 J
Cobalt	8	4.5 J	2.8 <	2.8 <	3.7 J	4.3 J	5.3 J	2.2 <	3.4 J	4.7 J	1.1 J
Copper	25.6	8.6	10 J	3.5 <	26.6 J	15.6 J	11.6 J	4.7 J	122 J	123 J	74.9 J
Iron	17,200	9730	5960 J	6130 J	6980 J	6830 J	10400 J	5570 J	6850 J	10100 J	4510 J
Lead	17.5	14	65.1 J	2.3 J	60.7 J	38.3 J	20.4 J	12 J	128 J	1040 J	189000 J
Magnesium	3,650	1390	1400 J	1540 J	1830 J	1060 J	2560 J	1250 J	1520 J	2120 J	47.9 J
Manganese	188	230	100 J	79.2 J	109 J	79.8 J	149 J	99.1 J	113 J	97.7 J	32.7 J
Mercury	0.05	0.06 <	0.06 <	0.02 <	0.06 <	0.03 <	0.02 <	0.02 <	0.12 J	0.09 <	1.2 <
Nickel	10	7.5	4.9 J	5.2 J	11.5 J	7.5 J	7.8 J	3.7 J	4.8 J	11 J	1.8 J
Potassium	2,580	327 J	1120 J	1290 J	975 J	1690 J	1970 J	1280 J	1420 J	1210 J	53 J
Selenium	0.8	0.69 J	0.18 <	0.22 <	0.2 <	0.18 <	0.19 <	0.22 <	0.2 <	0.18 <	1.7 <
Silver	0.385	0.73 <	0.41 <	0.59 <	0.51 <	0.54 <	0.54 <	0.5 <	0.54 <	0.49 <	5.4 <
Sodium	41	134 J	49.5 <	139 J	104 J	237 J	95.3 J	158 J	103 J	107 J	68.1 J
Thallium	0.29	0.19 <	0.11 <	0.13 <	0.12 <	0.1 <	0.12 <	0.11 <	0.12 <	0.11 <	1 <
Vanadium	35.1	18.1	10 J	10.7 J	14.9 J	15.1 J	20.4 J	9 J	10.7 J	15.2 J	1.9 J
Zinc	31.3	29.8	23.1 J	12.8 J	68.1 J	41.5 J	22.5 J	13.1 J	146 J	229 J	605 J
Cyanide		1 <	0.16 <	0.19 <	0.18 J	0.19 <	0.19 <	0.19 <	0.17 <	0.21 <	0.21 <

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL DATA (INORGANICS)

Analyte Name	Background	20MW-6 (12-14)	20MW-7 (2-4)	20MW-7 (4-6)	20TB-5 (0-2)	20TB-5 (4-6)	20TB-6 (0-2)	20TB-6 (8-10)	20TB-7 (32-34IN)	20TB-7 (48-56IN)
TAL Inorganics (ppm)										
Aluminum	17,600	5050	3220 J	3880 J	5040 J	7730 J	4200 J	4750 J	8670	6670
Antimony	2.05	13.4	2.3 <	2.5 <	3.8 <	2.6 <	2.7 <	3.6 <	1.9 <	1.9 <
Arsenic	3.6	2.8	0.32 J	0.49 J	1.4 J	3 J	1.8 J	2.2	0.91 J	1 J
Barium	57.2	127	25 J	21.5 J	45.3 J	38 J	38.4	29.7 J	97.3	72.2
Beryllium	0.72	1.2	0.17 <	0.19 <	0.26 <	0.35 J	0.15 J	0.19 J	0.51 J	0.43 J
Boron	5.8	4 J	1.6 <	2.7 <	2.6 <	2 <	3.1 <	4.3 <	1.4 <	1.4 <
Cadmium	0.24	1.4	0.33 <	0.37 <	0.32 <	0.39 <	0.46 <	0.63 <	0.28 <	0.42 J
Calcium	499	4660	471 J	578 J	2220 J	1140 J	1520	1190 J	3640	1610
Chromium	21.5	19.3	4.1 <	6.1 J	11.1 J	10.4 J	7.8 J	9.9 J	21.4	16.1
Cobalt	8	4.4 J	2.6 <	4 J	3.8 J	4 J	2.7 J	3.1 J	9.1	6.9 J
Copper	25.6	142	3 J	6.4 J	37.8 J	21.7 J	71.9 J	16.1 J	27.4 J	23.8 J
Iron	17,200	37800	5190 J	6550 J	8060 J	8480 J	5530 J	6610 J	18900	13900
Lead	17.5	1540	6.3 J	6.2 J	220 J	31.8 J	476	24.4	41.7 J	39.4 J
Magnesium	3,650	1530	1320 J	1620 J	2080 J	1660 J	1550 J	1400 J	5650	3790
Manganese	188	194	120 J	104 J	113 J	114 J	108	58.3	317	208
Mercury	0.05	0.14	0.07 <	0.04 <	0.11 J	0.25 J	0.1	0.05 <	0.03 <	0.03 <
Nickel	10	254	2.5 J	4.6 J	9.7 J	7.6 J	17.7	3.8 J	11.1	10.6
Potassium	2,580	960 J	1460 J	1230 J	1520 J	839 J	928	843 J	5240	3380
Selenium	0.8	0.17 <	0.2 <	0.22 <	0.2 <	0.21 <	0.15 <	0.22 J	0.15 <	0.16 <
Silver	0.385	0.75 J	0.54 <	0.6 <	0.52 <	0.62 <	0.46 <	0.63 <	0.45 <	0.46 <
Sodium	41	1480	123 J	104 J	95.1 J	99.9 J	36.3 J	82.3 J	92.4 J	100 J
Thallium	0.29	0.1 <	0.12 <	0.13 <	0.12 <	0.11 <	0.09 <	0.13 <	0.16 J	0.16 <
Vanadium	35.1	213	8.2 J	10.7 J	16.5 J	16 J	16.8	9.9 J	44.1	27.4
Zinc	31.3	682	13.6 J	14 J	101 J	53.7 J	114 J	50.4 J	92	84.1
Cyanide		0.19 <	0.18 <	0.17 <	0.18 <	0.19 <	0.15 <	0.2 <	0.19 <	0.16 <

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL DATA (INORGANICS)

PARAMETER	BACKGROUND	SAMPLE ID/DEPTH (Feet)									
		20SD1	20SD2	20TB1 (2-4)	20TB1 (6-8)	20TB2 (2-4)	20TB2 (14-16)	20TB3 (2-4)	20TB3 (10-12)	20TB4 (0-2)	20TB4 (14-16)
TAL INORGANICS (ppm)											
Aluminum	17,600	1930	3380	5680	4570	5780 J	3430	5390	3590	4510	3460
Antimony	2.05	2.4 <	2 <	2.3 <	2.1 <	2.1 <	2.4 J	2.2 <	2.5 <	7.8 J	1820
Arsenic	3.6	1.4 J	1.2 J	1 J	1.4 J	2 J	0.73 J	0.75 J	0.52 J	1.4 J	50
Barium	57.2	24.9 J	20.7 J	23.7 J	29.7 J	24.1 J	17.7 J	31.9 J	29 J	364	550
Beryllium	0.72	0.15 J	0.2 J	0.3 J	0.19 J	0.23 <	0.14 J	0.26 J	0.19 J	0.22 J	0.34 J
Boron	5.8	1.7 <	1.8 J	1.7 J	1.5 <	1.5 <	1.7 <	1.5 <	1.8 <	2.9 J	15.1 J
Cadmium	0.24	0.35 <	0.46 J	0.33 <	0.31 <	0.3 <	0.34 <	0.32 <	0.37 <	0.39 <	4
Calcium	499	1790	1910	889 J	830 J	661 J	619 J	908	675 J	5480	25000
Chromium	21.5	12.5	14.1	7.6	6.4	6.5 J	5.7	7.1	4.5	6.6	44.4
Cobalt	8	2.1 J	3.8 J	3.4 J	3 J	3.4 J	2.6 J	4.3 J	2.2 J	3.5 J	12.3 J
Copper	25.6	41.6	107	8.4	4.4	9.2 J	5.4	11.2	4.2 J	59.4	9010
Iron	17,200	6560	8880	6500	6320	5770 J	4730	7630	5460	6140	186000
Lead	17.5	47.5	102	35.5	2.2	33.6 J	20.7	66.1	16.6	726	9770
Magnesium	3,650	1380	3040	1630	1710	1410 J	1260	2260	1210	2060	7610
Manganese	188	97.8	111	111	87.7	117 J	54	129	72	162	956
Mercury	0.05	0.04 <	0.06 J	0.03 <	0.03 <	0.09 <	0.03 <	0.03 J	0.02 <	0.06 <	1.3
Nickel	10	21.5	14.4	3.9 J	3.5 J	6.1 J	4.5 J	6.4 J	5 J	5.4 J	149
Potassium	2,580	512 J	895	1120	1600	593 J	961	1390	1060	1240	596 J
Selenium	0.8	0.17 <	0.2 <	0.14 <	0.18 <	0.14 <	0.15 <	0.15 <	0.2 <	0.18 <	0.26 <
Silver	0.385	0.57 <	1.2 J	0.53 <	0.5 <	0.49 <	0.55 <	0.51 <	0.59 <	0.63 <	4.1
Sodium	41	495 J	359 J	68.4 J	102 J	141 J	201 J	90.9 J	66.8 J	167 J	427 J
Thallium	0.29	0.18 J	0.15 <	0.18 J	0.18 J	0.08 <	0.09 <	0.09 <	0.12 <	0.11 <	1.6 <
Vanadium	35.1	7 J	10.7	12.8	10	11.3 J	8.2 J	13.2	8.3 J	11.9	38.7
Zinc	31.3	101	87.3	16.9	13.9	26.8 J	11	28.8	14.2	188	3440
Cyanide		0.39 J	1.1	0.17 <	0.19 <	0.17 <	0.2 <	0.18 <	0.16 <	0.2 <	0.46 J

TABLE 4-5 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF SOIL ANALYTICAL DATA (TCLP INORGANICS)

PARAMETER	ARARs/ TBC	SOURCE	SAMPLE ID/DEPTH (Feet)													
			20MW1 (0.5-2.5)	20MW2 (14-16)	20MW3 (8-10)	20MW4 (4-6)	20MW5 (6-8)	20MW6 (12-14)	20MW7 (4-6)	20TB1 (6-8)	20TB2 (14-16)	20TB3 (10-12)	20TB4 (14-16)	20TB5 (4-6)	20TB6 (8-10)	20TB7 (48-56 IN)
TCLP INORGANICS (ppb)																
Arsenic	50 TBC	CTDEP	20 <	32.1 <	32.1 <	32.1 <	32.1 <	32.1 <	32.1 <	32.1 <	32.1 <	32.1 <	146	32.1 <	23.4 <	32.1 <
Barium	1000 TBC	CTDEP	440	173 J	235	203	687	685	223	189 J	122 J	378	4210	403	282	503
Cadmium	10 TBC	CTDEP	2 <	1.8 <	1.8 <	1.8 <	4.5 J	10.8	1.8 <	1.8 <	1.8 <	1.8 <	5.2	2.8 J	2.5 <	4 J
Chromium	50 TBC	CTDEP	4 <	4 J	4.1 J	11.9	7 J	13.3	16.6	3.1 <	3.1 <	4.1 J	46	3.2 J	3.9 <	3.3 J
Lead	15 TBC	CTDEP	0.28 <	94	1810	20.8	45900	17400	6.4	4	73.6	67.6	65.5	88	112	1310
Silver	50 TBC	CTDEP	4 <	2.9 <	2.9 <	2.9 <	8.1 J	2.9 <	2.9 <	2.9 <	2.9 <	2.9 <	2.9 <	2.9 <	2.5 <	2.9 <

NOTES:

1) ARARs/TBC Indicates applicable or relevant and appropriate requirements; TBC indicates to be considered values (refer to Section 4.2 for further explanation). Shaded numbers exceed ARAR/TBC valu mass analysis inorganics background values.
2) Assigned letters adjacent to numerical values are data qualifiers. Refer to Section 2.11 for further explanation.
3) ppb indicates a concentration of parts per billion; ppm in parts per million.
4) < indicates not detected, less than detection limit. Refer to Section 2.2 for further explanation. NA indicates not analyzed.
5) The acronym adjacent to the ARAR/TBC value indicates the source of the value. Refer to Table 4-2 or glossary for further explanation.
6) These values are based on CTDOHS MCLs which are lower than USEPA MCLs. CTDOHS may at some future time revise their MCLs to correspond to U.S. EPA's.
7) Only those samples in which a parameter was detected above the detected limit are included on this table.

VOCs were detected in borings 20TB6 (8-10 ft) and 20MW5 (6-8 ft) at low levels. Methyl ethyl ketone (2-butanone) was detected at 20 ppb in 20TB6. Methyl ethyl ketone is typically used as a solvent. Carbon disulfide was detected in both 20TB6 and 20MW5 at 6 and 7 ppb, respectively. Carbon disulfide may occur in minute amounts in crude oil and is sometimes used as a solvent. There is no documented use of carbon disulfide at the site, which suggests a petroleum source. Acetone and methylene-chloride were also detected in most samples; however, their presence is likely due to laboratory contamination. No TBC values, except those attributable to laboratory contaminants, were exceeded.

Total petroleum hydrocarbon (TPH) analysis was performed on soils from each of the boring locations. Of the 14 samples collected, 8 contained TPHs above the TBC value of 100 ppm. Values ranged from 150 ppm [20MW6 (12-14 ft)] to 2,500 ppm [20MW7 (4-6 ft)]. TPH results correlate well with visual observations made during drilling. TPH values are summarized on Plate 2.

SVOs, predominantly PAHs, were detected at low levels in soils collected at 20 MW1, 20MW2 (0-2 ft), 20MW4 (2-4 ft), 20MW6 (12-14 ft), 20TB1 (2-4 ft), 20TB3 (2-4 ft), 20TB3 (10-12 ft), 20TB5 (4-6 ft), 20TB6 (0-2 ft), 20TB6 (8-10 ft), and 20TB7 (3.2-3.5 ft). SVO concentrations greater than 1,000 ppb were detected in soils at 20MW3 (3-4 ft), 20MW3 (8-10 ft), 20MW5 (0-2 ft), 20MW5 (6-8 ft), 20MW6 (2-4 ft), 20TB4 (14-16 ft), 20TB5 (0-2 ft), and 20TB7 (4-4.7 ft). With the exception of 20TB7 (4-4.7 ft), there is a good correlation of SVO data to visual observations and TPH data. Sampling location 20TB7 (4-4.7 ft) is located in an area formerly used as a dumpster washout area, and therefore the presence of elevated SVOs is to be expected. Target compounds could not be quantified for several sample locations due to elevated tentatively identified compound (TIC) interference. The following sample locations

were affected by TIC interference: 20TB1 (6-8 ft), 20TB2 (2-4 ft), 20TB2 (14-16 ft), 20TB4 (0-2 ft), 20MW2 (14-16 ft), 20MW4 (4-6 ft), 20MW7 (2-4 ft), and 20MW7 (4-6 ft). Of the eight samples, boring locations 20TB1, 20TB4, 20MW4, and 20MW7 all contained visual petroleum contamination; also, sample 20TB2 (14-16 ft) had petroleum odor identified during drilling. Therefore, these samples are likely to contain elevated concentrations of SVOs.

In addition to VOC, SVO and TPH analysis, soil samples were screened for "oil fingerprinting" by fluorescence spectroscopy. Results indicate the presence of heavyweight residual fuel oil or road tar in samples 20MW2 (14-16 ft), 20MW4 (4-6 ft), 20MW7 (4-6 ft), and 20TB1 (6-8 ft). Similar unknown compounds, which may be industrial lube oil or bituminous pavement, were identified in soils collected at 20MW3 (8-10 ft), 20TB7 (4-4.7 ft), and 20TB6 (8-10 ft). No. 2 diesel fuel oil was identified in sample 20MW5 (6-8 ft). Heavyweight fuel oil (i.e., No. 6) was identified at 20TB3 (10-12 ft), 20TB4 (14-16 ft), and 20TB5 (4-6 ft). Unknown light aromatic compounds were detected at 20TB2 (14-16 ft).

PCBs were not detected at the Berth 16 site. Low levels of 4,4 DDT was detected in boring 20TB5 (0-2 ft), 20TB6 (0-2 ft), 20TB7 (3.2-3.5 ft), 20TB7 (4-4.7 ft), and 20MW1 (0.5-2.5 ft). Low levels of DDD were observed in 20TB6 (0-2 ft). The pesticides DDE, heptachlor epoxide, alpha chlordane, and gamma chlordane were all detected at low levels at 20MW1 (0.5-2.5 ft). The presence of pesticides at the 20MW1 location is likely, due to its proximity to the golf course, which lies directly to the north. The presence of DDT is likely due to past usage at NSB-NLON. Dioxin was detected at one location [20MW6 (2-4 ft)] at a concentration of 0.16 ppb. The probable source of this dioxin is ashes located in a large layer encountered at this location; subsurface materials from a depth of 3 feet to a depth of 10 feet consisted primarily of ash at this location. It should be noted that one dioxin sample location was changed

from the location proposed in the Plan of Action. Dioxin was analyzed from a sample from 20TB4 rather than 20TB7 because no ash was observed at 20TB7, whereas, at 20TB4, soils from a depth of approximately 4 to 6 feet contained ash materials. Other than locations 20MW6 and 20TB7 the only other ash observed was a trace of cinders at an approximate depth of 5 feet at 20TB5. The low level of dioxin detected at 20MW6 (2-4) is below the screening level of 1 ppb that was used at the Times Beach, Missouri Superfund site. As there was only one occurrence of dioxin that was below health-based screening levels, dioxin may not be a chemical of concern at the subject sites; however, the Times Beach screening level may not be appropriate and site-specific considerations are necessary to confirm that there is no unacceptable risk due to dioxin.

The total metals analyses results were compared to the established background levels. Elevated levels of inorganics were detected in soils from every boring. All but three of the 23 CLP metal (aluminum, selenium, and thallium) were detected above background. In addition, boron and cyanide were also analyzed; and detected above background levels. Of most significance are the levels of lead, which are above background in 20 of 27 samples collected. Levels of lead greater than 500 ppm were detected in five samples collected from three different borings. They include: 20MW5 (6-8 ft), 20MW6 (2-4 ft) and (12-14 ft), and 20TB4 (14-16 ft) and (0-2 ft). In general, the five sample locations mentioned above contained the highest total metals concentrations at the site. Based on boring log information, the borings 20MW5, 20MW6, and 20TB4 were all installed in construction debris, ash, etc., which may be the source of the elevated inorganics. Most of the site is built on fill material which, according to boring logs, comprises clean fill (i.e., sand and gravel) and unclean fill (i.e., wood, metal fragments, plastics, etc.). The sand-and-gravel fill material appears to be relatively clean with respect to elevated inorganics, except for lead, which is present above background but at lower

levels than in the construction debris.

TCLP analysis results were compared to CTDEP cleanup standards, which are TBC values. Lead was detected above TBC values at 20TB2 (14-16 ft), 20TB3 (10-12 ft), 20TB4 (14-16 ft), 20TB5 (4-6 ft), 20TB6 (8-10 ft), 20TB7 (4-4.7 ft), 20MW2 (1.2-1.3 ft), 20MW3 (8-10 ft), 20MW5 (6-8 ft), and 20MW6 (12-14 ft).

Lead values also exceeded the RCRA hazardous waste level of 5.0 ppm at locations 20MW5 (6-8 ft) (45.9 ppm) and 20MW6 (12-14 ft) (17.4 ppm). The TBC value for cadmium (10.0 ppb) was exceeded at 20MW6 (12-14 ft) (.0108 ppm). The TCLP data tend to correlate with the total mass analysis concentrations, which were discussed previously, thereby indicating that soils, due to pollutant mobility, are a potential source of groundwater contamination.

The range of pH values for soils collected at the site is between 5.25 and 10.09, with the majority of the samples being slightly alkaline, measuring between 7 and 8. The site background area 20MW1 was observed to have the lowest, most acidic soil values, ranging from 5.25 to 5.36. Soil samples collected from 20MW5 were observed to be the most alkaline, with values ranging from 7.82 to 10.09.

4.5.3 Sediments

Two storm-sewer sediment samples were collected as part of the Step 1 investigation to evaluate the quality of sediments. Sample locations are depicted in Figure 4-3 and Plate 2. The sampling-and-analytical program is summarized in Section 2.0, Table 2-5.

Sediment analytical results are summarized in Table 4-5 and Plate 2.

A low level of carbon disulfide was detected in sediments collected at 20SD1 (10 ppb). Four-methyl-2-pentanone was detected in sediments from 20SD2 (6 ppb). The acetone and methylene-chloride detected in both samples are likely due to laboratory contamination. The

source of the volatiles detected is unclear but may be due to small spills, as both compounds are listed as solvents (Merck, 10th Edition, 1983).

TPH analysis was performed on both sediment samples collected from the site. Analytical results indicate that elevated levels of TPH are present in the sediments. Sample location 20SD1 contained (1,300 ppm) TPH. A slightly lower concentration was quantified at 20SD2 (1,100 ppm). Both samples are above the TBC value of 100 ppm.

SVOs, predominantly PAHs, were detected at moderate levels at both sampling locations. The level of total PAHs in 20SD2 are among the highest at the site, totaling 7.09 ppm. The sediments from 20SD1 contained fewer SVOs than were detected at 20SD2, as well as lower levels of contamination. The SVOs found in sediments may be petroleum-related.

In addition to VOC, SVO, and TPH analysis, soil samples were screened for "oil fingerprinting" by fluorescence spectroscopy. Results indicate that both sample locations have a heavy fuel oil present, which is identified as No. 6 fuel oil. Elevated TPH and SVOs support these determinations.

There were no detectable quantities of pesticides or PCBs in sediments collected from the site.

Several inorganics were detected above established background values in the sediments. They include: calcium, copper, lead, mercury, nickel, silver, sodium, zinc, and cyanide. Inorganic values observed at both sampling locations were very similar in concentration, with values generally slightly higher at 20SD2. The two sediment samples were collected from two separate storm-sewer systems. The system where 20SD1 was collected is located in the northern portion of the site, and the system where 20SD2 was collected is in the southern end of the site.

Because the two samples are similar in composition and concentration, the condition may indicate that the inorganics found in the samples are not related directly to subsurface soil

conditions but rather related to surface-based operations at the Lower Subase in the vicinity of the Berth 16/Former Incinerator. The exact source of these inorganics is not clear.

4.5.4 Groundwater

Samples were collected from six groundwater monitoring wells to evaluate groundwater quality. The groundwater sampling program is summarized in Section 2.0, Table 2-5. The analytical results for the groundwater are summarized in Table 4-6.

Volatile organic compounds (VOCs) were detected at low concentrations in monitoring wells 20MW4 and 20MW6. Chloroform, well below the ARAR value (100 ppb), was detected at 20MW4 (2 ppb). Low concentrations of the chlorinated solvents 1,1,1- trichloroethane (0.6 ppb) and trichloroethene (0.6 ppb) were detected in groundwater at 20MW6. Both concentrations were well below the ARAR values of 200 ppb for 1,1,1-trichloroethane and 5 ppb for trichloroethene.

Total petroleum hydrocarbon analysis was performed on groundwater samples collected from the site. There were no petroleum hydrocarbons detected in groundwater at the Berth 16 site. It should also be noted that no free product was detected in any of the wells that were sampled.

Groundwater samples were also analyzed for "oil fingerprinting" by fluorescence spectroscopy. Heavy fuel oil (No. 4 or No. 6) was identified in all of the groundwater samples analyzed. Total petroleum hydrocarbons were not detected in groundwater, which indicates that the fluorescence method is identifying a very low concentration.

Semivolatile organic compounds (SVOs), primarily PAHs, were detected at low concentrations in four of the six groundwater samples collected. Compounds detected in monitoring wells 20MW3, 20MW4, and 20MW5 exceeded TBC values established for the site.

TABLE 4-6
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (VOLATILE ORGANICS)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE LOCATION	
			20MW4	20MW6
VOLATILE ORGANIC COMPOUNDS (ppb)				
1,1,1-Trichloroethane	200 ARAR	MCL	1 <	0.6 J
Chloroform	100 ARAR	CTDOHS MCL	2 <	1 <
Ethylbenzene	700 ARAR	MCL	1 <	1 <
Methylene-Chloride	5 ARAR	MCL	1 <	1 <
Toluene	1000 ARAR	MCL	1 <	1 <
Trichloroethene	5 ARAR	MCL	1 <	0.6 J
Xylene (total)	10000 ARAR	MCL	1 <	1 <

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (SEMIVOLATILE ORGANICS)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE LOCATION			
			20MW3	20MW4	20MW5	20MW7
SEMIVOLATILE ORGANIC COMPOUNDS						
2-Methylnaphthalene	--		11 <	11 <	11 <	3 J
Acenaphthene	--		10 J	11 <	4 J	2 J
Acenaphthylene	0.0028 TBC	WQS	1 J	0.9 J	11 <	10 <
Dibenzofuran	--		11 <	11 <	11 <	10 <
Fluoranthene	42 TBC	WQC	1 J	11 <	11 <	10 <
Fluorene	1300 TBC	WQS	11 <	11 <	2 J	10 <
Naphthalene	20 TBC	U.S. EPA	11 <	11 <	11 <	10 <
Phenanthrene	0.0028 TBC	WQS	11 <	11 <	0.9 J	10 <
Pyrene	960 TBC	WQS	0.5 J	11 <	11 <	10 <

TABLE 4-6 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (INORGANICS)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE ID					
			20MW2	20MW3	20MW4	20GW5	20MW6	20GW7
INORGANICS								
Aluminum	200 TBC	Secondary MCL	56 <	56 <	56 <	56 <	56 <	56 <
Arsenic	50 ARAR	MCL	2 <	2 <	2 <	2 <	2 <	2 <
Barium	1000 ARAR	CTDOHS MCL	131 J	1 <	1 <	398	1 <	1 <
Boron	600 TBC	Draft Health Advisory	500 <	500 <	500 <	500 <	500 <	500 <
Cadmium	5 ARAR	MCL	2 <	2 <	2 <	2 <	2 <	2 <
Calcium	--		54700 J	75600 J	18900 J	44300 J	30500 J	89200 J
Cobalt	--		4.4 J	3 <	3 <	3 <	3 <	3 <
Copper	1000 ARAR	CTDOHS MCL	3 <	3 <	3 <	3 <	24.4 J	3 <
Iron	300 TBC	Secondary MCL	12000	13 <	13 <	13 <	13 <	1600 J
Lead	15 ARAR	Action Level	1 <	1 <	1 <	6	117 J	1 <
Magnesium	--		20400 J	27000 J	8030 J	9740 J	4030 J	14100 J
Manganese	50 TBC	Secondary MCL	3490 J	1450 J	92.7 J	191 J	1 <	461 J
Potassium	--		21400 J	14200 J	11800 J	7870 J	5440 J	11100 J
Selenium	10 ARAR	CTDOHS MCL	1 <	1 <	1 <	1 <	1.3 J	1 <
Sodium	20000 TBC	Draft Health Advisory	143000 J	156000 J	114000 J	31800 J	18700 J	45200 J
Thallium	2 ARAR	MCL	1 <	1 <	1 <	1 <	1 <	1 <
Zinc	5000 TBC	Secondary MCL	3 <	3 <	3 <	3 <	816	3 <

NOTES:

1) ARARs/TBC Indicates applicable or relevant and appropriate requirements; TBC indicates to be considered values (refer to Section 4.2 for further explanation). Shaded numbers exceed ARAR/TBC values.

2) Assigned letters adjacent to numerical values are data qualifiers. Refer to Section 2.11 for further explanation.

3) ppb indicates a concentration of parts per billion; ppm in parts per million.

4) < indicates not detected, less than detection limit. Refer to Section 2.2 for further explanation. NA indicates not analyzed.

5) The acronym adjacent to the ARAR/TBC value indicates the source of the value. Refer to Table 4-2 or glossary for further explanation.

6) These values are based on CTDOHS MCLs which are lower than U.S. EPA MCLs. CTDOHS may at some future time revise their MCLs to correspond to U.S. EPA's.

7) Only those samples in which a parameter was detected above the detection limit are included on this table.

TABLE 4-6 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS (DISSOLVED METALS)

PARAMETER	ARARs/TBC	SOURCE	SAMPLE ID					
			20MW2	20MW3	20MW4	20GW5	20MW6	20GW7
DISSOLVED METALS								
Aluminum	200 TBC	Secondary MCL	151 J	156 J	136 J	163 J	133 J	280 <
Arsenic	50 ARAR	MCL	5.7 J	4 J	2.7 J	2 <	3.8 J	2 <
Barium	1000 ARAR	CTDOHS MCL	141 J	71 J	26.5 J	382	58.2 J	5 <
Boron	600 TBC	Draft Health Advisor	344 J	396 J	939 E	316 J	241 J	2500 <
Cadmium	5 ARAR	MCL	3.1 J	2 <	2 <	2 <	2 <	2 <
Calcium	--		56300	69900	19900	42200	30000	92300 J
Cobalt	--		3.1 J	3 <	3 <	3 <	3 <	3 <
Copper	1000 ARAR	CTDOHS MCL	3 <	3 <	3 <	3 <	21.1 J	3 <
Iron	300 TBC	Secondary MCL	12500	1570	39.1 J	28.3 J	80.2 J	1550 J
Lead	15 ARAR	Action Level	1.8 J	1.6 J	1.8 J	1.5 J	97.5	1 <
Magnesium	--		21200	24800	8210	9350	4000 J	14500 J
Manganese	50 TBC	Secondary MCL	3600	1330	100	174	16.9	444 J
Nickel	100 TBC	PMCL	9 <	9 <	9 <	9 <	13.1 J	9 <
Potassium	--		22100	13000	12200	7640	5390	11500 J
Selenium	10 ARAR	CTDOHS MCL	1 <	1 <	1 <	1 <	1.2 J	1 <
Sodium	20000 TBC	Draft Health Advisor	148000	144000	115000	29800	18600	46700 J
Thallium	2 ARAR	MCL	1.9 J	1.2 J	2 J	1 <	1.3 J	1 <
Zinc	5000 TBC	Secondary MCL	6.4 J	3 <	3.5 J	6.4 J	780	15 <

NOTES:

1) ARARs/TBC Indicates applicable or relevant and appropriate requirements; TBC indicates to be considered values (refer to Section 4.2 for further explanation). Shaded numbers exceed ARAR/TBC values.

2) Assigned letters adjacent to numerical values are data qualifiers. Refer to Section 2.11 for further explanation.

3) ppb indicates a concentration of parts per billion; ppm in parts per million.

4) < indicates not detected, less than detection limit. Refer to Section 2.2 for further explanation. NA indicates not analyzed.

5) The acronym adjacent to the ARAR/TBC value indicates the source of the value. Refer to Table 4-2 or glossary for further explanation.

6) These values are based on CTDOHS MCLs which are lower than U.S. EPA MCLs. CTDOHS may at some future time revise their MCLs to correspond to U.S. EPA's.

7) Only those samples in which a parameter was detected above the detection limit are included on this table.

Acenaphthylene was detected in 20MW3 (1 ppb) and 20MW4 (1 ppb), above the TBC value of 0.0028 ppb. Groundwater from 20MW5 contained fluorene (2 ppb) and phenanthrene (1 ppb), above the TBC values of 0.0028 ppb for both compounds. The SVOCs, which were detected at such low concentrations, are likely due to the low levels of petroleum hydrocarbons, which were detected in soils. In general, however, the presence of petroleum residuals in the subsurface soil are not having a significant adverse effect on groundwater quality.

Groundwater was analyzed for pesticides and PCBs. There were no pesticides or PCBs detected in groundwater at this site.

Both total and dissolved inorganics were analyzed for at the Berth 16 site. In general, the values for the total metals were very close to the values reported for the dissolved metals, which indicate that measurements of dissolved metals accurately represent the amount of mobile inorganics present.

The following inorganics are present in groundwater above ARAR or TBC values at one or more locations at the Berth 16 site: aluminum, boron, iron, lead, manganese, sodium, and thallium. The lead values at 20MW6: 117 ppb (total) and 97.5 ppb (dissolved) exceed both the CTDOHS MCL of 50 ppb and the more stringent U.S. EPA Action Level of 15 ppb.

The source of elevated iron, aluminum, and magnesium is likely, due to fill material. Elevated boron and sodium is likely, due to the site's proximity to the Thames River. The source of lead contamination at 20MW6 may also be due to fill material specific to that particular location, as elevated lead was also present in soils at that location.

4.5.5 Utility Manhole Inspection

A total of 49 utility manholes were inspected on May 21, 1993. The study area is depicted in Figure 4-3. The utilities observed consisted of storm sewer, sanitary sewer, electric,

telephone, and steam-line manholes. All accessible manholes in the study area were opened and inspected. The inspection consisted of observing manhole covers and noting manhole type, if possible, and noting any visual evidence of oil contamination, such as an oil sheen on water or discolored sediments, or any petroleum odors. A steel rod was used to probe the sediments. Observations were noted in a field log book, and a video recording of each manhole was made.

An apparent petroleum sheen was noted in nine of 49 manholes inspected. None of the manholes inspected displayed evidence of any major petroleum contamination. The presence of a sheen in any of the manholes could be attributed to surface runoff, since the site is paved and used for parking in most areas. In general, it does not appear that fuel oil is migrating in the inspected utilities.

5.0 CONTAMINANT FATE AND TRANSPORT

This section addresses the behavior of chemicals in the environment and the properties that determine their fate.

5.1 Fate and Transport Data

Contaminants detected in environmental media at the Pier 33 and Berth 16/Former Incinerator sites include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOs), polychlorinated biphenyls (PCBs), organochlorine pesticides, total petroleum hydrocarbons, and inorganics.

The chemical properties for the organic compounds are listed on Table 5-1. These chemical properties are molecular weight, water solubility, vapor pressure, Henry's Law constant (H), the organic carbon partition coefficient (K_{oc}), and the octanol/water partition coefficient (K_{ow}).

Water solubility is the maximum amount of a compound that will dissolve per unit measure of water at a given temperature. Solubilities listed on Table 5-1 are for temperatures of 20 to 30°C. Compounds with higher solubilities will tend to be more mobile in the environment, since they will be more likely to dissolve in precipitation or infiltration and leach to groundwater or surface water.

The vapor pressure of a compound is the pressure exerted by its vapor phase in equilibrium with its liquid or solid phase at a given temperature. Table 5-1 lists vapor pressures for organic compounds at temperatures from 20 to 30°C. Compounds with higher vapor pressures are more likely to be volatile and partition to the air.

The Henry's Law constant (H) can be thought of as an air/water partition coefficient with larger H values indicating a greater tendency to volatilize. It relates the concentration of the compound in the gas phase to its concentration in the liquid phase and can be calculated as the

TABLE 5-1
CHEMICAL PROPERTIES OF COMPOUNDS

	Molecular Weight g/mole	Aqueous Solubility mg/l	Vapor Pressure mm Hg	Henry's Law Constant atm-m^3/mole	Koc ml/g	Log Kow	Ref.
VOLATILE ORGANIC COMPOUNDS							
Nonchlorinated Aromatics							
Ethylbenzene	106	1.52E+02	7.00E+00	6.43E-03	1.10E+03	3.15	a
Toluene	92	5.35E+02	2.81E+01	6.37E-03	3.00E+02	2.73	a
Xylene (total)	106	1.98E+02	1.00E+01	7.04E-03	2.40E+02	3.26	a
Chlorinated Compounds							
Chloroform	119	8.20E+03	1.51E+02	2.87E-03	3.1E+01	1.97	a
Methylene chloride	85	2.00E+04	3.62E+02	2.03E-03	8.80E+00	1.30	a
Trichloroethene	131	1.10E+03	5.79E+01	9.10E-03	1.26E+02	2.38	a
1,1,1-Trichloroethane	133	1.50E+03	1.23E+02	1.44E-02	1.52E+01	2.50	a
Styrene	104						a
Other VOCs							
Acetone	58	1.00E+06	2.70E+02	2.06E-05	2.20E+00	-0.24	a
2-Butanone	72	2.68E+05	7.75E+01	2.74E-05	4.50E+00	0.26	a
4-Methyl-2-Pentanone	100	2.04E+04	1.45E+01	9.40E-05	2.09E+01	1.19	b,c
Carbon Disulfide	76	2.94E+03	3.60E+02	1.23E-02	5.40E+01	2.00	a
SEMIVOLATILE COMPOUNDS							
Noncarcinogenic PAHs							
Acenaphthene	154	3.42E+00	1.55E-03	9.20E-05	4.60E+03	4.0	a
Acenaphthylene	152	3.93E+00	2.90E-02	1.48E-03	2.50E+03	3.70	a
Anthracene	178	4.50E-02	1.95E-04	1.02E-03	1.40E+04	4.45	a
Fluoranthene	202	2.06E-01	5.00E-06	6.46E-06	3.80E+04	4.90	a
Fluorene	116	1.69E+00	7.10E-04	6.42E-05	7.30E+03	4.20	a
2-Methylnaphthalene	142.2		6.81E-02		4.08E+03	3.86	e,c
Naphthalene	128.2	3.17E+01	8.20E-02	5.18E-04	1.22E+03	3.30	b,c
Phenanthrene	178	1.00E+00	6.80E-04	1.59E-04	1.40E+04	4.46	a
Pyrene	202	1.32E-01	2.50E-06	5.04E-06	3.80E+04	4.88	a
Carcinogenic PAHs							
Benzo(a)Anthracene	228	5.70E-03	2.20E-08	1.16E-06	1.38E+06	5.60	a
Benzo(a)Pyrene	252	1.20E-03	5.60E-09	1.55E-06	5.50E+06	6.06	a
Benzo(b)Fluoranthene	252	1.40E-02	5.00E-07	1.19E-05	5.50E+05	6.06	a
Benzo(g,h,i)Perylene	276	7.00E-04	1.03E-10	5.34E-08	1.60E+06	6.51	a
Benzo(k)Fluoranthene	252	4.30E-03	5.10E-07	3.94E-05	5.50E+05	6.06	a
Chrysene	228	1.80E-03	6.30E-09	1.05E-06	2.00E+05	5.61	a
Dibenz(a,h)Anthracene	278	5.00E-04	1.00E-10	7.33E-08	3.30E+06	6.80	a
Indeno(1,2,3-cd)Pyrene	276	5.30E-04	1.00E-10	6.86E-08	1.60E+06	6.50	a
Other Semivolatile Compounds							
Butylbenzylphthalate							
Di-n-octylphthalate							
bis(2-Ethylhexyl)Phthalate	390.5	3.00E-01	6.45E-06	1.10E-05	6.05E+04	5.11	a
Di-n-Butylphthalate	278	1.30E+01	1.00E-05	2.82E-07	1.70E+05	5.60	a

TABLE 5-1 (continued)
CHEMICAL PROPERTIES OF COMPOUNDS

	Molecular Weight g/mole	Aqueous Solubility mg/l	Vapor Pressure mm Hg	Henry's Law Constant atm-m^3/mole	Koc ml/g	Log Kow	Ref.
PESTICIDES							
Heptachlor epoxide	389	3.50E-01	3.00E-04	4.39E-04	2.2E+02	2.70	a
Chlordane	410	5.60E-01	1.00E-05	9.63E-06	1.4E+05	3.32	a
4,4' DDE	320	1.00E-01	1.89E-06	7.96E-06	4.40E+06	6.20	a
4,4' DDD	318	4.00E-02	6.50E-06	6.80E-05	7.70E+05	7.00	a
4,4' DDT	355	5.00E-03	5.50E-06	5.13E-04	2.43E+05	6.19	a
PCBs							
Aroclor 1260	375.7	2.70E-03	7.71E-05	2.00E-03	5.30E+05	6.50	d
INORGANICS							
Metals							
Sodium	22.9						a
Thallium	204.4						a
Calcium	40.1						a
Silver	102.9						a
Potassium	39.1						a
Barium	137.3						a
Vanadium	50.9						a
Chromium	52						a
Cobalt	58.9						a
Magnesium	24						a
Cyanide	26.0						a
Aluminum	27						a
Antimony	121.7						a
Arsenic	74.9						a
Beryllium	9						a
Boron	10.8						a
Cadmium	112.4						a
Copper	63.54						a
Iron	55.8						a
Lead	207.2						a
Manganese	54.9						a
Mercury	200.6						a
Nickel	58.7						a
Zinc	65.4						a

Key to references:

a: Superfund Public Health Evaluation Model (1986)
b: Howard (1989)
c: Estimated Koc from Lyman et al. (1982)
d: ATSDR (1988)
e: TOXNET database

Note: The reported temperature at which solubility, vapor pressure, Henry's Law constant, K_{oc} and K_{ow} were measured was in the range of 20° to 30°C.

compound's vapor pressure over its solubility. The Henry's Law constant is temperature-dependent. According to Lyman et al. (1982), compounds with H less than 3 x 10^{-7} atm-m^3/mole are less volatile than water and can be considered essentially nonvolatile. Some of the semi-volatile compounds are in this category. For H between 10^{-7} and 10^{-5} (most of the semi-volatile compounds), the compound slowly volatilizes at a rate controlled by molecular diffusion through air. Below an H of 2 x 10^{-5}, the compound partitions to water at a rate controlled by the gas phase. For H between 10^{-5} and 10^{-3} atm-m^3/mole, both liquid phase and gas phase resistances are important and, although slower than for compounds with higher H values, volatilization is an important environmental process. For compounds with H greater than 10^{-3} atm-m^3/mole, the resistance of the water film is the controlling factor in volatilization. Most of the volatile organic compounds are in this category. Soluble compounds in this category will have a high volatility. However, for compounds with low solubilities and high values of the Henry's Law coefficient, resistance in the liquid phase controls volatilization.

The organic carbon partition coefficient (K_{oc}) is a measure of the tendency of a compound to adsorb to the organic matter in soils or sediments. It is the ratio of the amount of chemical adsorbed per unit weight of organic carbon in the soil or sediment to its concentration in solution at equilibrium (Lyman et al., 1982). If a measured K_{oc} value is not available for a particular compound, it can be estimated from the compound's solubility or octanol water partition coefficient.

The octanol water partition coefficient, K_{ow}, is a measure of how an organic compound will partition between an organic phase (octanol) and water. The coefficient is dimensionless and is usually reported as Log K_{ow}. It can be used to assess how a compound will partition into organic environmental media such as organic soils, sediments, or biota. Higher values of K_{ow}

indicate that a compound is more likely to partition to an organic phase, such as soils or sediment that contain organic carbon.

Physical, chemical, and microbial processes governing the environmental fate of contaminants include volatilization, biodegradation, photolysis, hydrolysis, oxidation, and adsorption to soils, sediments, or suspended particulate matter.

Volatilization is the transfer of a compound from the solid or liquid phase into the vapor phase. It is controlled by the compound's solubility, molecular weight, and vapor pressure, and by physical properties of the air-water interface (Lyman et al., 1982). In general, the less soluble compounds with lower molecular weights and higher vapor pressures are more volatile. For volatilization from water, properties of the water body that control the rate of volatilization are depth, flow rate, waves, sediment content, and atmospheric conditions such as wind speed. Volatilization from soil is affected by environmental factors such as humidity and by the soil moisture content, organic matter content, porosity, density, and clay content.

Biodegradation is the environmental process by which organic contaminants are broken down by microbial action to simpler compounds, eventually to water and either carbon dioxide or methane. It can occur in either an aerobic or anaerobic environment in soil, sediment, surface water, and groundwater. Factors influencing biodegradation rates are the chemical characteristics of the compound and the concentrations present, the types of microbes present and their previous exposure to the contaminant, and environmental parameters. The types of microorganisms present and the rate at which they can use organic contaminants as a source of carbon depend on environmental factors such as pH, soil moisture content, temperature, salinity, and the presence of oxygen. Generally, certain types of microorganisms will be active in a given range of these parameters.

Bioaccumulation is the accumulation and transport of a chemical via water and through the food chain. The potential for bioaccumulation is quantified by bioconcentration factors (BCFs) which define the ratio of a pollutant concentration in animal or plant tissue to the concentrations of the same chemical in the environmental media of contact (air, water or soil).

Contaminants are transformed to smaller, less complex compounds via the chemical processes of hydrolysis, photolysis, and oxidation. Hydrolysis is due to the reaction of hydrogen bonds in water with the compound. In general, hydrolysis is only important in determining the fate of organic acids or bases. Photolysis is the transformation of an organic compound caused by absorbing energy from sunlight. It can be an important process in the attenuation of organic contaminant concentrations in surface water. Some organic compounds may be oxidized by exposure to oxidizing agents such as atmospheric oxygen. However, for many of the organic compounds detected at NSB-NLON, the oxidation rate is too slow to substantially affect contaminant concentrations.

The adsorption of organic compounds onto soils, sediments, and suspended sediments plays an important role in determining the compound's environmental fate. The degree to which a compound will adsorb onto soils or sediments depends on the compound's chemical properties and the physical and chemical properties of the soils or sediments. The organic carbon partition coefficient (K_{oc}) or octanol/water partition coefficient (K_{ow}) is a measure of how a particular compound will adsorb to soil. Higher coefficients indicate a greater tendency for the compound to adsorb to organic matter in soil. Soil characteristics influencing adsorption are organic carbon content, clay content, cation exchange capacity, pH, and particle size. In general, the soil characteristic that most influences the adsorption of organic compounds to soils is its organic carbon content. Compounds with higher K_{oc} or K_{ow} values have a higher tendency to partition

to other organic media such as organic soils.

The way in which a chemical is released into the environment and the quantity of the chemical released also governs its environmental fate. A spill of a relatively insoluble organic chemical onto soil can remain in a nonaqueous phase (known as a nonaqueous phase liquid or NAPL). If the spill is of enough volume that the liquid reaches groundwater in bulk (small spills will remain adsorbed to soil), liquids that are less dense than water will tend to float on top of the water table (light nonaqueous phase liquids or LNAPL), while liquids that are denser than water (dense nonaqueous phase liquids or DNAPL) can sink through the aquifer. Products that behave as LNAPL are petroleum hydrocarbons such as gasoline and fuel oil and their constituents. High-density, low-viscosity materials comprise DNAPL. Materials with these characteristics include chlorinated hydrocarbons such as trichloroethene and tetrachloroethene. LNAPL and DNAPL have not been detected during this investigation at the subject sites.

A spill of sufficient volume will descend through the pore spaces of the unsaturated soil in the vadose zone. Some of the product will remain adsorbed to vadose zone soil. Once in the vadose zone, the chemical is dissolved in infiltrating precipitation and is acted upon by environmental processes such as volatilization, biodegradation, etc.

If a spill of LNAPL is of large enough volume, it can reach the capillary fringe on top of the water table. As more product reaches this area, the capillary fringe becomes compressed, the water table becomes depressed, and LNAPL accumulates in the depression. Seasonal fluctuations of the water table can raise and lower the nonaqueous layer and carry contaminants to the area of soil between the seasonal high and low water tables. It should be noted that free product was not observed at the subject sites.

Because of its density and low viscosity, DNAPL travels through the vadose zone and

continues migrating downward through the capillary fringe and the water table. As DNAPL comes into contact with infiltration and groundwater, it begins to dissolve and can volatilize or be biodegraded. If sufficient DNAPL is present, it can sink through the aquifer to a confining layer or bedrock. If DNAPL reaches bedrock, its movement is governed by the bedrock surface. Therefore, under certain situations, the bulk movement of the DNAPL can differ in direction from groundwater flow.

5.1.1 Volatile Organic Compounds

The types of volatile organic compounds (VOCs) detected in samples of environmental media from the Pier 33 and Berth 16/Former Incinerator sites include aromatics, chlorinated aliphatics, ketones, and one sulfur compound, carbon disulfide. In general, because these compounds are partially soluble in water and have a relatively high vapor pressure, they are mobile in the environment and tend to partition between water and the atmosphere. Most VOCs can undergo biodegradation or biotransformation in soil or water under certain conditions.

5.1.1.1 Nonchlorinated Aromatic Volatile Organic Compounds

The nonchlorinated aromatic VOCs detected include styrene, toluene, ethylbenzene, and xylenes. These compounds are commonly used as solvents and are found in gasoline and other light fraction petroleum distillate products. Benzene is the basic molecule in this series and the other members of this class have methyl or ethyl groups substituted on the benzene ring. These compounds will have a similar environmental fate since they have similar solubilities, vapor pressures, and K_{ow} values.

5.1.1.2 Chlorinated Volatile Organic Compounds

The low levels of chlorinated VOCs detected at the Pier 33 and Berth 16/Former Incinerator sites include chloroform, chloromethanes, chloroethanes, and chloroethenes. These

compounds are commonly used as solvents and degreasers. Soil bacteria are capable of biotransforming the larger, more complex compounds in this group such as 1,1,1-trichloroethane and trichloroethene to smaller and/or less chlorinated compounds. The presence of some of these compounds in environmental media at the site may be due to microbial degradation of parent compounds rather than a loss or spill of the compound itself.

The chloromethane detected (methylene chloride) is a smaller molecule of this class. Methylene chloride is more water soluble than the other compounds in this class and hence is more mobile in the environment. The solubility and vapor pressure, and hence the Henry's Law constant of the chloroethanes and chloroethenes, are similar. However, their K_{ow} values tend to increase with increasing chlorination, indicating that the more chlorinated compounds of this class will tend to partition to organic soil or sediment.

5.1.1.3 Other Volatile Organic Compounds

The ketones detected at low concentrations include acetone, 2-butanone, and 4-methyl-2-pentanone. Ketones are also commonly used as solvents. These compounds tend to be more soluble and have lower Henry's Law constants than the other VOCs. They are, therefore, more likely to remain in solution and less likely to volatilize. They also tend to have lower K_{ow} values than the other VOCs, indicating that they are less likely to partition to organic media.

The only sulfur-containing VOC detected was carbon disulfide. Carbon disulfide is a naturally occurring product of anaerobic biodegradation (Howard, 1990). It is also a waste by-product of viscose rayon and cellulose manufacturing and is used as a grain fumigant. Its chemical properties indicate that its behavior in the environment will be similar to the chlorinated VOCs.

5.1.2 Semivolatile Organic Compounds

The semivolatile organic compounds detected include polynuclear aromatic hydrocarbons (PAHs), four phthalate esters, and dibenzofuran. As their name implies, the compounds in this class are less volatile and less likely to migrate or volatilize than the VOCs.

5.1.2.1 Polynuclear Aromatic Hydrocarbons

Polynuclear aromatic hydrocarbons (PAHs) are composed of multiple aromatic or benzene-like rings. Naphthalene, the smallest molecule of the PAHs, is composed of two rings. PAHs detected at NSB-NLON range in size from naphthalene (molecular weight of 128 g/mole) to 6 ring structures such as benzo(g,h,i)perylene (molecular weight of 276 g/mole).

Sources of PAHs are petroleum and coal and formation during the combustion of organic matter. The widespread burning of fossil fuels has resulted in aerial deposition of PAHs to surface soils and sediments.

The smaller PAHs (molecular weights less than 200 g/mole) such as naphthalene are slightly soluble, have Henry's Law constants in the range of 10^{-3} to 10^{-5}, and hence are relatively mobile in the environment. They will tend to volatilize from soil, sediment, or water. The larger PAHs have lower solubilities, low Henry's Law constants, and large K_{ow} values. The larger PAHs will not volatilize to a great extent and will remain adsorbed to soils or sediments. Photolysis, chemical oxidation, and biodegradation are important degradative processes controlling the fate of PAHs in the aquatic environment (Neff, 1979).

5.1.2.2 Other Semivolatile Organic Compounds

Phthalate esters are dispersed throughout the environment due to their common use as plasticizers. Di-n-butylphthalate, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, and di-n-octylphthalate were detected in environmental media at NSB-NLON. Phthalate esters have

relatively low Henry's Law constants (10^{-5} to 10^{-7} atm-m^3/mole) and high K_{ow} values, indicating that, although they may volatilize, it is at a slow rate and they will tend to partition to organic soils and sediments. Phthalate esters will undergo biodegradation in soil and sediment. Photolysis and oxidation do not appear to be important processes in governing the fate of these compounds (Clement Associates, 1985).

There is little available literature on the behavior of dibenzofuran in the environment. The structure of dibenzofuran is similar to a three-ring PAH molecule with oxygen substituted for a carbon atom. Its chemical properties are also similar to those of the smaller PAH compounds. It is moderately soluble in water (solubility of 10 mg/l), and its Henry's Law constant (9.8×10^{-5} atm-m^3/mole) indicates that volatilization will be an important process in determining its environmental fate. Dibenzofuran also has a relatively high K_{oc} value and is likely to adsorb to soils and sediments.

5.1.3 Pesticides/PCBs

The organochlorine pesticides heptachlor epoxide, chlordane, and DDT (and its breakdown products DDD and DDE) were detected in environmental media at NSB-NLON.

Of the organochlorine pesticides detected, it is the most mobile in the environment based on its higher aqueous solubility and lower K_{oc} and K_{ow} values. These indicate that it tends to remain dissolved and that it adsorbs to soil to a lesser degree than the other organochlorine pesticides. It volatilizes slowly from soil and water. Biomagnification of hexachlorocyclohexane isomers occurs in the terrestrial food chain. However, they tend not to accumulate in fish (ATSDR, 1989). The beta isomer is fairly resistant to biodegradation in soil or water.

Due to former uses, low levels of DDT and its breakdown products are widespread in the environment. They are only slightly soluble in water and have relatively low Henry's Law

constants, indicating that they are unlikely to be present in the dissolved form in the environment and are unlikely to partition to the atmosphere. They have high Log K_{ow} values (6.2 to 7) and hence adsorb strongly to organic soils and sediments. They are also taken up by biota and bioaccumulated.

The only polychlorinated biphenyl (PCB) detected in environmental media during the Pier 33/Berth 16 Former Incinerator investigation was Arochlor 1260. The Arochlor formulations are composed of complex mixtures of chlorinated biphenyls. Arochlor 1260 contains 60% chlorine. Arochlor 1260 is composed mainly of the pentachloro-, hexachloro-, and hepta-chlorobiphenyls, with lesser amounts of the other congeners (ATSDR,1989).

Up until the 1970s, PCBs were used widely as dielectric fluids in electrical capacitors and transformers because of their resistance to thermal degradation. Although the manufacture and use of PCBs for this purpose was discontinued in the United States in the 1970s, older equipment may still contain PCBs.

PCBs in general have a relatively high Henry's Law constant, and dissolved PCBs will tend to partition to the atmosphere. However, since PCBs are only slightly soluble in water, their rate of partitioning to the atmosphere is controlled by their low solubility. PCBs are strongly adsorbed onto organic soils and sediments. Log K_{ow} values for the PCB congeners in Arochlor range up to 9.35 (Shaw and Connell, 1982). (An average value is in Table 5-1.) PCBs are also likely to be taken up by biota and stored in lipids.

Biodegradation of PCBs in the environment depends on the degree of chlorination. The highly chlorinated congeners of Arochlors 1260 are fairly resistant to biodegradation. Photolysis may be an important process for the environmental degradation of dissolved PCBs.

5.1.4 Inorganics

Inorganic contaminants detected in environmental media NSB-NLON include metals and cyanide.

5.1.4.1 Metals

Unlike most of the other contaminants detected in environmental media at NSB-NLON, metals occur naturally in the environment in addition to resulting from anthropogenic sources. Section 4.0 discusses the distribution of metals in the environment and assesses whether the metals detected at NSB-NLON occur at concentrations in excess of their naturally occurring levels.

The fate and transport of metals in the environment depends on the chemical properties of the metal as well as chemical-and-physical characteristics of the environment. The solubility of metals and metal salts controls the amount of metal available to groundwater or surface water, although other physical and chemical processes control the observed concentrations of those metals in water. Environmental factors influencing the mobility of metals in the environment include pH, Eh, the presence or lack of oxygen, the presence of other metal compounds such as iron oxides, and the presence of anions and complexing agents.

In general, metals are more soluble and more mobile in the environment at lower pH values. Higher pH values tend to cause metals to precipitate from solution.

The oxidation/reduction potential of the aquatic system being assessed (surface water, groundwater, or interstitial pore water in sediments) determines the equilibrium valence state of the metal. The more oxidized form of the metal will be favored under aerobic conditions; the reduced form is favored under anaerobic conditions. Many metals, including lead and cadmium, are less mobile in anoxic environments because they form nearly insoluble sulfide salts.

However, some metals such as iron are more soluble in their reduced (Fe II or ferrous) form. When dissolved iron moves from a reducing to an oxidizing environment, the iron is oxidized to its ferric (Fe III) form and precipitates out of solution, forming orange floc generally observed downgradient of landfills.

The presence of dissolved salts and gases (e.g., carbon dioxide and hydrogen sulfide) and the system pH determine the mineral form controlling the metal's solubility. For example, the presence of sulfur in the form of sulfide in a reducing environment will cause precipitation with many metals cations (e.g., cadmium and lead) to form the metal sulfide. In addition, metal solubility can be enhanced in the presence of complexing agents such as humic acids formed from organic materials such as rotting leaves.

Metals have a high affinity to adsorb to soils and sediments. The degree to which metals adsorb to soils depends on the environmental factors discussed above and on the characteristics of the soil or sediment including organic content, cation exchange capacity, clay content, and the presence of iron oxides in the soil.

5.1.4.2 Cyanide

The behavior of cyanide in the environment depends on the form of cyanide present. Factors influencing cyanide include pH, the presence or lack of oxygen, and the presence of iron (which forms complexes with cyanide). Hydrogen cyanide is a weak acid with a pK_a of 9.21. At most environmental pH values, hydrogen cyanide is in its associated form (HCN). In this form, cyanide is very mobile in the groundwater and volatilizes as cyanide gas. However, cyanide forms hexacyanoferrate complexes with the ferrous (Fe II) and ferric (Fe III) forms of iron, which are abundant in soil. Cyanide in these forms is much less toxic than free cyanide. The hexacyanoferrate complexes can bind to ferrous or ferric ions to form ferroferro or

ferriferrocyanide compounds that are much less soluble than free cyanide and have a much greater tendency to bind to soil or sediment.

5.2 Contaminant Migration

This subsection of the report evaluates potential migration pathways of chemicals in the environment.

5.2.1 Potential Routes of Migration

Chemicals will migrate within a specific media and will also undergo interphase transport between media such as evaporation of chemicals from water to air. Plants and animals can also take up chemicals from soils and water, which can cause transport of contaminants in the food chain. This pathway is of particular concern for chemicals that bioaccumulate, as described in the previous section. The following sections will discuss potential migration routes for each medium. For purposes of this subsection, the media, or primary migration routes, are air, groundwater and soils, and surface water and sediments.

5.2.1.1 Air

Airborne transport of chemicals occurs via two primary routes. These are volatilization and adsorption to small soil particles that become airborne as fugitive dust. Volatile chemicals were not detected at these sites in high enough concentrations to have a measurable effect on ambient air quality. The only pathways of concern for VOCs is the possible migration to indoor air in buildings from contaminated subsurface soils and groundwater. Transport of fugitive dusts is a concern in areas with contaminated surface soils that have an erodible surface. The rate and extent of contaminant migration of airborne materials will be primarily determined by modelling air transport. Subsurface migration of volatiles is governed primarily by preferential flow pathways such as sand lenses, or gravel bedding for subsurface utilities. Dispersion for VOCs

and particle size for fugitive dusts are physical parameters that will affect the rate and extent of migration. Airborne contaminants from this site will migrate in the direction of wind currents. The prevailing winds are southwesterly in the summer and northwesterly in the winter. The average wind speed is around 10 miles per hour. Transport in any direction is possible at certain times. The chemicals, once airborne, will either degrade or settle either on land or the Thames River. As concentrations are low for VOCs and other contaminants in surface soils, effects on water quality in the Thames River are considered negligible. Fugitive dusts are not considered to be of concern for the Pier 33 or Berth 16 site, due to the extensive paving across the sites.

In the following sections, airborne contaminant migration will be addressed by identifying areas with VOC subsurface contamination that have a potential to migrate to confined spaces.

5.2.1.2 Groundwater and Soils

Contaminated soils can release contaminants to both air and groundwater. The release to air by evaporation or fugitive dust is discussed above. Water percolating through contaminated soils will mobilize chemicals from soils to infiltrating water by dissolution and desorption. Chemicals are also leached from soils below the water table by the same mechanism. The reverse processes, precipitation and adsorption, take place for constituents dissolved in contaminated groundwater moving through soils. Due to the shallow depth to groundwater and relatively permeable overburden at NSB-NLON, infiltrating water will migrate to and mix with the groundwater. The mobility of a chemical is its rate of transport relative to groundwater velocity. Due to the many processes that act to remove the dissolved contaminants in groundwater, many dissolved contaminants will travel more slowly than the groundwater itself. Groundwater at the Pier 33 and Berth 16 Former Incinerator sites eventually migrates and

discharges to the Thames River. In discharge areas, groundwater could be close enough to the ground surface, whereby direct uptake by biota is possible.

In the site-specific sections, where possible, estimates are made of groundwater flow rate and direction, and the specific discharge points of groundwater.

5.2.1.3 Storm Sewer Sediments

Contaminants enter storm sewers primarily by runoff and, to a lesser extent, groundwater infiltration. Runoff becomes contaminated by contact with surficial soils and atmospheric chemicals. Runoff and groundwater can contain dissolved chemicals and contaminated-suspended particles. Once introduced to a culvert, contaminants will migrate with the water or be incorporated into sediments by partitioning or sedimentation. The more volatile compounds can also evaporate into the air. The sediment bedload will also migrate downstream, although at a much slower rate than surface water. Sediments can accumulate at obstructions and clean outs and points of entry. Contaminants can also enter surface water via air releases; however, this pathway is not considered a significant pathway at the subject site due to the limited amount of erodible surfaces. The Thames River is the ultimate discharge point for contaminants from the Pier 33 and Berth 16 storm sewer systems. Due to the large flow of the Thames River, contaminant concentrations are only potentially a concern in the mixing zone within the Thames River adjacent to NSB-NLON and adjacent sediments. The section of the Thames River near NSB-NLON is an estuary. Within an estuary, the changing of the river from fresh to salt-water conditions has substantial effects on suspended and dissolved material in the river. Destabilization of colloids, alternation of adsorption equilibrium, and precipitation of cationic species are among the commonly observed changes. There is a general tendency for trace metals and potentially hydrophobic organic compounds to be trapped in estuarine sediments as

a result of these processes. Contaminants once in the surface water/sediment system are available for uptake by biota. The Thames River does support a significant sport-fish population. Potential ecological effects to the Thames River from NSB-NLON IR sites will be studied within the Phase II Remedial Investigation by others.

The following site-specific sections, to the extent possible, will estimate flow rates, directions, and discharge points for sediments and surface water.

5.2.2 Site-Specific Potential Routes of Migration

Site-and-chemical specific potential migration routes for each of the investigation sites are discussed below.

5.2.2.1 Pier 33

Soils contain moderate-to-high concentrations of petroleum hydrocarbons, moderate-to-high levels of lead, low levels of VOCs, and moderate-to-high concentrations of SVOs. One or more metals were also found to be above background at most sample locations. Groundwater contained low levels of VOCs and SVOs, which were all below TBC or ARAR values. Elevated inorganics were detected at each of the three wells, which were sampled for both dissolved and total metals.

(1) Air: This area is completely covered with vegetation, asphalt, concrete,or buildings. Therefore, fugitive dusts are not considered a potential migration pathway under current conditions. VOCs are only present in trace to low concentrations in subsurface soils and groundwater; however, there are several subsurface confined spaces in this area such as utility manholes and associated underground lines that offer a potential contaminant migration pathway.

(2) Groundwater and Soils: Contaminants at this site are present in soils above and below the groundwater surface. Therefore, contaminants in soils can migrate to groundwater

through infiltrating precipitation (although limited by pavement and buildings) and by leaching directly into groundwater. Groundwater in this area flows to the west toward the Thames River. Groundwater flow velocity is estimated at 1.3 feet per day, based on previous investigations of the Lower Subase; however, the site is within the 200-foot zone, which is influenced by the ebb and flood of the tides, and therefore flow velocities vary with tidal fluctuations.

In addition, the Pier 33 site contains extensive underground utilities and structures, which could offer preferential flow paths for contaminants. However, no significant petroleum migration was visible with the manholes inspected. Regardless of tides and utilities, the ultimate disposition and discharge paint of groundwater from the site is the Thames River. Oils contain a complex mixture of hydrocarbons, which include aromatic hydrocarbons and PAHs. The aromatic hydrocarbons have a medium-to-high mobility rate, whereas the PAHs have a lower mobility. Weathered oils typically contain lower VOCs and higher PAHs than new oils. Lead compounds normally partition to soils and are not found in high concentrations in groundwater and, therefore, have a low mobility. This appears to be the case at the Pier 33 site.

(3) <u>Sediments</u>: Surface waters here are all collected by an extensive storm sewer system and discharge to the Thames River. This site is primarily covered by Building 175 and pavement; therefore, runoff is not believed to contact contaminants in soils. However, contaminant migration to the storm sewer is occurring (apparently from surficial sources), based on analysis of sediments collected from two storm-sewer locations at the site. The source of this may be from maintenance activities or spillage in this area. Contaminated sediments in the storm sewer system will accumulate in catch basin sumps and be transported to the Thames River.

5.2.2.2 Berth 16/Former Incinerator

Soils contain moderate-to-high concentrations of petroleum hydrocarbons, moderate-to-high levels of lead, arsenic, and cadmium, low levels of VOCs, and moderate-to-high concentrations of SVOs. One or more metals were also found to be above background at most sample locations. Groundwater contained low levels of VOCs and SVOs. VOCs were below TBC or ARAR values, and SVOs were detected above TBC values at three locations. Elevated inorganics were detected at each of the six wells, which were sampled for both total and dissolved metals.

(1) Air: This area is completely covered by asphalt or buildings. Therefore, fugitive dusts are not considered a potential migration pathway under current conditions. VOCs are only present in trace-to-low conditions in subsurface soils and groundwater; however, there are several subsurface-confined spaces in this area, such as utility manholes and associated underground lines, that offer a potential containment migration pathway.

(2) Groundwater and Soils: Contaminants in this area are present in soils above and below the groundwater surface. Therefore, contaminants in soils can migrate to groundwater through infiltrating precipitation (although limited by pavement and buildings) and by leaching directly into groundwater. Groundwater in this area flows to the west toward the Thames River. Groundwater flow velocity is estimated at 1.3 feet per day, based on previous investigations of the lower subase; however, a substantial portion of the site is within the 200-foot zone, which is influenced by the ebb and flood of the tides, and therefore flow velocities vary with tidal fluctuations.

In addition, the Berth 16/Former Incinerator site contains extensive underground utilities and structures, which could offer preferential flow paths for contaminants. However, no

significant petroleum migration was visible during the manhole inspection. Regardless of tides and utilities, the ultimate disposition and discharge point of groundwater from the site is the Thames River. Oils contain a complex mixture of hydrocarbons, which include aromatic hydrocarbons and PAHs. The aromatic hydrocarbons have a medium-to-high mobility rate, whereas the PAHs have a lower mobility. Weathered oils typically contain lower VOCs and higher PAHs than new oils. Lead, arsenic, and cadmium compounds normally partition to soils and are not found in high concentrations in groundwater and, therefore, have low mobilities. This appears to be the case at the Berth 16/Former Incinerator site, with the exception of elevated lead in 20MW6, which was installed in an area of extremely high lead levels in soil.

(3) Sediments: Surface waters here are all collected by an extensive storm-sewer system and discharge to the Thames River. This site is primarily covered by buildings and pavement; therefore, runoff is not believed to contact contaminants in soils. However, contaminant migration to the storm sewer is occurring, based on analysis of sediments collected from two storm sewer locations at the site. The source of contaminant migration may be from maintenance activities or spillage in this area. Contaminated sediments in the storm sewer system will accumulate in catch basin sumps and be transported to the Thames River.

6.0 SUMMARY AND RECOMMENDATIONS

This section discusses the summary and conclusions of the investigations and evaluations at each specific site. Included are overviews of each site's background and the associated nature and extent of contamination. Based on this information, recommendations are provided for each site. A "no further action" recommendation is based on an identification of no significant contamination, no exceedances of ARARs, and no perceived health and ecological risk. Recommendations to proceed from SI to RI/FS are made if contaminants are identified above applicable ARAR/TBC values, and if there may be health and ecological risks of concern. ARAR/TBC values are described in detail in Section 4.0.

6.1 Pier 33

6.1.1 Summary

(1) Background: Pier 33 is located along the western edge of NSB-NLON, adjacent to the Thames River. The Pier is bounded by the Thames River to the west and by the Penn Central Railroad to the east. This area of the Subase was undeveloped until around 1946. In 1946, the area was dredged and filled to berth the reserve fleet. In addition, bulkheads, piers, and support buildings and utilities were constructed. Building 175 was built to house large aboveground storage tanks used to store battery electrolyte (sulfuric acid). The tanks serviced the piers via underground pipes, which were located in trenches.

Currently, no underground steam or fuel oil utilities service Building 175 other than its own underground fuel oil storage tank located on the south side of the building. On the northern side of the building, a second underground storage tank services an emergency generator for the sewage-lift station. The current use of Building 175 is for storage and administration.

During a geotechnical investigation, conducted by Morrison Geotechnical Engineering

in 1989, No. 2 fuel oil was detected in subsurface soils in front of Building 175. Elevated levels of TPH were detected, which were identified by fluorescence analysis to be No. 2 fuel oil. Based on this information, an SI was conducted.

(2) **Nature and Extent of Contamination:** The following is a summary of the field investigation findings. The analytical results are illustrated on Plate 1.

- Moderate to high concentrations of BTEX were detected in several soil-gas sample locations. These locations generally correlate with the area of noted petroleum hydrocarbons within the subsurface soils.

- Concentrations of VOCs present in soils are not considered to be significant and generally are below TBC values.

- Elevated concentrations of TPH in soils were detected in front of Building 175, between the building and the Thames River. An area of petroleum hydrocarbons in soils is depicted on Plate 1, based on the TPH soils data, visual observations made during drilling, and soil gas results. Elevated SVOs, typical of petroleum products, are also present in soils in this area. Based on fluorescence analysis, this area appears to have been impacted by No. 2 fuel oil.

- No significant concentrations of PCBs or pesticides in soils were detected in the study area. The only exception was at the upgradient sample location 19MW1 (within golf course) that contained DDT above the TBC value.

- Concentrations of lead by TLCP analysis were detected in several soil samples above TBC values but below levels that characterize hazardous waste. However, lead concentrations were not above the most stringent cleanup levels (500 ppm) established for other sites at NSB-NLON; therefore, the detected concentrations are not judged to be significant from a human health standpoint.

- Lead, as well as antimony, was detected in sediment sample 19SD1 from a storm-water catch basin at this site at an elevated level (85,600 ppm). This is the only location where lead levels above 500 ppm were detected at this site. It appears that this contamination is related to recent site activities (possibly lead ballast storage and/or paint removal operations) and is not related to historic site conditions or disposal activities.

- Groundwater quality at the site is generally good and does not exceed any ARARs. Low levels of naphthalene and phenanthrene were detected in wells 19MW3 and 19MW4. Presumably, these constituents originate from soils containing fuel oil residues detected in this area. It is evident that the soils containing fuel oil residues have only had minor impacts on groundwater quality.

6.1.2 Recommendations

The following recommendations are provided:

- A remedial investigation is recommended at this site to address soils and groundwater containing petroleum constituents, stained soils at the southwest corner of Building 175, metal contamination in catch basins, and soils containing TCLP levels greater than 15 ppb.

- Any underground storage tank and piping not recently tested should be, to eliminate the possibility of an ongoing petroleum source.

- Additional investigation of site operations and sediment analysis of the catch basin system should be conducted to determine the extent and source of sediment contamination. Contaminated sediments should be removed and properly disposed.

- Any site operations identified as contributing to this source of sediment contamination should be modified.

6.2 Berth 16/Former Incinerator

6.2.1 Summary

(1) Background: Berth 16 is located along the western edge of NSB-NLON, adjacent to the Thames River. The berth is bounded by the Thames River to the west and by the Penn Central Railroad to the east. The southern portion of the site has been developed since the early days of Navy activity at this site. In a 1918 map, Building 40 (Engineering Laboratory) is shown in its current location. The northern portion of this site was used for coal storage in 1918. Sometime between then and 1944, Buildings 103, 106, 157 and 173, and the former garbage incinerator were constructed. The waterfront was extensively developed in 1946 to accommodate berthing the reserve fleet. In 1963 the incinerator became inoperable and ceased operation; it was demolished sometime between 1974 and 1986. At some time during these 12 years (1974-1986), Buildings 456 and 478 were constructed.

The only known underground tanks on site are: a tank near Building 157, which services the emergency generator for the sewage-lift station (250-gallon capacity; diesel) and a former

septic tank with a leaching field that serviced Building 173.

The site was formerly traversed by underground diesel fuel lines until as late as 1954, when the lines were abandoned. The method of abandonment for these lines is unknown.

During a geotechnical investigation, conducted by Morrison Geotechnical Engineering in 1989, No. 2 fuel oil was detected in subsurface soil at the Berth 16/Former Incinerator site. Elevated TPH concentrations were detected primarily in the northwestern vicinity of Building 157. A sample location to the north of Building 157 was also found to contain elevated trichloroethene (1.1 ppm) and TCLP lead at 245 ppm.

(2) **Nature and Extent of Contamination:** The following is a summary of the field investigation findings. The analytical results are illustrated on Plate 2.

- Moderate-to-high concentrations of BTEX were detected at a number of soil-gas sample locations, as indicated on Plate 2.

- Concentrations of VOCs present in soils are not considered to be significant and are generally below TBC values.

- Elevated concentrations of TPH in soils were detected in soil samples at several locations. Based on the TPH and SVO data, visual observations during drilling, and soil gas results, two general areas of petroleum hydrocarbons in soils exist. These areas are southwest of Building 478 and northwest of Building 157. The areas are not defined well enough to delineate laterally on Plate 2, but summary data are provided. Although the fluorescence analysis data are not conclusive, these areas appear to be associated with a heavier weight fuel oil (e.g., No. 6).

- No concentrations of PCBs in soils were detected in the study area. Low levels of pesticides were detected but below TBC values.

- Dioxin was detected at one location [20 MW6 (2-4 ft)] at a concentration of 0.16 ppb. Ash located in this area appears to be the source of the dioxin detected. This level is below the screening level of 1 ppb which was used at the Times Beach, Missouri Superfund site; therefore, the level is not anticipated to be a human health risk; however, the Times Beach screening level may not be appropriate and site-specific considerations are necessary to confirm that there is no unacceptable risk due to dioxin.

- Elevated levels of lead were detected at three sample locations : MW-5 and MW-6 (west of Building 456) and TB-4 (north of Building 157). At MW-5 and MW-6 the lead concentrations exceeded TLCP limits classifying a material as a hazardous waste. Other inorganics exceeded background concentrations but lead was the one of most significance, particularly because lead was also observed in groundwater above ARAR values at 20MW6.

- The sediments from two storm drains contained elevated concentrations of TPH, SVOCs, and inorganics. It appears that the presence of contaminants is most likely related to recent site activities rather than historic site conditions or disposal activities; however, the exact source of these contaminants is not known.

- Groundwater quality at the site is generally good and does not exceed ARARs with the exception of lead at 20MW6. The sources of lead in groundwater at MW6 likely is related to elevated levels of lead in the soils in that general area. SVOCs, primarily PAHs, were detected at low concentrations in four of the six groundwater samples collected, and TBC values for PAHs were exceeded at three of these locations (20MW3, 20MW4, and 20MW5). It is evident that the soils containing fuel-oil residues have only had minor impacts on groundwater quality.

6.2.2 Recommendations

The following recommendations are provided:

- A remedial investigation is recommended at this site to address soils and groundwater containing petroleum constituents (VOCs and SVOCs), contamination in catch basins, lead in subsurface soils (including soils with TCLP lead levels greater than 15 ppb) and groundwater, and the extent of ash disposal observed at 20MW6.

- Any underground storage tank and piping not recently tested should be, to eliminate the possibility of an ongoing source.

- Additional investigation and sediment analysis of the catch basin system should be conducted to determine the extent and source of sediment contamination. Contaminated sediments should be removed and properly disposed.

- Any site operations identified as contributing to this source of sediment contamination should be modified.

7.0 REFERENCES

Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, 1988. Draft Toxicological Profile for N-Nitrosodimethylamine.

Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, 1988. Draft Toxicological Profile for Alpha-, Beta-, Gamma-, and Delta-Hexachlorocyclohexane.

Agency for Toxic Substances and Disease Registry, U.S. Public Health Service, 1989. Toxicological Profile for Selected PCBs (Arochlor-1260, -1254, -1248, 1242, -1232, -1221, and -1016).

Atlantic Environmental Services, Inc., 1993, Plan of Action - Installation Restoration Study: Naval Submarine Base - New London, Groton, Connecticut, final, prepared for Northern Division Naval Facilities Engineering Command.

Atlantic Environmental Services, Inc., 1992, Phase I Remedial Investigation - Installation Restoration Study: Naval Submarine Base - New London, Groton, Connecticut, final, prepared for Northern Division Naval Facilities Engineering Command.

Department of the Interior, United States Geological Survey (in cooperation with the Connecticut Department of Environmental Protection), 1984. Geologic Quadrangle Maps of the United States, Topographic Map of the Uncasville Quadrangle, Connecticut.

Department of the Interior, United States Geological Survey (in cooperation with Connecticut Water Resources Commission), 1968. Hydrogeologic Data for the Lower Thames and Southeastern Coastal River Basins, Connecticut, Connecticut Water Resources Bulletin No. 16.

Department of the Interior, United States Geological Survey (in cooperation with Connecticut Water Resources Commission), 1968. Water Resources Inventory Connecticut - Part 3, Lower Thames and Southeastern Coastal River Basins, Connecticut Water Resources Bulletin No. 15.

Envirodyne Engineers, Inc., 1982. Initial Assessment Study: Naval Submarine Base, New London, Connecticut, prepared for Navy Assessment and Control of Installation Pollutants Department.

Environmental Protection Agency, 1986. Superfund Public Health Evaluation Manual. EPA 540/1-86/060.

Goldsmith, R., 1960. Geologic Quadrangle Maps of the United States, Surficial Geology of the Uncasville Quadrangle, Connecticut. Department of the Interior, United States Geological Survey, Washington DC.

Goldsmith, R., 1967. Geologic Quadrangle Maps of the United States, Bedrock Geologic Map of the Uncasville Quadrangle, New London County, Connecticut. Department of the Interior, United States Geological Survey, Washington DC.

Howard, Philip H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Vol. 1, Chelsea, Michigan: Lewis Publishers.

Howard, Philip H., 1989. Handbook of Environmental Fate and Exposure Data for Organic Chemicals, Vol. 2, Chelsea, Michigan: Lewis Publishers.

Lyman, Warren J., Reehl, William F., and David H. Rosenblatt, 1982. Handbook of Chemical Property Estimation methods. New York: McGraw-Hill Book Company.

Naval Facilities Engineering Command, 1988. Master Plan for Naval Submarine Base, New London.

Neff, J.M., 1979. Polycyclic Aromatic Hydrocarbons in the Aquatic Environment, London: Applied Science Publishers, Ltd.

Shacklette, H.T., and J.G. Boerngen, 1984. Element Concentrations in Soils and Other Surficial Materials in the Conterminous United States, United States Geological Survey (USGS) Professional Paper 1270, Department of the Interior, USGS, GPO.

Shaw, G.R., and D.W. Connell, 1982. *Factors Influencing Polychlorinated Biphenyls in Organisms From an Estuarine Ecosystem.* Australian Journal of Freshwater Research, 33:1057-1070.

State of Connecticut Department of Environmental Protection, 1992. Connecticut Water Quality Standards, Adopted January 1992.

U.S. Department of Agriculture: Soil Conservation Service, 1983. Soil Survey of New London County, Connecticut.

United States Environmental Protection Agency (USEPA), 1989. CERCLA Compliance with Other Laws Manual, Part II, Clean Air Act and other Environmental Statutes and State Requirements, Interim Final, Office of Solid Waste and Emergency Response, (540/G-89/009).

Windholtz, Martha, (ed) 1983. The Merck Index, tenth edition, Rahway, New Jersey, Merck and Co., Inc.

APPENDIX A

SOIL GAS DATA

SUMMARY OF SOIL GAS RESULTS
PIER 33 AND BERTH 16/FORMER INCINERATOR

Sample ID	Depth (ft)	Total BTEX (Vs)	Total BTEX (ppm)	Total (Vs)	Level
Pier 33					
A-1	2	ND	ND	22	L
A-3	2.5	1.1	.15	3.2	Tr
B-2	1	10.7	1.61	12.9	L
B-3	2	6.6	1.35	110	M
B-4	2	ND	ND	10.5	L
C-4	2	ND	ND	5.9	L
C-5	2	ND	ND	1.0	Tr
D-2	2	ND	ND	4.4	L
D-3	3	50.6	2.34	51	M
D-5	3	ND	ND	4.1	L
E-2	2	ND	ND	1.1	Tr
E-3	3	ND	ND	4.5	L
E-5	3.5	ND	ND	3.2	Tr
F-3	3	ND	ND	5.1	L
G-3	3.5	ND	ND	4.4	L
H-1	3	ND	ND	89	M
H-2	4	719	37	1,600	H
H-2 (15'S)	3	ND	ND	1,200	H
H-3	3	27,252	2,830	30,000	H
H-3	3.5	ND	ND	18.7	L
H-5	4	ND	ND	2.7	Tr
I-2	3	2.0	0.24	2.0	Tr
I-2 (15'S)	2	3.8	0.28	35.4	L
I-3	3	4.6	.47	4.6	L
I-3 (15'S)	2	6.7	.76	13.8	L
J-2	3	1.1	0.079	16	L
L-2	3.5	1.2	0.71	16	L
L-3	3.5	ND	ND	3.3	Tr
M-2	2	ND	ND	1.2	Tr
M-3	4	ND	ND	1.3	Tr
M-4	4	ND	ND	2.5	Tr
N-3	3.5	ND	ND	5.6	L
Berth 16/Former Incinerator					
AA-1	2	8	0.42	110	M
AA-2	1	ND	ND	1,400	H
AB-1	2.5	ND	ND	1.1	Tr
A-1	3	ND	ND	4.4	L
A-2	3.5	ND	ND	4.8	L
A-3	4	ND	ND	7.0	L
A-5	1	ND	ND	10	L
A-6	2	ND	ND	6.8	L
A-8	1.5	ND	ND	11	L
A-10	2	ND	ND	40	L
A-12	2	ND	ND	12	L
A-14	1	ND	ND	7	L
A-16	1.5	ND	ND	21	L
A-17	1	ND	ND	1.3	Tr

SUMMARY OF SOIL GAS RESULTS (continued) PIER 33 AND BERTH 16					
Sample ID	Depth (ft)	Total BTEX (Vs)	Total BTEX (ppm)	Total (Vs)	Level
A-18	3	ND	ND	22	L
A-20	4	ND	ND	12	L
A-22	1	ND	ND	4.7	L
A-22 DUP	1	ND	ND	5.5	L
A-23	2	ND	ND	1.0	Tr
BB-1	2.5	ND	ND	1.4	Tr
B-2	1	8.7	.48	74	M
B-4	1	ND	ND	8.2	L
B-5	4	ND	ND	23	L
B-7 DUP	3.5	ND	ND	8.7	L
B-8	4	ND	ND	3.6	Tr
B-11	3	ND	ND	10	L
B-13	1.5	ND	ND	12	L
B-15	3.5	ND	ND	13	L
B-17	4	ND	ND	4.6	L
B-18	4	ND	ND	27	L
B-19	4	ND	ND	3.1	L
B-19	2	ND	ND	21	L
C-3	3.5	ND	ND	27	L
D-3	2	ND	ND	19.0	L
D-16	2	ND	ND	3.1	Tr
E-3	1.5	ND	ND	18.0	L
E-4	2	ND	ND	12.0	L
E-5	2	ND	ND	8.2	L
E-6	4	ND	ND	14	L
E-7	1.5	ND	ND	16	L
E-8	4	ND	ND	9.8	L
E-10	1.5	ND	ND	8.8	L
E-12	1.5	ND	ND	1.0	Tr
E-18	3	ND	ND	2.9	Tr
E-23	1.5	ND	ND	1.3	Tr
F-3	1.5	6.4	.35	60	M
F-3 DUP	1	1.55	.13	2	Tr
F-4	2.5	ND	ND	62	M
F-5	4	ND	ND	27	L
F-7	2	ND	ND	4.7	L
F-8	1.5	ND	ND	4.3	L
F-9	4	ND	ND	7.3	L
F-10	2.5	ND	ND	1.0	Tr
F-11	1	ND	ND	19	L
F-14	1.5	ND	ND	9.0	L
F-15	1.5	ND	ND	1.0	Tr
G-13	1	ND	ND	14	L
G-20	3	ND	ND	4.4	L
H-1	4	ND	ND	2.0	Tr
H-5	1.5	1.3	.098	56	M
H-6	3.5	ND	ND	22	L
H-7	3	ND	ND	13	L

SUMMARY OF SOIL GAS RESULTS (continued) PIER 33 AND BERTH 16					
Sample ID	Depth (ft)	Total BTEX (Vs)	Total BTEX (ppm)	Total (Vs)	Level
H-9	2	ND	ND	21.0	L
H-10	4	ND	ND	12	L
H-11	1.5	3.7	.25	60	M
H-13	1	ND	ND	9.7	L
H-15	2.5	ND	ND	1.1	Tr
H-16	3	ND	ND	200	M
I-1	1	ND	ND	35.1	L
I-2	2.5	ND	ND	6.5	L
I-3	4	ND	ND	3.9	Tr
I-4 DUP	4	ND	ND	2.5	Tr
I-7	1.5	ND	ND	7.0	L
I-7 DUP	1.5	ND	ND	4.2	L
I-8	3.5	ND	ND	8.4	L
I-9	2	ND	ND	2.8	Tr
I-10	3.5	ND	ND	7.3	L
I-11	1.5	ND	ND	1.8	Tr
I-12	1.5	ND	ND	8.3	L
I-13	1	ND	ND	12	L
I-15	1.5	ND	ND	6.6	L
I-16	2.5	ND	ND	13	L
J-1	1	17.2	.42	3,900	H
J-2	1	80.7	2.2	1,100	H
J-3	2	ND	ND	1,100	H
J-3 DUP	2	68.9	5.82	1,100	H
J-4	4	ND	ND	8.0	L
J-5	3.5	ND	ND	110	M
J-6	4	ND	ND	4.6	L
J-7	3.5	ND	ND	5.4	L
J-8	4	ND	ND	2.2	Tr
J-9	4	ND	ND	5.3	L
J-10	3.5	ND	ND	42	L
J-11	2.5	ND	ND	9.9	L
J-12	2	ND	ND	12	L
J-12 DUP	2	ND	ND	12	L
J-13	1	ND	ND	3.9	Tr
J-15	4	1.1	.081	1.1	Tr
J-16	3	ND	ND	4.8	L
K-1	2	2.98	.11	16	L
K-2	1	ND	ND	5,800	H
K-3	1.5	ND	ND	59	M
K-4	1	2.6	0.12	55	M
K-5	2.5	ND	ND	4.0	Tr
K-6	2	.94	.027	9.0	L
K-7	3	ND	ND	16	L
K-8	3	ND	ND	5.0	L
K-9	2.5	ND	ND	2.9	Tr
K-10	4	ND	ND	6.0	L
K-11	4	ND	ND	7.6	L

SUMMARY OF SOIL GAS RESULTS (continued) PIER 33 AND BERTH 16					
Sample ID	Depth (ft)	Total BTEX (Vs)	Total BTEX (ppm)	Total (Vs)	Level
K-16	3.5	ND	ND	2.1	Tr
L-7	3	ND	ND	14	L
L-8	2	ND	ND	10	L
L-9	4	ND	ND	3.7	Tr
L-10	3	ND	ND	4.0	Tr
L-11	2	ND	ND	15	L
L-12	2	ND	ND	9.0	L
L-13	2	ND	ND	5.6	L
L-16	1	ND	ND	11.8	L
L-19	3	ND	ND	18	L
L-20	1	ND	ND	8.9	L
L-21	2.5	ND	ND	3.3	Tr
L-22	4	ND	ND	32	L
L-23	4	ND	ND	1.8	Tr
L-23 DUP	4	ND	ND	26	L
M-13	4	ND	ND	5.4	L
M-16	3	ND	ND	59.1	M
M-17	3.5	ND	ND	2.0	Tr
M-21	1	ND	ND	6.0	L
N-14	4	ND	ND	2.6	Tr
N-14	4	ND	ND	14	L
N-15	4	ND	ND	37	L
N-15	3.5	ND	ND	1.3	Tr
N-18	1	7.1	.35	62	M
N-19	2.5	ND	ND	4.5	L
N-21	2	ND	ND	26	L
N-22	4	ND	ND	13	L
N-23	1.5	ND	ND	4.6	L
N-24	4	ND	ND	11.0	L
O-15	3.5	ND	ND	37	L
O-16	2	ND	ND	9.2	L
O-18	4	ND	ND	3.6	Tr
O-18	1.5	2.0	.11	3.2	Tr
O-20	1	ND	ND	16	L
O-24	4	ND	ND	24	L
P-16	2	ND	ND	430	H
P-20	2	ND	ND	8.5	L
P-21	4	ND	ND	8.1	L
P-22	2.5	ND	ND	12	L
P-24	1	ND	ND	7.0	L
Q-16	3	ND	ND	5.9	L
Q-17	1.5	ND	ND	50	L
Q-18	2	ND	ND	33	L
Q-19	2	ND	ND	40	L
Q-20	1	ND	ND	11	L
Q-21	4	ND	ND	23	L
Q-22	4	ND	ND	21	L
Q-23	4	ND	ND	12	L

SUMMARY OF SOIL GAS RESULTS (continued)
PIER 33 AND BERTH 16

Sample ID	Depth (ft)	Total BTEX (Vs)	Total BTEX (ppm)	Total (Vs)	Level
Q-24	2	ND	ND	14	L
R-18	1.5	ND	ND	30	L
R-21	3	ND	ND	10	L
R-22	4	ND	ND	14	L
R-23	4	ND	ND	3.5	Tr
R-24	2	ND	ND	3.8	L
S-18	2.5	ND	ND	3.4	Tr
S-20	1.5	ND	ND	8.0	L
S-20	1.5	2.3	.11	32	L
S-21	1	ND	ND	5.2	L

Notes:

1) Vs = volt seconds
2) ND = not detected
3) Relative classification for soil gas results:

CLASSIFICATION	TOTAL PEAK AREA RANGE
ND - None Detected	0-300 Millivolt-Seconds
Tr - Trace	.301-4.0 Volt-Seconds
L - Low	4.1-50.0 Volt-Seconds
M - Moderate	50.1-300.0 Volt-Seconds
H - High	> 300 Volt-Seconds

APPENDIX B

TEST BORING LOGS AND MONITORING WELL CONSTRUCTION DETAILS

PIER 33

BORING LOG 19 TB 1

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-03
LOCATION: PIER 33
DATE STARTED: 03/23/93
DATA COMPLETED: 03/23/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.69
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 50° PARTLY CLOUDY, WINDY
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT)	WELL CONSTRUCTION
0-2	21 19 24 29	75	0.0	ASPHALT Light brown, medium to coarse SAND and GRAVEL, moist Dark brown, SILT some shell fragments, moist	0							0.0 0.5 1.0 1.2	
2-4	21 16 13 13	75	0.0	Light brown, medium to coarse SAND and GRAVEL, moist Brown, fine to medium SAND and GRAVEL, moist								3.5	
4-6	5 7 5 7	50	0.0	Brown, medium to coarse SAND, trace gravel, wet	5								
6-8	4 4 6 6	50	2.0	Slight petroleum odor from 6.0 to 7.0 feet.									
8-10	6 3 2 4	75	0.0	Brown, fine to medium SAND, no odor, wet	10								
10-12	2 2 2 2	50	0.0										
12-14	3 2 3 2	50	0.0										
14-16	4 3 3 2	75	0.0		15							16.0	
				Auger refusal at 16.0 feet, end of boring.	20								

ATLANTIC

BORING LOG 19-TB 2

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-03
LOCATION: PIER 33
DATE STARTED: 03/22/93
DATA COMPLETED: 03/22/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.79
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 50° CLEAR SKIES
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	7 6 13 5	10	0.0	ASPHALT Light brown, fine to coarse SAND and GRAVEL, damp	0							0.0 0.5	
2-4	4 2 4 7	5	0.0										
4-6	3 4 4 6	25	7.0	Black stained, fine to medium SAND, strong petroleum odor, moist	5							4.3	
6-8	11 9 9 17	30	17.0	Grey, fine to medium SAND, strong petroleum odor, wet Brown, medium to coarse SAND and GRAVEL, petroleum odor, wet								6.4	
8-10	4 4 6 8	20	1.0										
10-12	5 6 9 11	50	1.0	Dark brown, medium to coarse SAND and GRAVEL, oil stained, no strong odor, wet	10								
12-13.5	14 22 29 50/2	50	0.0	Brown, medium to coarse SAND and GRAVEL, no odor, wet									
				Auger refusal at 13.5 feet, end of boring.	15							13.5	
					20								

ATLANTIC

BORING LOG 19 TB 3

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-03
LOCATION: PIER 33
DATE STARTED: 03/24/93
DATA COMPLETED: 03/24/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.54
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 35° RAIN, WINDY
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. (NONE, STAIN, SHEEN, HEAVY)	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	29 27 17 14	75	0.0	ASPHALT Dark brown, fine SAND and SILT, trace gravel, moist Brown, fine SAND, some gravel, no odor, moist	0				0.0 0.5 0.8 1.5	
2-4	17 11 9 9	50	4.0	Light brown, fine SAND and SILT, moist Light brown, fine to medium SAND and GRAVEL, moist					2.3	
4-6	14 19 21 18	50	0.0	Light brown, medium to coarse SAND, trace gravel, moist	5					
6-8	21 26 13 16	50	0.0	Wet at 6.0 feet Brown, fine GRAVEL, some sand, no odor, wet					7.0	
8-10	31 36 48 34	75	0.0		10					
10-12	21 24 19 23	75	0.0	Brown, fine to medium SAND, trace gravel, wet					11.0	
12-13	17 50/4	0.0	NA	Auger refusal at 13.0 feet, end of boring.	15				13.0	
					20					

ATLANTIC

BORING LOG 19 TB 4

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-03
LOCATION: PIER 33
DATE STARTED: 03/24/93
DATA COMPLETED: 03/24/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.25
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 35° RAIN, WINDY
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. (NONE / STAIN / SHEEN / HEAVY)	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	10 14 16 17	75	0.0	Light brown, medium SAND and GRAVEL, trace silt, no odor, moist	0				0.0	
2-4	11 13 15 18	50	0.0	Light brown, medium SAND, trace gravel, wet at bottom					3.0	
4-5.7	17 29 50/1	40	0.0	Auger refusal at 5.7 feet, end of boring.	5				5.7	
					10					

ATLANTIC

BORING LOG 19 MW 1

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-03
LOCATION: PIER 33
DATE STARTED: 04/30/93
DATA COMPLETED: 04/30/93
DRILLING CONTRACTOR: ATLANTIC ENVIRONMENTAL SERVICES
DRILLER: ERIK NESS
DRILLING METHOD: 2.0 IN. CLOSED BUCKET AUGER
SAMPLING METHOD: HAND AUGER

GROUND ELEVATION: 26.23
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 65° CLEAR SKIES
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-0.5	NA	100	NA	Dark brown, fine SAND and SILT, some organic matter, trace roots, possible ash, no odor, damp	0							0.0	
0.5-1.0	NA	100	NA	Dark brown, fine SAND and SILT, some organic matter, large pine tree roots, possible ash, no odor, damp									
1.0-1.5	NA	100	NA	Red-brown, fine SAND and SILT, trace gravel, trace roots, moist									
1.5-2.0	NA	100	NA										
2.0-2.25		100	NA	Red-brown, fine SAND and SILT, trace gravel, trace roots, wet								2.25	
				Auger refusal at 2.25 feet, no well installed.									
					5								
					10								

ATLANTIC

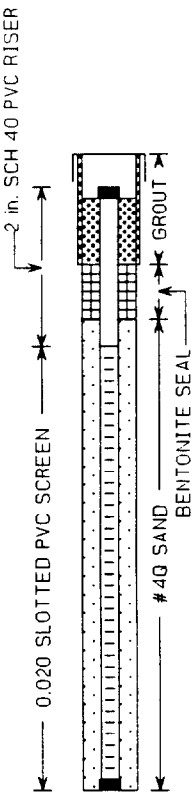
BORING LOG 19 MW 2

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-03
LOCATION: PIER 33
DATE STARTED: 03/24/93
DATA COMPLETED: 03/24/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.28
PROTECTIVE CASING ELEVATION: 7.28
WELL ELEVATION: 6.98
WATER LEVEL: 2.95
DATUM: SUBASE
WEATHER: 35° RAIN, WINDY
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. (NONE / STAIN / SHEEN / HEAVY)	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
				ASPHALT	0				0.0
0-2	27 25 26 28	50	0.0	Light brown, fine to coarse SAND and GRAVEL, trace cobbles, moist					0.5
				Brown, fine to medium SAND, some gravel, trace silt, moist					1.5
2-4	17 21 20 19	50	0.0						
4-5.75	7 9 14 50/0	50	0.0	Wet at bottom of sample.	5				
				Auger refusal at 5.75 feet, end of boring.					5.75
					10				

WELL CONSTRUCTION



ATLANTIC

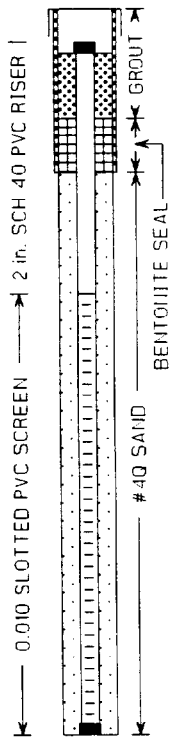
BORING LOG 19 MW 3

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-03
LOCATION: PIER 33
DATE STARTED: 03/25/93
DATA COMPLETED: 03/25/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.18
PROTECTIVE CASING ELEVATION: 7.18
WELL ELEVATION: 6.89
WATER LEVEL: 3.01
DATUM: SUBASE
WEATHER: 40° OVERCAST, OCCASIONAL RAIN
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. (NONE / STAIN / SHEEN / HEAVY)	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
0-2	56 42 39 25	60	0.0	ASPHALT Brown, fine to coarse SAND and GRAVEL, damp	0				0.0 0.2
2-4	20 13 14 16	10	0.0						
4-6	4 3 3 11	65	50.0	Black stained, medium SAND strong petroleum odor, wet	5				4.0
6-6.6	29 50/1	15	49.0	Black, medium to coarse SAND, trace silt, petroleum odor, wet Auger refusal at 6.6 feet, end of boring.					6.6
					10				

WELL CONSTRUCTION



ATLANTIC

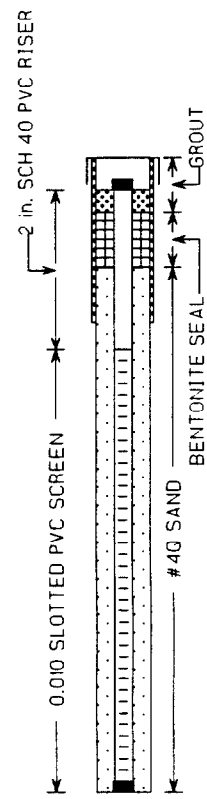
BORING LOG 19 MW 4

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-03
LOCATION: PIER 33
DATE STARTED: 03/23/93
DATA COMPLETED: 03/23/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.33
PROTECTIVE CASING ELEVATION: 7.33
WELL ELEVATION: 7.09
WATER LEVEL: 3.92
DATUM: SUBASE
WEATHER: 50° PARTLY CLOUDY, WINDY
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
					0							0.0
				Weathered ASPHALT								0.2
0-2	29 20 39 26	80	0.0	Brown, fine to coarse SAND and GRAVEL, trace silt, moist								
2-4	21 25 19 22	65	10.0	Dark brown stained, fine to coarse SAND and GRAVEL, strong petroleum odor, moist								
4-5.75	27 34 50/0.2	100	10.0	Wet at 5.0 feet.	5							
				Auger refusal at 5.75 feet, end of boring.								5.75
					10							

WELL CONSTRUCTION



ATLANTIC

BERTH 16/FORMER INCINERATOR

BORING LOG 20 TB 1

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 04/02/93
DATA COMPLETED: 04/02/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.78
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 35° DRIZZLE, OCCASIONAL LIGHT RAIN
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)
0-2	19 18 21 17	65	NA	ASPHALT; Dark brown, fine to coarse SAND, some gravel, trace cobbles, no odor, dry
2-4	21 27 39 15	40	NA	Light brown, medium to coarse SAND and GRAVEL, no odor, dry; Dark brown, fine to medium SAND, trace gravel, trace cobbles, no odor, dry
4-6	19 11 14 8	55	NA	Light brown, fine to medium SAND and GRAVEL, no odor, dry; Light brown, fine to coarse, SAND and GRAVEL, trace cobbles, no odor, dry
6-8	6 8 7 4	60	NA	Light brown, fine to medium SAND, trace gravel, no odor, moist; Brown, medium to coarse SAND and GRAVEL, no odor, wet
8-10	4 5 2 3	60	NA	Dark brown, fine to medium SAND and GRAVEL, trace cobbles, black staining, no odor, wet; Gray-brown, fine to medium SAND, trace gravel, trace organic matter, no odor, wet
10-12	2 1 1 2	45	NA	Gray, fine to medium SAND, trace peat, no odor, wet
12-14	3 2 1 3	30	NA	Gray, fine to medium SAND, trace organic matter, root hairs, twigs, no odor, wet
14-16	4 5 6 6	50	NA	Gray, fine to coarse SAND, trace fine gravel, no odor, wet

END OF BORING AT 16.0 FEET.

DEPTH (FT.): 0, 5, 10, 15, 20

VISUAL CONTAM.: NONE, STAIN, SHEEN, HEAVY

SAMPLE ANALYSIS

LITHOLOGY

DEPTH (FT.): 0.0, 0.3, 0.6, 0.9, 1.2, 4.0, 4.6, 8.0, 16.0

WELL CONSTRUCTION

ATLANTIC

BORING LOG 20 TB 2

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/31/93
DATA COMPLETED: 03/31/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 8.07
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 40° CLOUDY, OCCASIONAL RAIN
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	19 17 ref ref	45	3.0	CONCRETE	0							0.0	
				Light gray, GRAVEL, dry								0.5	
				Dark brown, fine to medium SAND, trace gravel, trace cobbles, no odor, dry								1.0	
2-4	10 9 5 6	50	4.0	Dark brown, fine to medium SAND, trace gravel, trace cobbles, no odor, moist									
4-6	5 4 2 2	55	10	Light brown, medium to coarse SAND, trace gravel, no odor, wet at 5.0 feet	5								
6-8	2 2 2 2	20	7.0	Light brown, medium to coarse SAND, trace gravel, no odor, wet									
8-10	7 3 2 2	15	6.0										
10-12	3 2 3 2	15	8.0	Brown, fine to medium SAND, no odor, wet	10							10.15	
				Brown, coarse SAND and GRAVEL, no odor, wet									
12-14	2 1 2 1	25	9.0	Brown, medium to coarse SAND and GRAVEL, no odor, wet									
14-16	2 1 2 1	25	11	Brown, medium to coarse SAND, wet								14.0	
				Gray, fine to medium SAND, slight petroleum odor, wet	15								
				END OF BORING AT 16.0 FEET.								16.0	
					20								

ATLANTIC

BORING LOG 20 TB 3

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/29/93
DATA COMPLETED: 03/29/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.69
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 60° CLOUDY, OCCASIONAL RAIN
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. (NONE / STAIN / SHEEN / HEAVY)	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	18 14 7 6	80	2.0	ASPHALT Dark brown, fine sand and silt, dry, FILL Brown, fine sand, some silt, trace gravel, no odor, damp, FILL	0				0.0 0.3	
2-4	11 7 4 5	55	NA	Brown, fine sand, some silt, trace gravel, no odor, wet at bottom, FILL						
4-6	4 5 6 4	55	1.0	Brown, fine sand, some gravel, some silt, piece of yellow fire brick, wet, FILL	5					
6-8	7 9 8 14	30	1.0	Brown, fine to coarse sand, trace gravel, piece of concrete, piece of metal wire, slight petroleum odor, wet, FILL						
8-10	8 5 3 2	30	0.0	Grey-brown, coarse SAND, some gravel, sulfur odor, wet					8.0	
10-12	8 8 3 3	45	3.0	Grey, medium SAND, some gravel, wet	10					
12-14	2 2 3 11	0	NA	BACKWASH						
14-14.5		0	NA	Auger refusal at 14.5 feet, end of boring.	15				14.5	
					20					

ATLANTIC

BORING LOG 20 TB 4

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/31/93
DATA COMPLETED: 03/31/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 9.5
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 40° CLOUDY, OCCASIONAL RAIN
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	18 19 27 19	75	4.0	ASPHALT Light brown, fine to medium sand, trace gravel, trace cobbles, no odor, moist, FILL	0							0.0 0.3	
2-4	21 16 31 24	40	2.0	Orange-brown, clay, some silt, no odor, moist, FILL Dark brown, fine to coarse sand and gravel, some coal, brick fragments, no odor, moist, FILL									
4-6	20 11 19 19	85	4.0	Brown-white, fine to coarse sand, some gravel, white ash and fire brick, cinders, moist, FILL	5								
6-8	18 12 14 9	40	6.0	Gray, fine to medium sand, some ash and cinders, trace coal, wet, FILL Red-brown, fine to coarse sand and gravel, some metal slag, no odor, wet, FILL									
8-10	5 6 5 6	45	6.0	Gray and black, fine to coarse sand, some fire brick fragments, and white flakes, no odor, wet, FILL									
10-12	8 8 6 5	30	6.0	Brown, fine to medium sand, some copper wire, white and orange flakes, no odor, wet, FILL Black, fine to coarse sand, some glass, heavy petroleum odor, sheen, FILL	10								
12-14	3 7 9 12	15	5.0										
14-16	4 5 11 9	20	6.0	Black, fine to coarse sand, some glass, copper wire, machine cuttings, brass screw, rubber hose, heavy petroleum odor, sheen, FILL	15								
				END OF BORING AT 16.0 FEET.	20							16.0	

ATLANTIC

BORING LOG 20 TB 5

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/29/93
DATA COMPLETED: 03/29/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 9.99
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 60' CLOUDY, OCCASIONAL RAIN
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	46 51 49 53	100	6.5	ASPHALT Brown, fine sand and gravel, some silt, no odor, damp, FILL	0							0.0 0.3	
2-4	55 100/9"	30	NA	Brown, fine sand and gravel, some silt, no odor, damp, FILL Piece of yellow fire brick Brown, fine sand and gravel, damp, no odor, FILL									
4-6	14 18 13 23	70	5.0	Brown, fine to coarse sand, trace gravel, damp, FILL Dark brown, fine sand, some silt, some gravel, trace cinders, damp, FILL	5								
6-8	3 1 2 3	15	3.0	Brown, fine sand, some silt, trace gravel, damp, FILL Brown-black, fine sand and silt, black specs of organics, trace gravel, wet at 6.0 feet, FILL									
8-10	9 10 11 6	50	NA	Dark brown, fine to coarse gravel, some sand, some silt, wet, FILL	10								
10-12	5 3 3 3	30	NA	Dark brown, coarse sand, piece of concrete at bottom, sweet petroleum odor, wet, FILL									
12-14	11 6 7 50/4"	20	NA	Black, fine sand and silt, piece of wood, 2 in. piece of brick, slight sheen, slight petroleum odor, wet, FILL								14.0	
				Auger refusal at 14.0 feet, end of boring.	15								
					20								

ATLANTIC

BORING LOG 20 TB 6

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/25/93
DATA COMPLETED: 03/25/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 10.31
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 45° LIGHT RAIN
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-2	19 38 27 16	70	0.0	Brown, fine sand and gravel, some silt, no odor, damp, FILL	0							0.0	
2-4	18 19 21 42	60	0.0	Brown, fine sand and gravel, some silt, trace brick frags, no odor, damp, FILL									
4-6	21 42 14 18	60	0.0	Brown, fine sand some gravel, some silt, trace brick fragments, damp, FILL	5								
6-8	13 11 12 10	10	0.0	Trace cobbles while drilling, wet									
8-10	5 19 3 26	70	0.0	Brown, fine sand, some gravel, some silt, trace brick fragments, wet, FILL Black, fine sand and gravel, trace silt, organic odor, wet, FILL									
10-12	12 19 16 17	80	0.0	Grey-green, fine sand and silt, some wood fragments, organic odor, wet, FILL	10								
12-14	16 29 43 50/4"	85	0.0	Black, coarse sand, some silt, possible petroleum odor, organic odor, wet, FILL Black, coarse sand, some silt, possible petroleum odor, organic odor, trace glass, wet, FILL								11.4 12.0	
14-14.25		0.0	NA	Grey, fine GRAVEL, wet Grey, fine to coarse SAND and GRAVEL, wet NO RECOVERY Auger refusal at 14.25 feet, end of boring.	15							14.25	
					20								

ATLANTIC

BORING LOG 20 TB 7

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 04/06/93
DATA COMPLETED: 04/06/93
DRILLING CONTRACTOR: ATLANTIC ENVIRONMENTAL SERVICES
DRILLER: MARTIN BROGIE
DRILLING METHOD: 2.0 IN. CLOSED BUCKET AUGER
SAMPLING METHOD: HAND AUGER

GROUND ELEVATION: -
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 65° CLEAR SKIES
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, SOIL, admixture, moisture, other notes, ORIGIN	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-0.5	NA	100	0.0	Dark brown, fine to coarse SAND, some organic matter, trace gravel, no odor, dry	0							0.0	
0.5-1.3	NA	100	0.0	Dark brown, medium to coarse SAND and GRAVEL, no odor, damp								0.5	
1.3-2.0	NA	100	0.0										
2.0-2.6	NA	100	0.0										
2.6-3.5	NA	100	0.0	Light brown, coarse SAND, damp								3.0	
3.5-4.0	NA	20	0.0	Dark brown, medium to coarse SAND and GRAVEL, no odor, damp								3.5	
4.0-4.3		100	0.0	Light brown, medium to coarse SAND and GRAVEL, no odor, wet									
4.3-4.6		100	0.0									4.6	
				Auger refusal at 4.6 feet.	5								
					10								

ATLANTIC

BORING LOG 20 MW 1

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1256-15-02-02
LOCATION: BERTH 16
DATE STARTED: 04/30/93
DATA COMPLETED: 04/30/93
DRILLING CONTRACTOR: ATLANTIC ENVIRONMENTAL SERVICES
DRILLER: ERIK NESS
DRILLING METHOD: 2.0 IN. CLOSED BUCKET AUGER
SAMPLING METHOD: HAND AUGER

GROUND ELEVATION: 31.87
PROTECTIVE CASING ELEVATION: -
WELL ELEVATION: -
WATER LEVEL: -
DATUM: SUBASE
WEATHER: 65° CLEAR SKIES
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION: color, SOIL, admixture, moisture, other notes, ORIGIN	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)	WELL CONSTRUCTION
0-0.5	NA	100	NA	Dark brown, fine SAND and SILT, some organic matter, trace roots, no odor, dry	0							0.0	
0.5-1.0	NA	100	NA										
1.0-1.5	NA	100	NA	Dark brown, fine SAND and SILT, some organic matter, trace roots, trace gravel, no odor, dry									
1.5-2.0	NA	100	NA	Red-brown, fine SAND and SILT, moist									
2.0-2.5	NA	100	NA	Red-brown, fine SAND and SILT, some gravel, wet at bottom								2.5	
				Auger refusal at 2.5 feet, no well installed.	5								
					10								

ATLANTIC

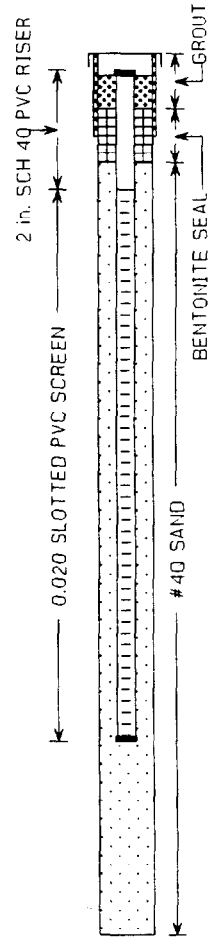
BORING LOG 20 MW 2

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/31/93
DATA COMPLETED: 03/31/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 7.96
PROTECTIVE CASING ELEVATION: 7.96
WELL ELEVATION: 7.74
WATER LEVEL: 2.93
DATUM: SUBASE
WEATHER: 40° OVERCAST, RAIN
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)	DEPTH (FT.)	VISUAL CONTAM. NONE	STAIN	SHEEN	HEAVY	SAMPLE ANALYSIS	LITHOLOGY	DEPTH (FT.)
					0							0.0
0-2	17 29 27 16	75	4.0	ASPHALT Light brown to brown, fine to medium SAND, trace gravel, trace cobbles, no odor, damp								0.3
2-4	22 26 21 19	0	NA	NO RECOVERY								2.0
4-6	15 10 9 14	55	19.0	Dark brown, medium to coarse SAND and GRAVEL, slight petroleum odor, possible WASHBACK Light brown, medium to coarse SAND, trace gravel, no odor, wet	5							4.0 4.5
6-8	11 9 6 8	0	NA	NO RECOVERY								6.0
8-10	4 1 1 1	0	NA	NO RECOVERY								
10-12	3 2 1 2	30	6.0	Gray, fine to coarse SAND, trace gravel, no odor, wet	10							10.0
12-14	3 2 3 2	30	9.0									
14-16	2 2 3 4	30	11.0		15							
				END OF BORING AT 16.0 FEET	20							16.0

WELL CONSTRUCTION



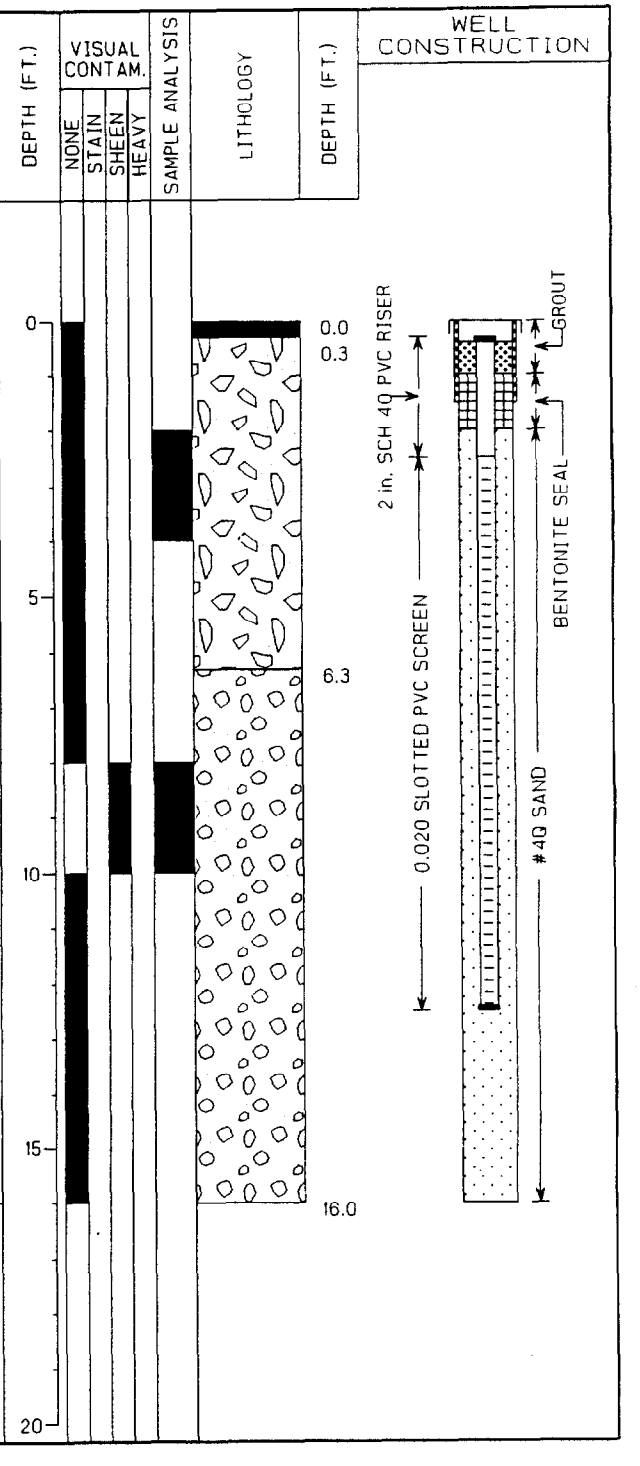
ATLANTIC

BORING LOG 20 MW 3

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-02
LOCATION: BERTH 16
DATE STARTED: 04/01/93
DATA COMPLETED: 04/01/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 6.83
PROTECTIVE CASING ELEVATION: 6.83
WELL ELEVATION: 6.66
WATER LEVEL: 2.68
DATUM: SUBASE
WEATHER: 40° HEAVY RAIN
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)
0-2	23 28 19 14	50	NA	ASPHALT Gray-brown, fine to medium sand and gravel, moderate solvent odor, dry, FILL
2-4	19 29 23 18	50	NA	Dark brown, fine to medium sand and gravel, trace cobbles, moderate solvent odor, moist, FILL
4-6	19 29 23 18	65	NA	Black-brown, fine to medium sand and gravel, trace cobbles, moderate solvent odor, FILL Creosote soaked wood, FILL
6-8	11 19 24 26	65	NA	Black-brown, medium to coarse sand and gravel, moderate petroleum odor, moist, FILL Fire brick fragments, FILL
8-10	19 56 100/1"	30	NA	Gray-brown, medium to coarse SAND and GRAVEL, trace cobbles, strong petroleum odor, wet Black, fine to coarse SAND and GRAVEL, moderate solvent odor, wet
10-12	9 13 22 12	50	NA	Black, fine to coarse SAND and GRAVEL, heavy petroleum odor, sheen, wet Gray-brown, medium to coarse, SAND and GRAVEL, slight solvent odor, wet
12-14	29 38 31 27	100	NA	Gray, medium to coarse SAND and GRAVEL, trace cobbles, slight solvent odor, wet
14-16	17 39 63 33	70	NA	Gray, fine to coarse, SAND and GRAVEL, some cobbles, slight solvent odor, wet
				END OF BORING AT 16.0 FEET



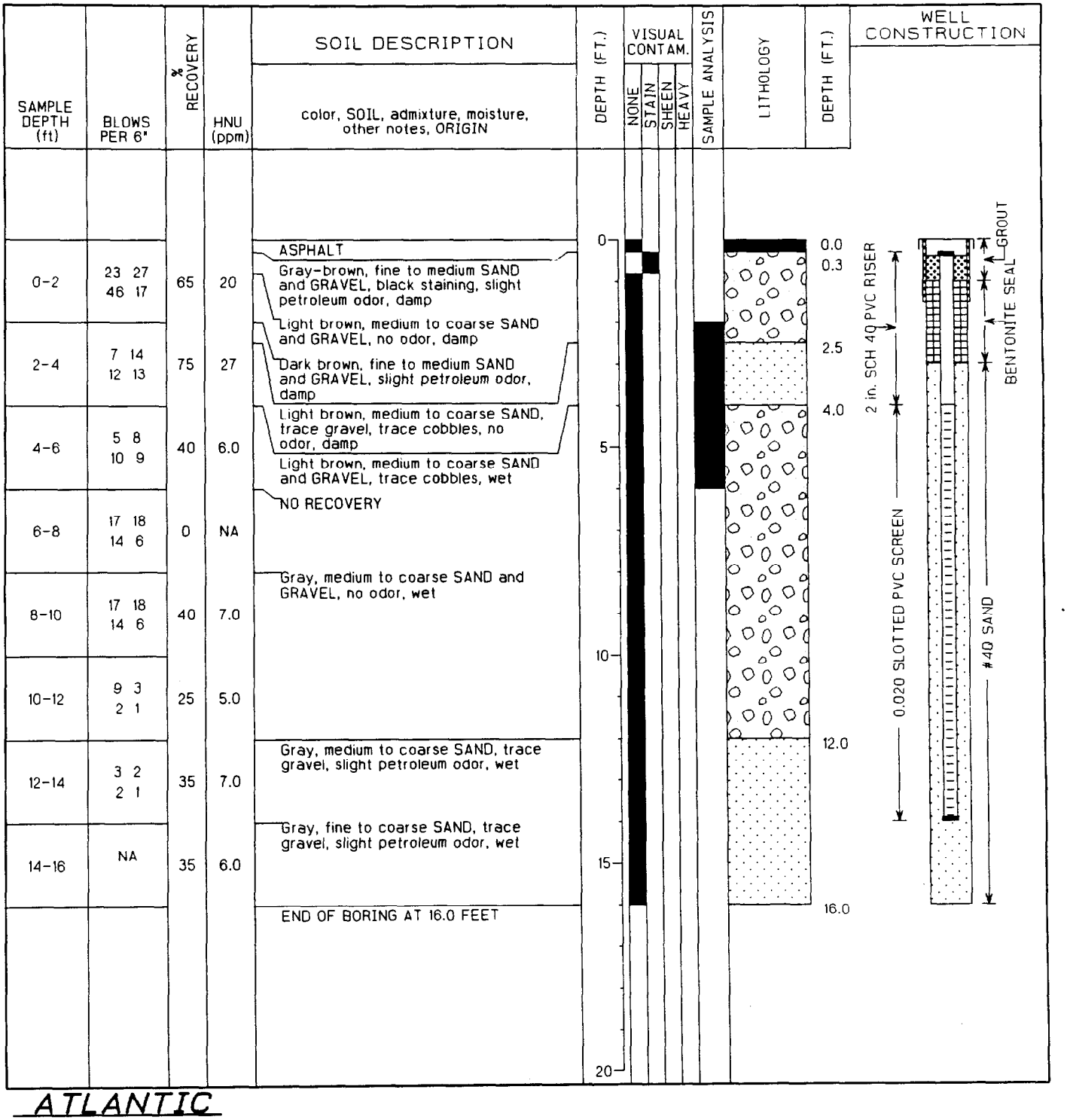
ATLANTIC

BORING LOG 20 MW 4

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/30/93
DATA COMPLETED: 03/30/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 8.29
PROTECTIVE CASING ELEVATION: 8.29
WELL ELEVATION: 8.09
WATER LEVEL: 3.28
DATUM: SUBASE
WEATHER: 40' OVERCAST, RAIN
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)
0-2	23 27 46 17	65	20	ASPHALT Gray-brown, fine to medium SAND and GRAVEL, black staining, slight petroleum odor, damp
2-4	7 14 12 13	75	27	Light brown, medium to coarse SAND and GRAVEL, no odor, damp Dark brown, fine to medium SAND and GRAVEL, slight petroleum odor, damp
4-6	5 8 10 9	40	6.0	Light brown, medium to coarse SAND, trace gravel, trace cobbles, no odor, damp Light brown, medium to coarse SAND and GRAVEL, trace cobbles, wet
6-8	17 18 14 6	0	NA	NO RECOVERY
8-10	17 18 14 6	40	7.0	Gray, medium to coarse SAND and GRAVEL, no odor, wet
10-12	9 3 2 1	25	5.0	
12-14	3 2 2 1	35	7.0	Gray, medium to coarse SAND, trace gravel, slight petroleum odor, wet
14-16	NA	35	6.0	Gray, fine to coarse SAND, trace gravel, slight petroleum odor, wet
				END OF BORING AT 16.0 FEET



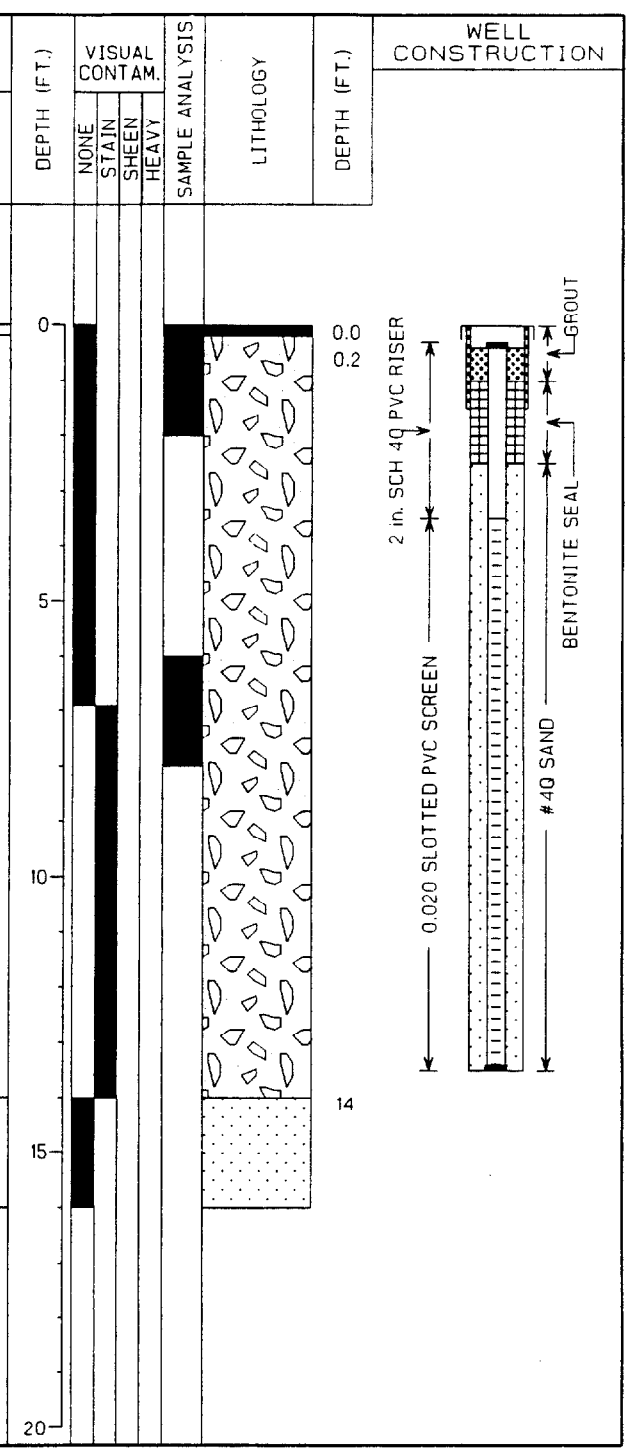
ATLANTIC

BORING LOG 20 MW 5

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/26/93
DATA COMPLETED: 03/26/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 6.79
PROTECTIVE CASING ELEVATION: 6.79
WELL ELEVATION: 6.46
WATER LEVEL: 3.48
DATUM: SUBASE
WEATHER: 45' OVERCAST, OCCASIONAL RAIN
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)
0-2	19 13 17 26	50	1.5	ASPHALT; Light brown, fine to medium sand, some gravel, damp, FILL; Dark brown, fine sand and silt, trace brick fragments, damp, FILL
2-4	58 43 74 50/2"	55	1.8	Light brown medium sand, some gravel, damp, FILL; Yellow brown, fine sand, some gravel, trace silt, trace asphalt chunks, damp, FILL
4-6	4 5 11 13	50	1.4	Gray fine to coarse sand, some silt, trace gravel, slight odor, wet, FILL
6-8	10 13 29 40	60	6.5	Dark gray, sand and silt, trace gravel, steel nail, petroleum odor, wet. FILL; Black, stained tile fragments, wet, FILL
8-10	10 27 39 15	30	7.0	Dark black stained, fine to medium sand, some silt, trace gravel, strong petroleum odor, wet, FILL
10-12	7 7 12 6	55	6.5	Black, fine to coarse sand, trace silt, petroleum odor, stained, possible BACKWASH, FILL
12-14	13 17 38 49	75	13.0	Black, petroleum stained wood with fine to coarse sand, trace silt, petroleum odor, wet, FILL
14-16	14 22 34 36	25	6.5	Black, fine to coarse SAND, some silt, wet
				END OF BORING AT 16.0 FEET



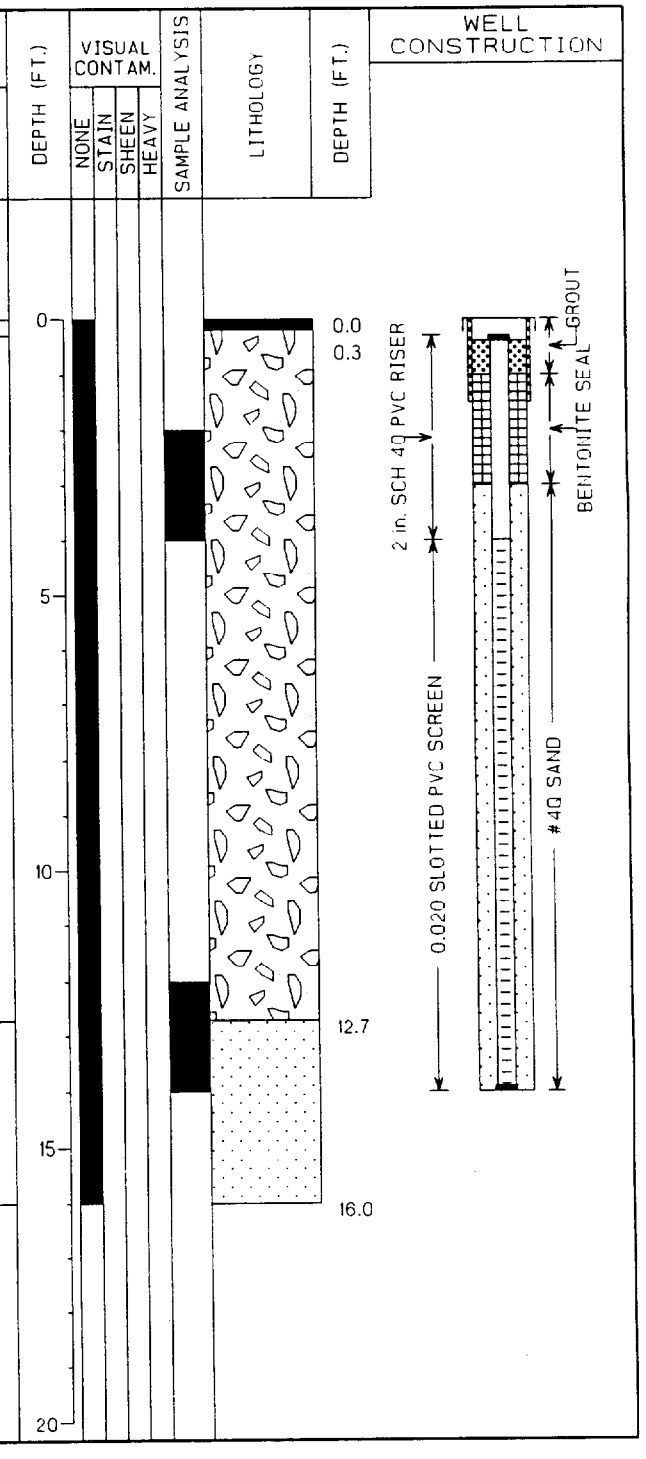
ATLANTIC

BORING LOG 20 MW 6

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/26/93
DATA COMPLETED: 03/26/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 10.19
PROTECTIVE CASING ELEVATION: 10.19
WELL ELEVATION: 10.02
WATER LEVEL: 3.64
DATUM: SUBASE
WEATHER: 45° OVERCAST, OCCASIONAL RAIN
INSPECTOR: ERIK NESS
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)
				ASPHALT
0-2	29 34 37 39	10	0.0	Brown, fine sand, some gravel, piece of asphalt, no odor, damp, FILL
2-4	8 13 8 9	60	0.0	Brown, fine sand, some gravel, some silt, damp, FILL Orange black, ash and metal flakes, old bolt (metal), moist, FILL
4-6	4 4 5 7	40	0.0	Orange brown, ash and cinders, some white ashes, pieces of glass, wet at bottom, FILL
6-8	6 7 11 8	5	0.0	
8-10	39 74 41 27	35	3.0	
10-12	27 55 29 31	60	6.0	Gray, gravel, some white ash, slight sweet odor, wet, FILL
12-14	10 4 3 9	55	6.2	Dark brown grading to gray colored FILL Gray, fine SAND, some silt, some gravel, slight sweet odor, wet
14-16	19 15 16 13	100	4.5	Brown, medium to coarse SAND, some gravel, wet
				END OF BORING AT 16.0 FEET.



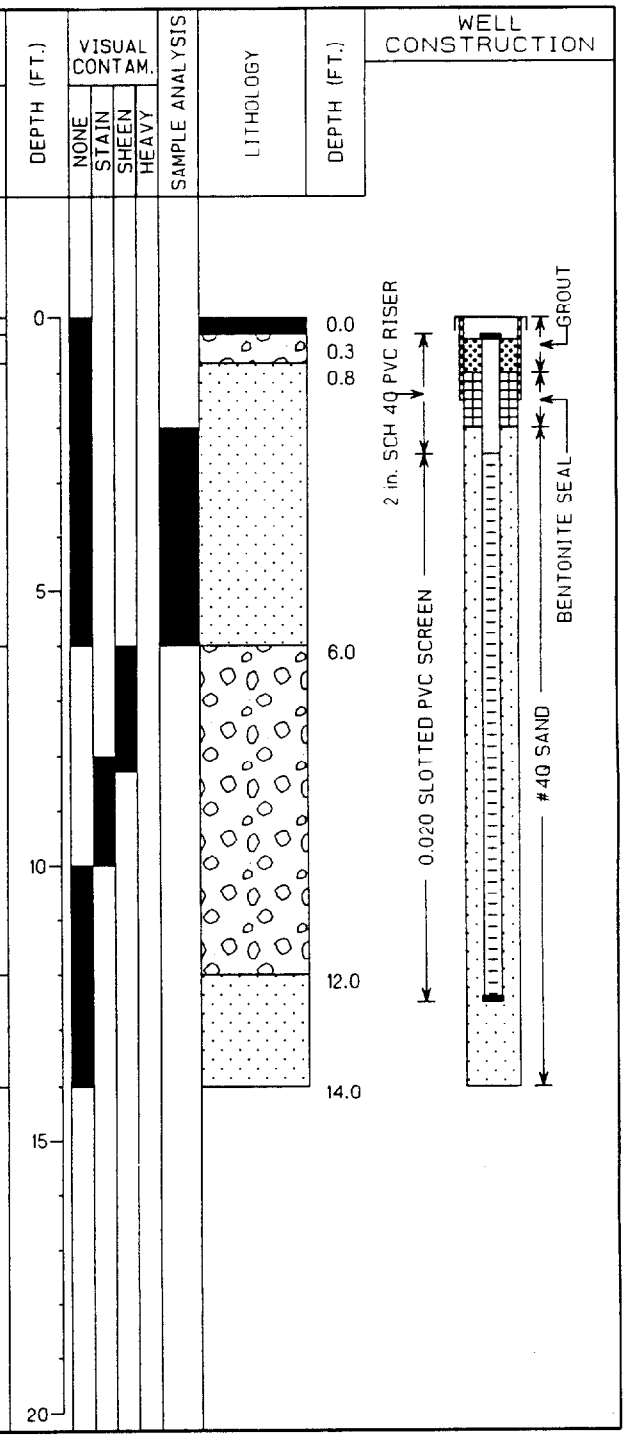
ATLANTIC

BORING LOG 20 MW 7

PROJECT: NAVY IR PROGRAM
PROJECT NO: 1245-15-02-02
LOCATION: BERTH 16
DATE STARTED: 03/30/93
DATA COMPLETED: 03/30/93
DRILLING CONTRACTOR: COLUMBIA ENVIRONMENTAL DRILLING
DRILLER: GENE LEVESQUE
DRILLING METHOD: 4.25 IN. HOLLOW STEM AUGER
SAMPLING METHOD: 3 IN. SPLIT SPOON

GROUND ELEVATION: 6.18
PROTECTIVE CASING ELEVATION: 6.18
WELL ELEVATION: 5.96
WATER LEVEL: 3.29
DATUM: SUBASE
WEATHER: 40° OVERCAST, RAIN
INSPECTOR: MARTIN BROGIE
CHECKED BY: ERIK NESS

SAMPLE DEPTH (ft)	BLOWS PER 6"	% RECOVERY	HNU (ppm)	SOIL DESCRIPTION (color, SOIL, admixture, moisture, other notes, ORIGIN)
0-2	23 23 17 18	100	14	ASPHALT Dark brown, fine to medium SAND and GRAVEL, damp Light brown, fine to medium SAND, trace gravel, no odor, damp
2-4	16 14 13 12	75	10	Light brown, fine to medium SAND, trace gravel, orange mottling at bottom, no odor, wet at bottom of spoon
4-6	8 8 7 7	45	7.0	Brown-gray, fine to medium SAND, trace gravel, moderate petroleum odor, wet
6-8	9 11 7 8	40	5.0	Gray-brown, fine to medium SAND and GRAVEL, trace cobbles, strong petroleum odor, and sheen, wet
8-10	11 10 8 7	35	4.0	Dark brown, fine to coarse SAND and GRAVEL, moderate petroleum odor and stain, slight sheen, wet Dark brown, fine to coarse SAND and GRAVEL, moderate petroleum odor and stain, wet
10-12	13 7 8 10	20	6.0	Dark brown, fine to coarse SAND and GRAVEL, moderate petroleum odor, wet
12-14	4 5 4 4	10	2.0	Dark brown, fine to coarse SAND, trace gravel, trace cobbles, wet
				END OF BORING AT 14.0 FEET



ATLANTIC

APPENDIX C

DATA VALIDATION REPORTS

META Environmental, Inc.

49 Clarendon Street
Watertown, MA 02172
TEL: (617) 923-4662
FAX: (617) 923-4610

DATA VALIDATION REPORT
FOR THE
NAVAL SUBMARINE BASE SITE
IN GROTON, CT
PIER 33/BERTH 16 SOILS
SDG NO: MW612, DIOXINS ONLY

Prepared for:

Atlantic Environmental Services, Inc.
118 Norwich Avenue
Colchester, CT 06415

Prepared by:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02172

August 16, 1993

TABLE OF CONTENTS

Section	Page
INTRODUCTION	1
ORGANIC DATA	2

List of Tables and Attachments

- Glossary of Terms
- Data Validation Recommendation Footnotes - Organics
- Sample Data Sheets: PCDD/PCDF Organics Analysis

DATA VALIDATION REPORT

RE: SDG Nº: MW612, Dioxins Only
Site: Naval Submarine Base, Groton, CT
Reference: NVDV930609A

Dioxins: 2/soil/20TB4(4-6), 20TB14(4-6).
1/aqueous/ER-7.

INTRODUCTION

META Environmental, Inc. (META) has completed a validation of the dioxin organic analytical data from SDG No. MW612 low level soil samples collected from the Naval Submarine Base site in Groton, CT. The data were evaluated according to guidelines adapted by META, and based on the U.S. EPA National Functional Guidelines for Dioxin Data Review (Draft, 01/92), and the U.S. EPA Contract Laboratory Program Statement of Work for Analysis of PCDDs and PCDFs (DFLM01.1). As specified, only three of the samples submitted were validated.

Triclustered Sample Data Sheets detailing the Estimated Maximum Possible Concentration/Estimated Detection Limits (EMPC/EDLs), laboratory reported results, data validation results, and recommendations for each fraction of each validated sample have been submitted for your convenience.

The data submitted for SDG No. MW612 were found to be generally good. There was no qualification of dioxin data based on the results of the data validation review.

ORGANIC DATA

Evaluation of the dioxin (DIOX) organic data was based on the following parameters:

- Data completeness
- ☺ Window defining mix
- ☺ Chromatographic resolution
- ☺ Instrument sensitivity
- ☺ GC/MS initial calibration
- ☺ Continuing calibration
- ☺ Identification criteria
- ☺ Blanks
- ☺ Spiked sample
- ☺ Duplicate sample
- ☺ Toxicity equivalency factor and isomer specificity
- ☺ Dilutions and reanalyses
- ☺ Second column confirmation
- EMPC and EDL
- Internal standard recoveries

☺ - All criteria were met for this parameter.

Data Completeness

The did package did not contain Form V-PCDD3 (Analytical Sequence Summary), which is required by the SOW. However, the laboratory did submit instrument logbook pages which allowed the validator to check the analytical sequence. No action is recommended.

The data package contained all other forms required by the SOW. Copy quality was good.

Window Defining Mix

The window defining mix was analyzed at the required frequency. No action is recommended.

Chromatographic Resolution

The CC3 standard analyzed during both the initial and continuing calibration procedures were reviewed and the resolution between the $^{13}C_{12}$-2,3,7,8-TCDD and $^{13}C_{12}$-1,2,3,4-TCDD isomer peaks was greater than 25%. Also, the resolution between the 1,2,3,4,7,8-HxCDD and 1,2,3,6,7,8-HxCDD isomer peaks was greater than 50%. No action is recommended.

Instrument Sensitivity

The CC1 standard was analyzed at the end of each 12 hour period and met all retention time, ion abundance ratio, and signal-to-noise ratio criteria. No action is recommended.

GC/MS Initial Calibration

The following criteria for the initial calibration of the GC/MS system were acceptable:

- GC resolution
- Relative ion abundance criteria
- Isomer retention times within RT windows established by window defining mix
- MS sensitivity
- RRF %Ds $\leq$ 15%

No actions are recommended.

It should be noted that the laboratory included an initial calibration analyzed on 01/05/93 which was not required to be submitted. It should also be noted that the initial calibration analyzed 02/02/93 incorrectly reported ion abundance ratios for the compounds 2,3,7,8-TCDD and 2,3,7,8-TCDF and Form VI-PCDD2 and that were outside of QC limits. The values were recalculated by the validator and corrected on the Form VI-PCDD2. Both the ion abundance ratio and the QC limit for the compound 2,3,4,7,8-PeCDF were reported incorrectly. Both were corrected on the Form VI-PCDD2 by the validator. All recalculated values were within the required QC limits. No actions are recommended.

Continuing Calibration

All of the criteria listed for the initial calibration were also used to evaluate the continuing calibration, with the exception that the RRFs are allowed a %D of $\leq$ 30%. The continuing calibration submitted met all criteria. No action is recommended.

Identification Criteria

For all positive identifications reported, all qualitative identification criteria were met, including: retention times, signal-to-noise ratio, presence of all three primary ions, and the ion abundance ratios. No action is recommended.

Blanks

One method blank was analyzed with each matrix specific extraction procedure. In addition, one field blank was submitted for analysis. All blanks were free from contamination, and no actions are recommended.

Spiked Sample

All soil spiked sample %Recs were within the recommended limits of 50 to 150%. No action is recommended.

Duplicate Sample

The RPDs of the soil duplicate sample were all below the criterion of < 50%. No action is recommended.

Toxicity Equivalency Factor and Isomer Specificity

All Toxicity Equivalency Factor (TEF) calculations were done properly. No action is recommended.

Dilutions and Reanalyses

Dilutions and reanalyses were not required. No action is recommended.

Second Column Confirmation

Second column confirmation was not required. No action is recommended.

EMPC and EDL

A spot check of the Estimated Maximum Possible Concentration and Estimated Detection Limits (EMPC/EDL) calculations was done, and no errors were detected.

Internal Standard Recoveries

The internal standard (IS) and cleanup standard recoveries were within the required criterion of 25 to 150%.

Organic Section prepared by:

LAS for
Elissa McDonagh

Elissa McDonagh

Organic Data Validator

Report reviewed and approved by:

June A Schneider

June A. Schneider

Data Validation Manager

David M Mauro

David M. Mauro

Vice President

META Environmental, Inc.

GLOSSARY OF TERMS

GLOSSARY OF TERMS

(In alphabetical order)

ABN	Acid/Base-Neutral. An extraction and analytical method for the determination of semivolatile organic compounds, or a sample extracted and analyzed by that method. Also: BNA, semivolatile, SVOC.
ASP	Analytical Services Protocol. The NYSDEC statement of work.
BFB	Bromofluorobenzene. The compound used for initial tuning of the GC/MS system, prior to the analysis of volatile organic compounds.
CC	Continuing Calibration. A standard solution of organic compounds of known concentration is analyzed periodically to check the continued calibration of the system.
CF	Calibration Factor. In pesticide/PCB analyses, the calibration factor is the area of the standard compound divided by the concentration of that compound in the standard.
CCC	Calibration Check Compound. Any one of a defined subgroup of compounds present in the calibration standards. Used to check the acceptability of instrument performance.
CCV	Continuing Calibration Verfication. A standard solution of inorganic compounds of known concentration is analyzed periodically during sample analyses to verify the continued calibration of the instrument.
CLP	Contract Laboratory Program. The U.S. EPA program that defines analytical, QC, and reporting procedures to generate high quality, defensible data. CLP also has associated the most highly developed and regulated set of data validation guidelines, on which most data validation decisions are based.
COC	Chain of Custody. The documentation that details the history of a given sample, from the time it is collected until the time it has been analyzed.
CRDL	Contract Required Detection Limit. As defned by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the inorganic analyte of interest. Results below the CRDL are reported, but as estimated values.

GLOSSARY OF TERMS

CRQL	Contract Required Quantitation Limit. As defined by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the organic compound of interest. Results below the CRQL are reported, but as estimated values.
CRR	Contract Required Recovery range. As defined in the U.S. EPA Region I Functional Guidelines for Evaluating Organics Analyses (11/88), the acceptable recovery range for surrogate spike and matrix spike compounds.
DFTPP	Decafluorotriphenylphosphine. The compound used for initial tuning of the GC/MS system, prior to the analysis of semivolatile organic compounds.
EICP	Extracted Ion Current Profiles. Recommended by the U.S. EPA CLP and required by the NYSDEC ASP, the EICP displays the chromatographic peak specific to a m/z ion in a GC/MS analysis.
EPA	Environmental Protection Agency. The United States federal agency governing environmental concerns.
FP	False Positive. Used to designate as non-detect any compound incorrectly identified by the computer.
GC/MS	Gas Chromatography/Mass Spectrometry. An analytical technique used commonly for the determination of volatile and semivolatile organic compounds.
HT	Holding Time. The contractually defined time in which a sample must be extracted and/or analyzed by the analytical laboratory. Generally calculated from date of sampling.
IC	Initial Calibration. A series of standard solutions of organic compounds are analyzed at different concentration levels to define the initial linearity of the analytical system.
ICV	Initial Calibration Verification. A standard solution of inorganic compounds is analyzed immediately following instrument calibration to confirm the accuracy of that calibration.

GLOSSARY OF TERMS

IDL — Instrument Detection Limit. The lowest concentration at which a particular instrument can reliably detect a given analyte. As differs from the CRQL which is the lowest concentration at which a given analyte may be reliably quantitated. IDLs vary from instrument to instrument, and their determination is required by NYSDEC.

MS/MSD — Matrix Spike/Matrix Spike Duplicate. Prior to extraction, a known quantity of several analytes is spiked into a sample. The sample is analyzed in duplicate and %Recs and RPDs are calculated. Used to monitor matrix effects of the native sample upon the observed sample results.

MSB — Matrix Spike Blank. An aliquot of contaminant-free soil or water is spiked with a known quantity of several analytes. The MSB is analyzed and %Recs are calculated. Required by NYSDEC.

NEESA — Naval Energy and Environmental Support Activity. The regulatory agency for the Navy Installation Restoration Program.

NYSDEC — New York State Department of Environmental Conservation. The New York State agency governing environmental concerns.

%D — Percent Difference. A measure of the variance between two results, relative to the first result.

$$\%D = \frac{R_1 - R_2}{R_2} \times 100$$

where, R_1 is the first result and R_2 is the second result.

%Rec — Percent Recovery. A measure of the recovery of a known amount of analyte.

$$\%Rec = \frac{A_r}{A_s} \times 100$$

where, A_r is the amount recovered and A_s is the amount spiked. (When calculating matrix spike recoveries, the amount of analyte present in the unspiked sample must first be subtracted from the amount recovered).

GLOSSARY OF TERMS

%RSD — Percent Relative Standard Deviation. A measure of the variance between multiple results.

$$\%RSD = \frac{SD}{X} \times 100$$

where, SD is the standard deviation and X is the mean of the values.

PEST — Pesticide/PCB. An extraction and analytical method for the detremination of pesticide and/or PCB compounds, or a sample extracted and analyzed by that method. Also: Pest/PCB, PCB.

QA — Quality Assurance. The system of management that guarantees high quality data output.

QC — Quality Control. Any system of analytical tests and checks that monitors the progress of the data, leading to high quality data output. May also refer to the criteria by which those tests and checks are evaluated.

RPD — Relative Percent Difference. A measure of precision comparing two results.

$$RPD = \frac{D_1 - D_2}{(D_1 + D_2)/2} \times 100$$

where, D_1 is the result from sample 1 and D_2 is the result from sample 2.

RRF — Relative Response Factor. A measure of the response of the instrument to a given compound relative to the response of the instrument to a standard compound.

RT — Retention Time. In GC, the time it takes for a given analyte to move through the analytical system to the detector.

SD — Standard Deviation. In statistics, the standard deviation is a measure of the dispersion of all values around the mean value.

GLOSSARY OF TERMS

$$SD = \frac{\sqrt{(n\Sigma x^2 - (\Sigma x)^2)}}{n(n-1)}$$

where n = number of values and x = individual values.

SOW — Statement of Work. A document describing in detail the contractual obligations of the laboratory to the contractor with regards to analytical methods, reporting requirements, and QC, financial, and litigational obligations.

TAL — Target Analyte List. The list that defines the specific inorganic parameters of interest in a given analysis.

TCL — Target Compound List. The list that defines the specific organic compounds of interest in a given analysis.

TIC — Tentatively Identified Compound. Any non-TCL compound which is detected during sample analysis and identified by mass spectral matching alone.

VOA — Volatile Organic Compound Analysis. An analytical method for the determination of volatile organic compounds, or a sample analyzed by that method. Also: VOC.

VTSR — Verified Time of Sample Receipt. The date and time a group of samples is accepted at the analytical laboratory. Appears on the COC. NYSDEC calculates holding times from VTSR rather than from sampling date.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES

____	A blank space denotes no change to the laboratory reported result.
J^1, UJ^1	Holding times have been exceeded: estimate positive results (J^1) and non-detects (UJ^1). Refer to Section on "Holding Times" for details.
J^2, R^2	The initial or continuing calibration RF was low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on GC/MS "Calibration" for details.
J^3	The initial calibration %RSD was high: estimate positive results (J^3). Refer to Section on GC/MS "Calibration" for details.
J^4, UJ^4	The initial calibration %RSD was greater than 50% or the continuing calibration %D was greater than 25%: estimate positive results (J^4) and non-detects (UJ^4). Refer to Section on GC/MS "Calibration" for details.
U^5	Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U^5). Refer to Section on "Blanks" for details.
U^6	Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U^6). (i.e., the Limit of Detection has been raised for that compound, and the result is considered to be non-detect). Refer to Section on "Blanks" for details.
J^7	One or more of the surrogate standard %Recs was greater than the Contract Required Recovery range (CRR): estimate positive results within that area of the chromatogram (J^7). Refer to Section on "Surrogate Recoveries" for details.
J^8, UJ^8	One or more of the surrogate standard %Recs was less than the CRR: estimate positive results (J^8) and non-detects (UJ^8) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.
J^9	One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{10}	The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) %Recs were not within the CRR for this compound: estimate positive results in the unspiked sample (J^{10}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{11}	The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{12}	The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J^{12}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{13}	Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J^{13}). Refer to Section on "Field Duplicates" for details.
J^{14}, UJ^{14}	One value was non-detect and the other value was greater than the CRQL for this compound in the field duplicate pair: estimate the positive (J^{14}) and non-detected (UJ^{14}) results for that compound. Refer to Section on "Field Duplicates" for details.
J^{15}, UJ^{15}	One or more Internal Standard (IS) areas were not within the CRR: estimate positive results (J^{15}) and non-detects (UJ^{15}) for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{16}, R^5	One or more IS areas were grossly low: estimate (J^{16}) positive results and reject (R^5) non-detected results for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{17}, JN^{17}, R^6	% Breakdown for DDT exceeded 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.
J^{18}, JN^{18}, R^7	% Breakdown for endrin exceeded 20%: estimate positive results for endrin (J^{18}), and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{19} Initial calibration %RSD for this compound exceeded 10%: estimate positive results (J^{19}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{20} Continuing calibration %D for this compound exceeded 15% (quantitation column) and/or 20% (confirmation column): estimate positive results (J^{20}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{21} The %RSD for this unspiked compound in the sample/MS/MSD set exceeded the advisory criterion of < 30% for aqueous samples or < 50% for soil samples: estimate (J^{21}) positive results for that compound in the sample, MS, and MSD. Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R^1 Holding times have been grossly exceeded: reject all non-detects (R^1).

R^2 The initial or continuing calibration RFs were low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on "GC/MS Calibration" for details.

R^3 One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

R^4 The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R^5 One or more IS areas were grossly low: reject non-detects (R^5). Refer to Section on "Internal Standard Performance" for details.

R^6 % Breakdown for DDT was greater than 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.

R^7 % Breakdown for endrin was greater than 20%: estimate positive results for endrin (J^{18}) and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

META Environmental, Inc.
Sample Data Sheets: PCDD/PCDF Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	ER-7											
	EMPC/EDL	Reported	Validated	EMPC/EDL	Reported	Validated	EMPC/EDL	Reported	Validated	EMPC/EDL	Reported	Validated
2378-TCDD	0.1347											
2378-TCDF	0.0943											
12378-PeCDF	0.1471											
12378-PeCDD	0.1921											
23478-PeCDF	0.1696											
123478-HxCDF	0.1368											
123678-HxCDF	0.1216											
123478-HxCDD	0.3048											
123678-HxCDD	0.2417											
123789-HxCDD	0.2812											
234678-HxCDF	0.1409											
123789-HxCDF	0.1632											
1234678-HpCDF	0.3024											
1234678-HpCDD	0.2523											
1234789-HpCDF	0.4355											
OCDD	1.9348											
OCDF	2.4633											

Dilution Factor: 1
Matrix: Water
Units: ng/L

META

SAMPLE DATA SHEETS:

PCDD/PCDF ORGANICS ANALYSIS

META Environmental, Inc.
Sample Data Sheets: PCDD/PCDF Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20TB4(4-6)			20TB4(4-6)MS			20TB4(4-6)D			20TB14(4-6)		
	EMPC/EDL	Reported	Validated	EMPC/EDL	Reported	Validated	EMPC/EDL	Reported	Validated	EMPC/EDL	Reported	Validated
2378-TCDD	0.0040				2.5		0.0037			0.0043		
2378-TCDF	0.0049				2.5		0.0085			0.0090		
12378-PeCDF	0.0061				6.0		0.0071			0.0068		
12378-PeCDD	0.0083				6.6		0.0072			0.0067		
23478-PeCDF	0.0075			0.0059			0.0073			0.0070		
123478-HxCDF	0.0050			0.0030			0.0044			0.0047		
123678-HxCDF	0.0044				7.2		0.0041			0.0044		
123478-HxCDD	0.0195			0.0303			0.0126			0.0175		
123678-HxCDD	0.0149				5.6		0.0115			0.0160		
123789-HxCDD	0.0180			0.0280			0.0121			0.0169		
234678-HxCDF	0.0053			0.0031			0.0046			0.0049		
123789-HxCDF	0.0065			0.0039			0.0056			0.0059		
1234678-HpCDF	0.0061				5.9		0.0101			0.0101		
1234678-HpCDD	0.0054				5.3		0.0058			0.0055		
1234789-HpCDF	0.0090			0.0058			0.0136			0.0136		
OCDD		0.4J			13.7			0.352J			0.3J	
OCDF	0.0538				12.5		0.1581			0.1059		
Dilution Factor:		1			1			1			1	
Matrix:		Soil			Soil			Soil			Soil	
Units:		ug/Kg			ug/Kg			ug/Kg			ug/Kg	

META

META Environmental, Inc.

49 Clarendon Street
Watertown, MA 02172
TEL: (617) 923-4662
FAX: (617) 923-4610

DATA VALIDATION REPORT
FOR THE
NAVAL SUBMARINE BASE SITE
IN GROTON, CT
PIER 33/BERTH 16 GROUNWATERS
SDG NO: 20MW6

Prepared for:

Atlantic Environmental Services, Inc.
118 Norwich Avenue
Colchester, CT 06415

Prepared by:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02172

August 13, 1993

TABLE OF CONTENTS

Section	Page
INTRODUCTION	1
ORGANIC DATA	2
INORGANIC DATA	13

List of Tables and Attachments

- Table 1: Tentatively Identified Compound Summary
- Glossary of Terms
- Data Validation Recommendation Footnotes - Organics
- Sample Data Sheets: Volatile Organic Compounds
- Sample Data Sheets: Semivolatile Organic Compounds
- Sample Data Sheets: Pesticide Organic Compounds
- Data Validation Recommendation Footnotes - Inorganics
- Sample Data Sheets: Inorganic Analytes

DATA VALIDATION REPORT

RE: SDG Nº: 20MW6
Site: Naval Submarine Base, Groton, CT
Reference: NVDV930721A

Volatiles: 12/water/19GW2, 19GW3, 20GW5, 20GW7, 20GW17, 20MW2, 20MW3, 20MW4, 20MW6, ER-1, ER-3, TB-20.

Semivolatiles: 7/water/20GW17, 19GW2, 19GW3, 20GW5, 20GW7, 20MW2, ER-3.

Pesticides: 7/water/20GW17, 19GW2, 19GW3, 20GW5, 20GW7, 20MW2, ER-3.

Metals/CN: 15/water/19GW2, 19GW3, 19MW4, 20GW5, 20GW7, 20GW17, 20MW2, 20MW3, 20MW4, 20MW6, 20GW7F, 20GW17F, ER-1, ER-3, ER-4.

INTRODUCTION

META Environmental, Inc. (META) has completed a validation of the volatile, semivolatile, and pesticide organic and inorganic analytical data from SDG No. 20MW6 low level soil samples collected from the Naval Submarine Base site in Groton, CT. The data were evaluated according to guidelines adapted by META, and based on the National Functional Guidelines for Organic Data Review (OLM01.0), the U.S. EPA Region I Functional Guidelines for Evaluating Inorganic Analyses (6/88), and the NEESA Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (20.2-047B). At the client's request, not all of the samples submitted were validated.

Triclustered Sample Data Sheets detailing the Contract Required Quantitation Limits (CRQLs), laboratory reported results, Instrument Detection Limits (IDLs), data validation results, and recommendations for each fraction of each validated sample have been submitted for your convenience.

The data submitted for SDG No. 20MW6 were found to be generally good. There was some qualification of VOA data because of blank contamination, surrogate recoveries, and calibration, some qualification of ABN and PEST data because of calibration, and some qualification of inorganic data due to inadequate preservation, blank contamination, and spike recovery. The reader should refer to the report for a more detailed discussion of the results.

ORGANIC DATA

Evaluation of the volatile (VOA), semivolatile (ABN), and pesticide (PEST) organic data was based on the following parameters:

- Data completeness
- ☺ Holding times
- ☺ GC/MS Tuning
- Calibration
- Blanks
- ☺ Method blank/spikes
- Surrogate recoveries
- Matrix spike/matrix spike duplicate
- ☺ Field duplicate precision
- ☺ Internal standard performance
- Pesticide instrument performance
- ☺ Compound identification
- ☺ Compound quantitation

☺ - All criteria were met for this parameter.

Data Completeness

The data package contained most of the forms required by the SOW, with the following exceptions:

- Mass listings for the ABN fraction DFTPP instrument tunes were not submitted with the data package.

- The data package was not organized correctly. The SOW requires that sample data be presented in order sorted alphanumerically by the client ID. This was not the case, and the resulting package was difficult to work with.

- The VOA fraction sample ER-3 was not listed on the Form IV (Method Blank Summary). The form was corrected by the validator.

- A TIC compound was not listed on the VOA Form IE for the method blank VBLKW1. The form was corrected by the validator.

In addition to the forms required by the SOW, the following items are necessary for a NEESA compliant data package:

- The analysis of method/blank spikes, and submission of raw data, summary forms, and control charts for those analyses.

Control charts and raw data were submitted with the data package. Copy quality was good.

Holding Times

All of the VOA fraction samples were analyzed within the required holding times. No action is recommended.

All of the ABN and PEST fraction samples were extracted and analyzed within required holding times. No action is recommended.

It should be noted that NEESA requires all samples to be shipped within 24 hours of collection. This was not the case for several of the samples validated. However, since all holding time criteria were met, no action is recommended.

GC/MS Tuning

All of the BFB and DFTPP tuning criteria were within the required limits. It should be noted that the DFTPP mass listings were not submitted, so the validator was unable to check the Forms V for transcription errors.

Calibration

The following problems were noted with the initial and/or continuing calibration of the VOA and ABN GC/MS systems:

VOA instrument DMS-HP (initial calibration date 05/04/93):

Compound	IC 05/04/93	CC 05/05/93
Methylene chloride		X
Acetone	X	X

Associated Samples:	All samples in this case.	20GW17, ER-3, 19GW2, 19GW3, 20GW5, 20GW7, 20GW17MS, 20GW17MSD, 20MW4.

It should be noted that while all compound RFs met the minimum validation criteria, the contractual criteria were not met. The SOW requires a minimum RF of 0.300 for the compound 1,1,2,2-tetrachloroethane and 0.250 for the compound bromoform. Those criteria were not met in the initial and continuing calibration standards listed above. No action is recommended, but the client should be aware of this issue when using these data.

ABN instrument HP5988A (initial calibration date 05/18/93):

Compound	IC 05/18/93	CC2 05/25/93	CC 05/26/93
2,4-Dinitrophenol	X	X	X
Carbazole	X	XX	X
3-Nitroaniline	+	+	+
n-Nitrosodiphenylamine		XX	
4-Chloroaniline		XX	
Hexachlorocyclopentadiene			X
4-Nitrophenol			X
4-Nitroaniline			X
Associated Samples:	All.	20MW2, 20GW5, 19GW3, 19GW2, 20GW7, 20GW17.	20GW7MS/MSD, ER-3.

+ RF or RRF < 0.05; Estimate (J^2) positive results and reject (R^2) non-detected results in the associated samples.

X %RSD > 30% or %D > 25%; Estimate (J^3) positive results and (UJ^3) non-detected results in the associated samples.

XX %RSD or %D > 50%; Estimate (J^4) positive results and (UJ^4) non-detected results in the associated samples.

Blanks

The VOA, ABN, and PEST fraction low level laboratory method blanks, equipment, and trip blanks contained the following maximum quantities of contaminants:

Compound	Maximum [ ]	Action Level
Methylene chloride	3 μg/L	30 μg/L
Acetone	27 μg/L	270 μg/L
Benzene	1 μg/L	5 μg/L
Toluene	11 μg/L	110 μg/L
Ethylbenzene	1 μg/L	5 μg/L
Total xylenes	4 μg/L	20 μg/L

Blank Actions:

- Value < CRQL; report CRQL followed by "U" (U^5).
- Value > CRQL and < action level; report value followed by "U" (U^6).
- Value > CRQL and > action level; report value unqualified.

The action level values were compared to the sample values, and the following recommendations are made: ethylbenzene in the sample 19GW3 should be reported as the CRQL followed by "U" (U^5); methylene chloride in the samples 19GW2, 20MW2, 20MW3, and 20MW6, and xylenes in the sample 19GW3 should be reported as the value followed by "U" (U^6) (i.e., the CRQL has been raised and the value is considered to be non-detect).

Several TIC compounds were detected in the VOA and ABN fraction method, equipment, and trip blanks. The RTs of the blank TICs were compared to the RTs of the sample TICs, and where similarities were found, the sample TIC result was flagged with a "B" on the Tentatively Identified Compound Summary table (Table 1) at the end of this report.

In addition, all TIC compounds were flagged on the Forms I in the following way:

"JN" Presumptive evidence for the tentative identification of a compound at an approximate concentration (required flag).

"BR" TIC was also found in an associated blank, and is rejected in the sample.

"CR" Compound is a common laboratory contaminant, and is rejected in the sample.

It should be noted that the VOA fraction equipment and trip blanks for this case were extremely contaminated. They contained unusually large quantities of non-TCL (TIC) compounds, as well as significant quantities of some of the TCL compounds. This indicates either a questionable water source for field and trip blanks, or poor equipment decontamination procedures. Since the samples validated do not contain any significant hits for the TCL compounds, the data appear to be unaffected. However, the client should be aware that this level of contamination in field blanks can be a serious problem with regard to data defensibility.

Method Blank/Spikes

NEESA requires the analysis of method blank/spikes along with the analysis of samples. The results of the method/blank spikes are to be plotted on control charts and submitted with the data package.

For the VOA and ABN fractions, the method blank/spike is essentially the same thing as a method blank. The method blanks submitted by the laboratory may be evaluated as method blank/spikes by plotting the surrogate recovery results on a control chart. In compliance with NEESA requirements, the laboratory did submit control charts which plotted the surrogate recoveries.

For the PEST fraction, a method blank/spike must contain at least two pesticide compounds and/or one PCB compound, and the recovery results are plotted on a control chart. The laboratory submitted control charts depicting the recovery of one PCB and three pesticide compounds, as well as the associated raw data.

Surrogate Recoveries

The VOA fraction surrogate standard compounds toluene-d8 and bromofluorobenzene were under-recovered in the sample 20GW7. It is contractually required that samples with out of control surrogates be reanalyzed to demonstrate matrix interference effects. The laboratory stated that since the matrix spike of that sample (20MW7MS) showed a high recovery for the matrix spike compound trichloroethene, that matrix effects were confirmed. However, all of the surrogate recoveries were acceptable in the MS, and all spike compound and surrogate recoveries were acceptable in the MSD. The validator does not feel that this constitutes proof of matrix interference effects. Also, the sample 20GW7 is a blind field duplicate of the sample 20GW17, which was successfully analyzed with no evidence of matrix effects. The validator believes that the laboratory failed to meet contractual requirements by not reanalyzing the sample 20GW7. It is recommended to estimate (J^8, UJ^8) all positive and non-detected results for compounds associated with the out of control surrogates in that sample.

All ABN fraction water surrogate recoveries were within the CRR. No action is recommended.

The PEST fraction surrogate decachlorobiphenyl (DCB) was under-recovered on both columns in the method blank PBLK93 and the sample 19GW2, and was under-recovered on the second column only in the sample ER-3. However, all recoveries were close to the lower advisory limit of 60%, and because the limits are advisory only, no action is recommended.

It should be noted that it is contractually required that method blanks meet all QC criteria. If a method blank does not meet the QC criteria, then the blank and all associated samples should be reextracted or reanalyzed. Contractually, the laboratory should have reextracted and reanalyzed all of the PEST fraction samples associated with the out of control method blank PBLK93. It is not known why the samples were not reanalyzed.

Matrix Spike/Matrix Spike Duplicate

The VOA fraction matrix spike compound trichloroethene was slightly over-recovered in the MS. That compound was not detected in the native sample, so no action is required. It should be noted that the trip blank associated with the samples in this case contained significant levels of toluene, such that the MS/MS results for that compound are questionable. It is recommended to reject (R^{10}) matrix spike results for the compound toluene in the MS and MSD.

The ABN fraction matrix spike compound 4-nitrophenol was over-recovered in both the MS and the MSD, and the compound pentachlorophenol was over-recovered in the MSD. Those compounds were not detected in the native sample, so no action is required.

All PEST fraction MS/MSD RPDs and %Recs were within the Contract Required Recovery range (CRR). No action is recommended.

The results for the non-spiked compounds present in the sample, MS, and MSD were compared, and the %RSDs calculated. All criteria were met, and no action is recommended.

Field Duplicate Precision

Samples 20GW7 and 20GW17 were identified by the client as field duplicate samples. The RPDs were calculated, and all met the criterion of < 30% for water samples. No action is recommended.

Internal Standard Performance

All VOA and ABN fraction internal standard (IS) areas were within the CRR.

Pesticide Instrument Performance

All continuing calibration standard compound RTs were within the established RT windows. All DDT and endrin %breakdowns were less than 20%. All TCMX and DCB surrogate RTs were within the required windows of ± 0.05 and ± 0.10 minutes of the first standard, respectively. All continuing calibration standard compound %Ds were less than 15% for standards associated with the samples being validated. The laboratory followed the correct analytical sequence as stated in the SOW OLM01.0. No actions are recommended.

The following problems were noted with the initial calibration of the PEST GC system:

Instruments GC-15, GC-16 (initial calibration date 05/04/93):

Compound	(SPB-1701) Column 1	(SPB-608) Column 2
α-BHC	X	X
δ-BHC	X	X
γ-BHC	X	X
Aldrin		X
Heptachlor epoxide	X	
Dieldrin		X
4,4'-DDE		X
Endosulfan II	X	
4,4'-DDD		X
Endosulfan sulfate	X	
4,4'-DDT		X
Methoxychlor	X	
Endrin aldehyde	X	
γ-Chlordane	X	
*Decachlorobiphenyl	X	X

Associated Samples: All samples in this case.

X %RSD > 10%; Estimate (J^{18}) positive results for compounds quantitated on that column in the associated samples.

It should be noted that although the data have been qualified according to the criteria set forth in the validation guidelines, the laboratory was contractually compliant with all initial calibration requirements set forth in SOW OLM01.0.

It should also be especially noted that the compound decachlorobiphenyl is a surrogate standard compound. Since there were no positive detects for any PEST fraction compounds in any sample, no further actions are recommended.

Compound Identification

In accordance with contractual requirements, mass spectra were submitted for all VOA and ABN compounds detected. It should be noted that the laboratory did not submit spectra for compounds identified as false positives. The laboratory is required to submit spectra for all compounds initially identified, whether they are later determined to be false positives. As a result, the validator was unable to evaluate whether the compound fluoranthene was actually present in the sample 20GW5. It is recommended to reject (R^{11}) non-detected results for that compound in that sample.

It should also be noted that the laboratory did not submit ABN fraction sample chromatograms that were normalized to the largest non-solvent peak, as required.

Mass spectral identifications were good, and all VOA and ABN compound RRTs were within $\pm$ 0.06 units of the standard RRT.

PEST fraction compound identifications were good.

Compound Quantitation

VOA, ABN, and PEST fraction sample quantitation calculations were performed correctly.

It should be noted that the laboratory reported aqueous CRQLs for the VOA fraction compounds acetone, 2-butanone, vinyl acetate, 4-methyl-2-pentanone, and 2-hexanone that exceeded the SOW OLM01.0 contractually required CRQLs by a factor of 2.5. Many of the other compound CRQLs were below the contractually required CRQLs. The laboratory stated that the samples were analyzed by SW846 Method 8260, but the samples were not analyzed for the full 8260 compound list. Also, Method 8260 does not list compound CRQLs (CRQLs are defined in the CLP SOW only), so it is inappropriate to report CRQLs based upon another method on CLP forms. The laboratory should have obtained CRQLs that were in compliance with SOW OLM01.0, regardless of what method was used to analyze the samples, since the results were reported in the SOW format.

Tentatively Identified Compounds

The TICs found in the VOA and ABN fraction samples are summarized in Table 1.

Data Assessment

This case did not contain any dilutions, reextractions, or reanalyses. No recommendations are necessary.

INORGANIC DATA

The inorganic data were evaluated based on the following parameters:

- ☺ Data completeness
- Holding times
- ☺ Calibration verification results
- Laboratory blank results
- ☺ Method blank/spike results
- ☺ Interference check standard results
- ☺ Matrix spike results
- ☺ Field duplicate results
- Laboratory duplicate results
- ☺ Laboratory control sample results
- ☺ ICP serial dilution results
- Furnace AA results
- ☺ Instrument detection limits
- ☺ Calculations and transcriptions

☺ - all criteria were met for this parameter.

Data Completeness

The data package contained all of the forms and raw data required by the EPA SOW.

In addition, the following items are necessary for a NEESA compliant data package:

- The analysis of method/blank spikes, and submission of raw data, summary forms, and control charts for those analyses.

Control charts and raw data were submitted with the data package. In addition, the following items should be noted:

- At the client's request, only 15 of the samples in this case were validated. Of those 15, two were filtered groundwater samples. Therefore, the results for those samples represent the dissolved fraction only. Since, the sample IDs assigned to the filtered samples were identical to those for the total samples, the validator has added the suffix "F" to each sample ID denoting a filtered sample.

Copy quality was good.

Holding Times

Holding times were reviewed and found to meet criteria for all parameters. No action is recommended. However, it should be noted that the samples 19MW4, 20MW3, 20MW4, and 20GW7 were received at the laboratory with a pH > 7. They were preserved to a pH < 2 by the laboratory. It is recommended to estimate (J^1, UJ^1) all positive and non-detected results in those samples, due to improper preservation. Since the filtering was done at the laboratory, the sample 20GW7F is also affected.

Calibration Verification Results

Initial and continuing calibration verifications were reviewed. All standards had acceptable recoveries and frequency criteria were met.

The 2 X CRDL standard was for zinc was outside the recovery criteria, but no action is required because all zinc results were greater than 3 X CRDL.

Laboratory Blank Results

The calibration blanks, equipment blanks, and preparation blanks contained low levels of several metals. The following table lists the maximum concentration of each metal found in any laboratory blank with the resultant action levels. The action level is calculated as 5X the maximum concentration found in any blank. Sample results less than 5X the maximum concentration found in any blank may be due to contamination or instrumental problems, and thus may not be indicative of the actual concentration of the native sample.

Element	Concentration (µg/L)	Action Level (µg/L)
Aluminum	140	700
Arsenic	4.3	21.5
Barium	23.2	116
Beryllium	1.7	8.5
Boron	239	1195
Cadmium	3.7	18.5
Iron	159	795
Lead	1.1	5.5
Manganese	3.8	19
Nickel	10.6	53
Potassium	177	885
Sodium	604	3020
Thallium	3.2	16
Zinc	6.2	31

The action level values were compared to the sample values after application of sample preparation and dilution factors, and sample results less than the action level were reported as not detected (U^3) (see Sample Data Sheets attached to this report).

Method Blank/Spike Results

A laboratory control sample was analyzed with each batch of field samples. The LCS results were plotted on control charts, and satisfy the NEESA QC requirement for the method blank/spike control program. The LCS results are discussed elsewhere in this report.

Interference Check Standard Results

The ICP interference check sample results were reviewed and all recoveries met required criteria. The ICS solutions were analyzed at the proper frequency.

Matrix Spike Results

The metals spikes were performed on samples 20GW7 and 20GW7F. All recoveries met the required criteria.

Field Duplicate Results

The samples 20GW7 and 20GW17 were identified as field duplicate samples by the client. The filtered samples 20GW7F and 20GW7F are also field duplicates. The field duplicate results were reviewed, and all criteria were met for the duplicates associated with the unfiltered samples. The RPD was high for the analytes aluminum and zinc in the duplicates associated with the filtered samples. It is recommended to estimate (J^7) positive results for those analytes in the samples 20GW7F and 20GW17F.

Laboratory Duplicate Results

The laboratory duplicate associated with the unfiltered samples had high RPDs for the analytes calcium, iron, magnesium, manganese, potassium, and sodium. It is recommended to estimate (J^6) positive results for those analytes in the associated samples.

The laboratory duplicate associated with the filtered samples met all acceptance criteria.

Laboratory Control Sample Results

The laboratory control sample (LCS) results were reviewed, and the criteria were met for all parameters.

ICP Serial Dilution Results

The ICP serial dilution results were reviewed and all results met the acceptance criteria.

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. Duplicate injections did not agree within ± 20% for the selenium spike of sample 20MW6 and for the thallium spike of sample 19MW4. The selenium results were non-detect, so no action is required. For thallium, it is recommended to estimate (J^9) positive results in the samples 19MW4.

Several analytical spike recoveries for arsenic, selenium, and thallium did not meet the criterion of ± 15%. The associated actions are as follows:

- For thallium, it is recommended to estimate (J^{10}) positive results in the samples 20MW3, 20MW4, and 20MW6.
- For arsenic, it is recommended to estimate (J^{10}) positive results in the samples 20MW6, 20MW2, 20MW3, and 20MW4.
- No recommendations are necessary for selenium.

Instrument Detection Limits

Instrument Detection Limits (IDLs) were reviewed and found to meet all criteria.

Calculations and Transcriptions

A spot check of calculations and transcriptions was performed and no problems were noted.

Data Assessment

This case did not contain any dilution, reextraction, or reanalysis. No recommendations are necessary.

Organic Section prepared by:

Leigh Ann Evans

Organic Data Validator

Inorganic Section prepared by:

JAS for

Karen Stone

Karen Stone

Inorganic Data Validator

Report reviewed and approved by:

June A Schneider

June A. Schneider

Data Validation Manager

David M Mauro

David M. Mauro

Vice President

META Environmental, Inc.

TABLE 1:

TENTATIVELY IDENTIFIED COMPOUND SUMMARY:

Table 1

META Environmental, Inc.
Tentatively Identified Compound Summary

Sample/TIC	19GW2	19GW3	20GW5	20GW7	20GW17
Unknown VOA	XXC	X		XXC	XXC
Unknown ABN		XX			
Unknown C_6H_{12} isomer		X			
Unknown C_7H_{14} isomer		X			
Unknown C_8H_{16} isomer		X			
Unknown C_9H_{16} isomer		X			
Unknown hydrocarbon			X		
Alkyl substituted benzene isomer		XXB		XXB	X
Dihydro-dimethyl-indene isomer				XX	
Tetrahydronaphthalene isomer		XX			
Dimethylnaphthalene isomer		XX		X	X
Trimethylnaphthalene isomer		XX			
Methylethylnaphthalene isomer		XX			
2,3-Dihydro-1H-indene		X			
2,3-Dihydro-1-methylindene		X			
Trimethylsilanol					

X = Tentatively Identified Compound (TIC) of this description was found in the sample.
XX = Multiple TICs of this description were found in the sample.
B = TIC of this description also found in associated blank.
C = Compound is a common laboratory contaminant.

Table 1, Continued

META Environmental, Inc.
Tentatively Identified Compound Summary

Sample/TIC	20MW2	20MW3	20MW4	20MW6
Unknown VOA		XC		XXC
Unknown ABN	XB			
Unknown C_6H_{12} isomer				
Unknown C_7H_{14} isomer				
Unknown C_8H_{16} isomer				
Unknown C_9H_{16} isomer				
Unknown hydrocarbon				
Alkyl substituted benzene isomer				
Dihydro-dimethyl-indene isomer				
Tetrahydronaphthalene isomer				
Dimethylnaphthalene isomer				
Trimethylnaphthalene isomer				
Methylethylnaphthalene isomer				
2,3-Dihydro-1H-indene				
2,3-Dihydro-1-methylindene				
Trimethylsilanol	XC		XC	

X = Tentatively Identified Compound (TIC) of this description was found in the sample.
XX = Multiple TICs of this description were found in the sample.
B = TIC of this description also found in associated blank.
C = Compound is a common laboratory contaminant.

GLOSSARY OF TERMS

GLOSSARY OF TERMS

(In alphabetical order)

ABN	Acid/Base-Neutral. An extraction and analytical method for the determination of semivolatile organic compounds, or a sample extracted and analyzed by that method. Also: BNA, semivolatile, SVOC.
ASP	Analytical Services Protocol. The NYSDEC statement of work.
BFB	Bromofluorobenzene. The compound used for initial tuning of the GC/MS system, prior to the analysis of volatile organic compounds.
CC	Continuing Calibration. A standard solution of organic compounds of known concentration is analyzed periodically to check the continued calibration of the system.
CF	Calibration Factor. In pesticide/PCB analyses, the calibration factor is the area of the standard compound divided by the concentration of that compound in the standard.
CCC	Calibration Check Compound. Any one of a defined subgroup of compounds present in the calibration standards. Used to check the acceptability of instrument performance.
CCV	Continuing Calibration Verfication. A standard solution of inorganic compounds of known concentration is analyzed periodically during sample analyses to verify the continued calibration of the instrument.
CLP	Contract Laboratory Program. The U.S. EPA program that defines analytical, QC, and reporting procedures to generate high quality, defensible data. CLP also has associated the most highly developed and regulated set of data validation guidelines, on which most data validation decisions are based.
COC	Chain of Custody. The documentation that details the history of a given sample, from the time it is collected until the time it has been analyzed.
CRDL	Contract Required Detection Limit. As defned by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the inorganic analyte of interest. Results below the CRDL are reported, but as estimated values.

GLOSSARY OF TERMS

CRQL	Contract Required Quantitation Limit. As defined by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the organic compound of interest. Results below the CRQL are reported, but as estimated values.
CRR	Contract Required Recovery range. As defined in the U.S. EPA Region I Functional Guidelines for Evaluating Organics Analyses (11/88), the acceptable recovery range for surrogate spike and matrix spike compounds.
DFTPP	Decafluorotriphenylphosphine. The compound used for initial tuning of the GC/MS system, prior to the analysis of semivolatile organic compounds.
EICP	Extracted Ion Current Profiles. Recommended by the U.S. EPA CLP and required by the NYSDEC ASP, the EICP displays the chromatographic peak specific to a m/z ion in a GC/MS analysis.
EPA	Environmental Protection Agency. The United States federal agency governing environmental concerns.
FP	False Positive. Used to designate as non-detect any compound incorrectly identified by the computer.
GC/MS	Gas Chromatography/Mass Spectrometry. An analytical technique used commonly for the determination of volatile and semivolatile organic compounds.
HT	Holding Time. The contractually defined time in which a sample must be extracted and/or analyzed by the analytical laboratory. Generally calculated from date of sampling.
IC	Initial Calibration. A series of standard solutions of organic compounds are analyzed at different concentration levels to define the initial linearity of the analytical system.
ICV	Initial Calibration Verification. A standard solution of inorganic compounds is analyzed immediately following instrument calibration to confirm the accuracy of that calibration.

GLOSSARY OF TERMS

IDL — Instrument Detection Limit. The lowest concentration at which a particular instrument can reliably detect a given analyte. As differs from the CRQL which is the lowest concentration at which a given analyte may be reliably quantitated. IDLs vary from instrument to instrument, and their determination is required by NYSDEC.

MS/MSD — Matrix Spike/Matrix Spike Duplicate. Prior to extraction, a known quantity of several analytes is spiked into a sample. The sample is analyzed in duplicate and %Recs and RPDs are calculated. Used to monitor matrix effects of the native sample upon the observed sample results.

MSB — Matrix Spike Blank. An aliquot of contaminant-free soil or water is spiked with a known quantity of several analytes. The MSB is analyzed and %Recs are calculated. Required by NYSDEC.

NEESA — Naval Energy and Environmental Support Activity. The regulatory agency for the Navy Installation Restoration Program.

NYSDEC — New York State Department of Environmental Conservation. The New York State agency governing environmental concerns.

%D — Percent Difference. A measure of the variance between two results, relative to the first result.

$$\%D = \frac{R_1 - R_2}{R_2} \times 100$$

where, R_1 is the first result and R_2 is the second result.

%Rec — Percent Recovery. A measure of the recovery of a known amount of analyte.

$$\%Rec = \frac{A_r}{A_s} \times 100$$

where, A_r is the amount recovered and A_s is the amount spiked. (When calculating matrix spike recoveries, the amount of analyte present in the unspiked sample must first be subtracted from the amount recovered).

GLOSSARY OF TERMS

%RSD — Percent Relative Standard Deviation. A measure of the variance between multiple results.

$$\%RSD = \frac{SD}{X} \times 100$$

where, SD is the standard deviation and X is the mean of the values.

PEST — Pesticide/PCB. An extraction and analytical method for the detremination of pesticide and/or PCB compounds, or a sample extracted and analyzed by that method. Also: Pest/PCB, PCB.

QA — Quality Assurance. The system of management that guarantees high quality data output.

QC — Quality Control. Any system of analytical tests and checks that monitors the progress of the data, leading to high quality data output. May also refer to the criteria by which those tests and checks are evaluated.

RPD — Relative Percent Difference. A measure of precision comparing two results.

$$RPD = \frac{D_1 - D_2}{(D_1 + D_2)/2} \times 100$$

where, D_1 is the result from sample 1 and D_2 is the result from sample 2.

RRF — Relative Response Factor. A measure of the response of the instrument to a given compound relative to the response of the instrument to a standard compound.

RT — Retention Time. In GC, the time it takes for a given analyte to move through the analytical system to the detector.

SD — Standard Deviation. In statistics, the standard deviation is a measure of the dispersion of all values around the mean value.

GLOSSARY OF TERMS

$$SD = \frac{\sqrt{(n\Sigma x^2 - (\Sigma x)^2)}}{n(n-1)}$$

where n = number of values and x = individual values.

SOW — Statement of Work. A document describing in detail the contractual obligations of the laboratory to the contractor with regards to analytical methods, reporting requirements, and QC, financial, and litigational obligations.

TAL — Target Analyte List. The list that defines the specific inorganic parameters of interest in a given analysis.

TCL — Target Compound List. The list that defines the specific organic compounds of interest in a given analysis.

TIC — Tentatively Identified Compound. Any non-TCL compound which is detected during sample analysis and identified by mass spectral matching alone.

VOA — Volatile Organic Compound Analysis. An analytical method for the determination of volatile organic compounds, or a sample analyzed by that method. Also: VOC.

VTSR — Verified Time of Sample Receipt. The date and time a group of samples is accepted at the analytical laboratory. Appears on the COC. NYSDEC calculates holding times from VTSR rather than from sampling date.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES

____	A blank space denotes no change to the laboratory reported result.
J^1, UJ^1	Holding times have been exceeded: estimate positive results (J^1) and non-detects (UJ^1). Refer to Section on "Holding Times" for details.
J^2, R^2	The initial or continuing calibration RF was low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on GC/MS "Calibration" for details.
J^3, UJ^3	The initial calibration %RSD or the continuing calibration %D was high: estimate positive results (J^3) an non-detects (UJ^3). Refer to Section on GC/MS "Calibration" for details.
J^4, UJ^4	The initial calibration %RSD or the continuing calibration %D was greater than 50%: estimate positive results (J^4) and non-detects (UJ^4). Refer to Section on GC/MS "Calibration" for details.
U^5	Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U^5). Refer to Section on "Blanks" for details.
U^6	Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U^6). (i.e., the Limit of Detection has been raised for that compound, and the result is considered to be non-detect). Refer to Section on "Blanks" for details.
J^7	One or more of the surrogate standard %Recs was greater than the Contract Required Recovery range (CRR): estimate positive results within that area of the chromatogram (J^7). Refer to Section on "Surrogate Recoveries" for details.
J^8, UJ^8	One or more of the surrogate standard %Recs was less than the CRR: estimate positive results (J^8) and non-detects (UJ^8) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.
J^9	One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{10}	The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) %Recs were not within the CRR for this compound: estimate positive results in the unspiked sample (J^{10}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{11}	The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{12}	The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J^{12}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{13}	Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J^{13}). Refer to Section on "Field Duplicates" for details.
J^{14}, UJ^{14}	One value was non-detect and the other value was greater than the CRQL for this compound in the field duplicate pair: estimate the positive (J^{14}) and non-detected (UJ^{14}) results for that compound. Refer to Section on "Field Duplicates" for details.
J^{15}, UJ^{15}	One or more Internal Standard (IS) areas were not within the CRR: estimate positive results (J^{15}) and non-detects (UJ^{15}) for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{16}, R^5	One or more IS areas were grossly low: estimate (J^{16}) positive results and reject (R^5) non-detected results for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{17}, JN^{17}, R^6	% Breakdown for DDT exceeded 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.
J^{18}, JN^{18}, R^7	% Breakdown for endrin exceeded 20%: estimate positive results for endrin (J^{18}), and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{19} Initial calibration %RSD for this compound exceeded 10%: estimate positive results (J^{19}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{20} Continuing calibration %D for this compound exceeded 15% (quantitation column) and/or 20% (confirmation column): estimate positive results (J^{20}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{21} The %RSD for this unspiked compound in the sample/MS/MSD set exceeded the advisory criterion of < 30% for aqueous samples or < 50% for soil samples: estimate (J^{21}) positive results for that compound in the sample, MS, and MSD. Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R^1 Holding times have been grossly exceeded: reject all non-detects (R^1).

R^2 The initial or continuing calibration RFs were low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on "GC/MS Calibration" for details.

R^3 One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

R^4 The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R^5 One or more IS areas were grossly low: reject non-detects (R^5). Refer to Section on "Internal Standard Performance" for details.

R^6 % Breakdown for DDT was greater than 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.

R^7 % Breakdown for endrin was greater than 20%: estimate positive results for endrin (J^{18}) and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

R[10] Matrix spike result is rejected because high levels of this compound were found in associated blank. Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R[11] Non-detected result is rejected because spectra for false positive was not provided by the laboratory. Refer to Section on "Compound Identification" for details.

SAMPLE DATA SHEETS:

VOLATILE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	19GW2			19GW3			20GW5			20GW7		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	2			2			2			2		
Bromomethane	2			2			2			2		
Vinyl Chloride	2			2			2			2		
Chloroethane	2			2			2			2		
Methylene Chloride	1	2	J3, 2U6	1		UJ3	1		UJ3	1		UJ3
Acetone	5		UJ3	5		UJ3	5		UJ3	5		UJ3
Carbon Disulfide	1			1			1			1		
1,1-Dichloroethene	1			1			1			1		
1,1-Dichloroethane	1			1			1			1		
1,2- Dichloroethene(total)	1			1			1			1		
Chloroform	1			1			1			1		
1,2-Dichloroethane	1			1			1			1		UJ8
2-Butanone	5			5			5			5		
1,1,1-Trichloroethane	1			1			1			1		
Carbon Tetrachloride	1			1			1			1		
Vinyl Acetate	5			5			5			5		
Bromodichloromethane	1			1			1			1		UJ8
1,2-Dichloropropane	1			1			1			1		UJ8
cis-1,3-Dichloropropene	1			1			1			1		UJ8
Trichlorethene	1			1			1			1		UJ8
Dibromochloromethane	1			1			1			1		UJ8
1,1,2-Trichloroethane	1			1			1			1		UJ8
Benzene	1			1			1			1		UJ8
trans-1,3-Dichloropropene	1			1			1			1		UJ8
Bromoform	1			1			1			1		UJ8
4-Methyl-2-pentanone	5			5			5			5		UJ8
2-Hexanone	5			5			5			5		UJ8
Tetrachloroethene	1			1			1			1		UJ8
1,1,2,2-Tetrachloroethane	1			1			1			1		UJ8
Toluene	1			1			1			1		UJ8
Chlorobenzene	1			1			1			1		UJ8
Ethylbenzene	1			1	0.8J	1U5	1			1		UJ8
Styrene	1			1			1			1		UJ8
Total Xylenes	1			1	5	5U6	1			1		UJ8
Dilution Factor:		1			1			1			1	
Matrix:		Water			Water			Water			Water	
Units:		µg/L			µg/L			µg/L			µg/L	

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	20GW17			20MW2			20MW3			20MW4		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	2			2			2			2		
Bromomethane	2			2			2			2		
Vinyl Chloride	2			2			2			2		
Chloroethane	2			2			2			2		
Methylene Chloride	1		UJ3	1	1	1U6	1	1	1U6	1		UJ3
Acetone	5		UJ3	5		UJ3	5		UJ3	5		UJ3
Carbon Disulfide	1			1			1			1		
1,1-Dichloroethene	1			1			1			1		
1,1-Dichloroethane	1			1			1			1		
1,2- Dichloroethene(total)	1			1			1			1		
Chloroform	1			1			1			1	2	
1,2-Dichloroethane	1			1			1			1		
2-Butanone	5			5			5			5		
1,1,1-Trichloroethane	1			1			1			1		
Carbon Tetrachloride	1			1			1			1		
Vinyl Acetate	5			5			5			5		
Bromodichloromethane	1			1			1			1		
1,2-Dichloropropane	1			1			1			1		
cis-1,3-Dichloropropene	1			1			1			1		
Trichlorethene	1			1			1			1		
Dibromochloromethane	1			1			1			1		
1,1,2-Trichloroethane	1			1			1			1		
Benzene	1			1			1			1		
trans-1,3-Dichloropropene	1			1			1			1		
Bromoform	1			1			1			1		
4-Methyl-2-pentanone	5			5			5			5		
2-Hexanone	5			5			5			5		
Tetrachloroethene	1			1			1			1		
1,1,2,2-Tetrachloroethane	1			1			1			1		
Toluene	1			1			1			1		
Chlorobenzene	1			1			1			1		
Ethylbenzene	1			1			1			1		
Styrene	1			1			1			1		
Total Xylenes	1			1			1			1		
Dilution Factor:		1			1			1			1	
Matrix:		Water			Water			Water			Water	
Units:		µg/L			µg/L			µg/L			µg/L	

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

NOT IN DB NOT IN DB

Sample ID:	20MW6			20GW7MS			20GW7MSD			0427ER1		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	2			2			2			2		
Bromomethane	2			2			2			2		
Vinyl Chloride	2			2			2			2		
Chloroethane	2			2			2			2		
Methylene Chloride	1	1	1U6	1		UJ3	1		UJ3	1	1	
Acetone	5		UJ3	5		UJ3	5		UJ3	5		UJ3
Carbon Disulfide	1			1			1			1		
1,1-Dichloroethene	1			1	*		1	*		1		
1,1-Dichloroethane	1			1			1			1		
1,2- Dichloroethene(total)	1			1			1			1		
Chloroform	1			1			1			1		
1,2-Dichloroethane	1			1			1			1		
2-Butanone	5			5			5			5		
1,1,1-Trichloroethane	1	0.6J		1			1			1		
Carbon Tetrachloride	1			1			1			1		
Vinyl Acetate	5			5			5			5		
Bromodichloromethane	1			1			1			1		
1,2-Dichloropropane	1			1			1			1		
cis-1,3-Dichloropropene	1			1			1			1		
Trichlorethene	1	0.6J		1	*		1	*		1		
Dibromochloromethane	1			1			1			1		
1,1,2-Trichloroethane	1			1			1			1		
Benzene	1			1	*		1	*		1	1	
trans-1,3-Dichloropropene	1			1			1			1		
Bromoform	1			1			1			1		
4-Methyl-2-pentanone	5			5			5			5		
2-Hexanone	5			5			5			5		
Tetrachloroethene	1			1			1			1		
1,1,2,2-Tetrachloroethane	1			1			1			1		
Toluene	1			1	*	R10	1	*	R10	1	4	
Chlorobenzene	1			1	*		1	*		1		
Ethylbenzene	1			1			1			1	1	
Styrene	1			1			1			1		
Total Xylenes	1			1			1			1	4	
Dilution Factor:		1			1			1			1	
Matrix:		Water			Water			Water			Water	
Units:		µg/L			µg/L			µg/L			µg/L	

* Indic[illegible] matrix spike compound

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	0429ER3			TB20								
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	2			2								
Bromomethane	2			2								
Vinyl Chloride	2			2								
Chloroethane	2			2								
Methylene Chloride	1		UJ3	1	2							
Acetone	5	27	J3	5		UJ3						
Carbon Disulfide	1			1								
1,1-Dichloroethene	1			1								
1,1-Dichloroethane	1			1								
1,2- Dichloroethene(total)	1			1								
Chloroform	1			1								
1,2-Dichloroethane	1			1								
2-Butanone	5			5								
1,1,1-Trichloroethane	1			1								
Carbon Tetrachloride	1			1								
Vinyl Acetate	5			5								
Bromodichloromethane	1			1								
1,2-Dichloropropane	1			1								
cis-1,3-Dichloropropene	1			1								
Trichlorethene	1			1								
Dibromochloromethane	1			1								
1,1,2-Trichloroethane	1			1								
Benzene	1	0.9J		1								
trans-1,3-Dichloropropene	1			1								
Bromoform	1			1								
4-Methyl-2-pentanone	5			5								
2-Hexanone	5			5								
Tetrachloroethene	1			1								
1,1,2,2-Tetrachloroethane	1			1								
Toluene	1	11		1								
Chlorobenzene	1			1								
Ethylbenzene	1	0.8J		1								
Styrene	1			1								
Total Xylenes	1	3		1								
Dilution Factor:		1			1							
Matrix:		Water			Water							
Units:		µg/L			µg/L							

META

SAMPLE DATA SHEETS:

SEMIVOLATILE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	20GW17			19GW2			19GW3			20GW5		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	11			10			11			11		
bis(2-Chloroethyl)ether	11			10			11			11		
2-Chlorophenol	11			10			11			11		
1,3-Dichlorobenzene	11			10			11			11		
1,4-Dichlorobenzene	11			10			11			11		
1,2-Dichlorobenzene	11			10			11			11		
2-Methylphenol	11			10			11			11		
2,2'-oxybis(1-Chloropropane)	11			10			11			11		
4-Methylphenol	11			10			11			11		
n-Nitroso-di-n-propylamine	11			10			11			11		
Hexachloroethane	11			10			11			11		
Nitrobenzene	11			10			11			11		
Isophorone	11			10			11			11		
2-Nitrophenol	11			10			11			11		
2,4-Dimethylphenol	11			10			11			11		
bis(2-Chloroethoxy)methane	11			10			11			11		
2,4-Dichlorophenol	11			10			11			11		
1,2,4-Trichlorobenzene	11			10			11			11		
Naphthalene	11			10			11	15		11		
4-Chloroaniline	11		UJ4	10		UJ4	11		UJ4	11		UJ4
Hexachlorobutadiene	11			10			11			11		
4-Chloro-3-methylphenol	11			10			11			11		
2-Methylnaphthalene	11	4J		10			11	37		11		
Hexachlorocyclopentadiene	11			10			11			11		
2,4,6-Trichlorophenol	11			10			11			11		
2,4,5-Trichlorophenol	27			26			26			26		
2-Chloronaphthalene	11			10			11			11		
2-Nitroaniline	27			26			26			26		
Dimethylphthalate	11			10			11			11		
Acenaphthylene	11			10			11			11		
2,6-Dinitrotoluene	11			10			11			11		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	20GW17			19GW2			19GW3			20GW5		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	27		R2	26		R2	26		R2	26		R2
Acenaphthene	11	2J		10			11	3J		11	4J	
2,4-Dinitrophenol	27		UJ3	26		UJ3	26		UJ3	26		UJ3
4-Nitrophenol	27			26			26			26		
Dibenzofuran	11			10			11	2J		11		
2,4-Dinitrotoluene	11			10			11			11		
Diethylphthalate	11			10			11			11		
4-Chlorophenyl-phenylether	11			10			11			11		
Fluorene	11			10			11	4J		11	2J	
4-Nitroaniline	27			26			26			26		
4,6-Dinitro-2-methylphenol	27			26			26			26		
n-Nitrosodiphenylamine	11		UJ4	10		UJ4	11		UJ4	11		UJ4
4-Bromophenyl-phenylether	11			10			11			11		
Hexachlorobenzene	11			10			11			11		
Pentachlorophenol	27			26			26			26		
Phenanthrene	11			10			11	1J		11	0.9J	
Anthracene	11			10			11			11		
Carbazole	11		UJ4	10		UJ4	11		UJ4	11		UJ4
di-n-Butylphthalate	11			10			11			11		
Fluoranthene	11			10			11			11		R11
Pyrene	11			10			11			11		
Butylbenzylphthalate	11			10			11			11		
3,3'-Dichlorobenzidine	20			20			20			20		
Benzo(a)anthracene	11			10			11			11		
Chrysene	11			10			11			11		
bis(2-Ethylhexyl)phthalate	11			10			11			11		
di-n-Octylphthalate	11			10			11			11		
Benzo(b)fluoranthene	11			10			11			11		
Benzo(k)fluoranthene	11			10			11			11		
Benzo(a)pyrene	11			10			11			11		
Indeno(1,2,3-cd)pyrene	11			10			11			11		
Dibenzo(a,h)anthracene	11			10			11			11		
Benzo(g,h,i)perylene	11			10			11			11		
Dilution Factor:		1			1			1			1	
Matrix:		Water			Water			Water			Water	
Units:		ug/L			ug/L			ug/L			ug/L	

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

NOT IN DB NOT IN DB

Sample ID:	20GW7			20MW2			20GW7MS			20GW7MSD		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	10			11			10	*		10	*	
bis(2-Chloroethyl)ether	10			11			10			10		
2-Chlorophenol	10			11			10	*		10	*	
1,3-Dichlorobenzene	10			11			10			10		
1,4-Dichlorobenzene	10			11			10	*		10	*	
1,2-Dichlorobenzene	10			11			10			10		
2-Methylphenol	10			11			10			10		
2,2'-oxybis(1-Chloropropane)	10			11			10			10		
4-Methylphenol	10			11			10			10		
n-Nitroso-di-n-propylamine	10			11			10	*		10	*	
Hexachloroethane	10			11			10			10		
Nitrobenzene	10			11			10			10		
Isophorone	10			11			10			10		
2-Nitrophenol	10			11			10			10		
2,4-Dimethylphenol	10			11			10			10		
bis(2-Chloroethoxy)methane	10			11			10			10		
2,4-Dichlorophenol	10			11			10			10		
1,2,4-Trichlorobenzene	10			11			10	*		10	*	
Naphthalene	10			11			10			10		
4-Chloroaniline	10		UJ4	11		UJ4	10			10		
Hexachlorobutadiene	10			11			10			10		
4-Chloro-3-methylphenol	10			11			10	*		10	*	
2-Methylnaphthalene	10	3J		11			10			10		
Hexachlorocyclopentadiene	10			11			10		UJ3	10		UJ3
2,4,6-Trichlorophenol	10			11			10			10		
2,4,5-Trichlorophenol	26			27			26			26		
2-Chloronaphthalene	10			11			10			10		
2-Nitroaniline	26			27			26			26		
Dimethylphthalate	10			11			10			10		
Acenaphthylene	10			11			10			10		
2,6-Dinitrotoluene	10			11			10			10		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

✓ ✓ NOT IN DB NOT IN DB

Sample ID:	20GW7			20MW2			20GW7MS			20GW7MSD		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	26		R2	27		R2	26		R2	26		R2
Acenaphthene	10	2J		11			10	*		10	*	
2,4-Dinitrophenol	26		UJ3	27		UJ3	26		UJ3	26		UJ3
4-Nitrophenol	26			27			26	*	J3	26	*	J3
Dibenzofuran	10			11			10			10		
2,4-Dinitrotoluene	10			11			10	*		10	*	
Diethylphthalate	10			11			10			10		
4-Chlorophenyl-phenylether	10			11			10			10		
Fluorene	10			11			10			10		
4-Nitroaniline	26			27			26		UJ3	26		UJ3
4,6-Dinitro-2-methylphenol	26			27			26			26		
n-Nitrosodiphenylamine	10		UJ4	11		UJ4	10		UJ3	10		UJ3
4-Bromophenyl-phenylether	10			11			10			10		
Hexachlorobenzene	10			11			10			10		
Pentachlorophenol	26			27			26	*		26	*	
Phenanthrene	10			11			10			10		
Anthracene	10			11			10			10		
Carbazole	10		UJ4	11		UJ4	10		UJ3	10		UJ3
di-n-Butylphthalate	10			11			10			10		
Fluoranthene	10			11			10			10		
Pyrene	10			11			10	*		10	*	
Butylbenzylphthalate	10			11			10			10		
3,3'-Dichlorobenzidine	20			20			20			20		
Benzo(a)anthracene	10			11			10			10		
Chrysene	10			11			10			10		
bis(2-Ethylhexyl)phthalate	10			11			10			10		
di-n-Octylphthalate	10			11			10			10		
Benzo(b)fluoranthene	10			11			10			10		
Benzo(k)fluoranthene	10			11			10			10		
Benzo(a)pyrene	10			11			10			10		
Indeno(1,2,3-cd)pyrene	10			11			10			10		
Dibenzo(a,h)anthracene	10			11			10			10		
Benzo(g,h,i)perylene	10			11			10		UJ3	10		UJ3
Dilution Factor:		1			1			1			1	
Matrix:		Water			Water			Water			Water	
Units:		ug/L			ug/L			ug/L			ug/L	

* Indicates matrix spike compound

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	ER-3											
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	11			10			10			10		
bis(2-Chloroethyl)ether	11			10			10			10		
2-Chlorophenol	11			10			10			10		
1,3-Dichlorobenzene	11			10			10			10		
1,4-Dichlorobenzene	11			10			10			10		
1,2-Dichlorobenzene	11			10			10			10		
2-Methylphenol	11			10			10			10		
2,2'-oxybis(1-Chloropropane)	11			10			10			10		
4-Methylphenol	11			10			10			10		
n-Nitroso-di-n-propylamine	11			10			10			10		
Hexachloroethane	11			10			10			10		
Nitrobenzene	11			10			10			10		
Isophorone	11			10			10			10		
2-Nitrophenol	11			10			10			10		
2,4-Dimethylphenol	11			10			10			10		
bis(2-Chloroethoxy)methane	11			10			10			10		
2,4-Dichlorophenol	11			10			10			10		
1,2,4-Trichlorobenzene	11			10			10			10		
Naphthalene	11			10			10			10		
4-Chloroaniline	11			10			10			10		
Hexachlorobutadiene	11			10			10			10		
4-Chloro-3-methylphenol	11			10			10			10		
2-Methylnaphthalene	11	3J		10			10			10		
Hexachlorocyclopentadiene	11		UJ3	10			10			10		
2,4,6-Trichlorophenol	11			10			10			10		
2,4,5-Trichlorophenol	27			25			25			25		
2-Chloronaphthalene	11			10			10			10		
2-Nitroaniline	27			25			25			25		
Dimethylphthalate	11			10			10			10		
Acenaphthylene	11			10			10			10		
2,6-Dinitrotoluene	11			10			10			10		

Reported on Form 1 as 11 U

12

META

Reported on Form 1
as 11 U

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	ER-3											
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	27		R2	25			25			25		
Acenaphthene	11	2J		10			10			10		
2,4-Dinitrophenol	27		UJ3	25			25			25		
4-Nitrophenol	27		UJ3	25			25			25		
Dibenzofuran	11			10			10			10		
2,4-Dinitrotoluene	11			10			10			10		
Diethylphthalate	11			10			10			10		
4-Chlorophenyl-phenylether	11			10			10			10		
Fluorene	11			10			10			10		
4-Nitroaniline	27		UJ3	25			25			25		
4,6-Dinitro-2-methylphenol	27			25			25			25		
n-Nitrosodiphenylamine	11		UJ3	10			10			10		
4-Bromophenyl-phenylether	11			10			10			10		
Hexachlorobenzene	11			10			10			10		
Pentachlorophenol	27			25			25			25		
Phenanthrene	11			10			10			10		
Anthracene	11			10			10			10		
Carbazole	11		UJ3	10			10			10		
di-n-Butylphthalate	11			10			10			10		
Fluoranthene	11			10			10			10		
Pyrene	11			10			10			10		
Butylbenzylphthalate	11			10			10			10		
3,3'-Dichlorobenzidine	20			20			20			20		
Benzo(a)anthracene	11			10			10			10		
Chrysene	11			10			10			10		
bis(2-Ethylhexyl)phthalate	11			10			10			10		
di-n-Octylphthalate	11			10			10			10		
Benzo(b)fluoranthene	11			10			10			10		
Benzo(k)fluoranthene	11			10			10			10		
Benzo(a)pyrene	11			10			10			10		
Indeno(1,2,3-cd)pyrene	11			10			10			10		
Dibenzo(a,h)anthracene	11			10			10			10		
Benzo(g,h,i)perylene	11		UJ3	10			10			10		

Dilution Factor: 1
Matrix: Water
Units: ug/L

META

SAMPLE DATA SHEETS:

PESTICIDE ORGANIC COMPOUNDS

No charges

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	20GW17			19GW2			19GW3			20GW5		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	0.052			0.057			0.056			0.05		
beta-BHC	0.052			0.057			0.056			0.05		
delta-BHC	0.052			0.057			0.056			0.05		
gamma-BHC (Lindane)	0.052			0.057			0.056			0.05		
Heptachlor	0.052			0.057			0.056			0.05		
Aldrin	0.052			0.057			0.056			0.05		
Heptachlor epoxide	0.052			0.057			0.056			0.05		
Endosulfan I	0.052			0.057			0.056			0.05		
Dieldrin	0.1			0.11			0.11			0.1		
4,4'-DDE	0.1			0.11			0.11			0.1		
Endrin	0.1			0.11			0.11			0.1		
Endosulfan II	0.1			0.11			0.11			0.1		
4,4'-DDD	0.1			0.11			0.11			0.1		
Endosulfan sulfate	0.1			0.11			0.11			0.1		
4,4'-DDT	0.1			0.11			0.11			0.1		
Methoxychlor	0.52			0.57			0.56			0.5		
Endrin ketone	0.1			0.11			0.11			0.1		
Endrin aldehyde	0.1			0.11			0.11			0.1		
alpha-Chlordane	0.052			0.057			0.056			0.05		
gamma-Chlordane	0.052			0.057			0.056			0.05		
Toxaphene	5.2			5.7			5.6			5		
Aroclor 1016	1			1.1			1.1			1		
Aroclor 1221	2.1			2.3			2.2			2		
Aroclor 1232	1			1.1			1.1			1		
Aroclor 1242	1			1.1			1.1			1		
Aroclor 1248	1			1.1			1.1			1		
Aroclor 1254	1			1.1			1.1			1		
Aroclor 1260	1			1.1			1.1			1		
Dilution Factor:	1			1			1			1		
Matrix:	Water			Water			Water			Water		
Units:	ug/L			ug/L			ug/L			ug/L		

META

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

No Changes

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

NOT IN DB NOT IN DB

Sample ID:	20GW7			20MW2			20GW7MS			20GW7MSD		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	0.054			0.052			0.05			0.052		
beta-BHC	0.054			0.052			0.05			0.052		
delta-BHC	0.054			0.052			0.05			0.052		
gamma-BHC (Lindane)	0.054			0.052			0.05	*	J18	0.052	*	J18
Heptachlor	0.054			0.052			0.05	*		0.052	*	
Aldrin	0.054			0.052			0.05	*	J18	0.052	*	J18
Heptachlor epoxide	0.054			0.052			0.05			0.052		
Endosulfan I	0.054			0.052			0.05			0.052		
Dieldrin	0.11			0.1			0.1	*	J18	0.1	*	J18
4,4'-DDE	0.11			0.1			0.1			0.1		
Endrin	0.11			0.1			0.1	*		0.1	*	
Endosulfan II	0.11			0.1			0.1			0.1		
4,4'-DDD	0.11			0.1			0.1			0.1		
Endosulfan sulfate	0.11			0.1			0.1			0.1		
4,4'-DDT	0.11			0.1			0.1	*	J18	0.1	*	J18
Methoxychlor	0.54			0.52			0.5			0.52		
Endrin ketone	0.11			0.1			0.1			0.1		
Endrin aldehyde	0.11			0.1			0.1			0.1		
alpha-Chlordane	0.054			0.052			0.05			0.052		
gamma-Chlordane	0.054			0.052			0.05			0.052		
Toxaphene	5.4			5.2			5			5.2		
Aroclor 1016	1.1			1			1			1		
Aroclor 1221	2.2			2.1			2			2.1		
Aroclor 1232	1.1			1			1			1		
Aroclor 1242	1.1			1			1			1		
Aroclor 1248	1.1			1			1			1		
Aroclor 1254	1.1			1			1			1		
Aroclor 1260	1.1			1			1			1		
Dilution Factor:		1			1			1			1	
Matrix:		Water			Water			Water			Water	
Units:		ug/L			ug/L			ug/L			ug/L	

* Indicates matrix spike compound

META

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

No changes

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	ER-3											
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	0.054			0.05			0.05			0.05		
beta-BHC	0.054			0.05			0.05			0.05		
delta-BHC	0.054			0.05			0.05			0.05		
gamma-BHC (Lindane)	0.054			0.05			0.05			0.05		
Heptachlor	0.054			0.05			0.05			0.05		
Aldrin	0.054			0.05			0.05			0.05		
Heptachlor epoxide	0.054			0.05			0.05			0.05		
Endosulfan I	0.054			0.05			0.05			0.05		
Dieldrin	0.11			0.1			0.1			0.1		
4,4'-DDE	0.11			0.1			0.1			0.1		
Endrin	0.11			0.1			0.1			0.1		
Endosulfan II	0.11			0.1			0.1			0.1		
4,4'-DDD	0.11			0.1			0.1			0.1		
Endosulfan sulfate	0.11			0.1			0.1			0.1		
4,4'-DDT	0.11			0.1			0.1			0.1		
Methoxychlor	0.54			0.5			0.5			0.5		
Endrin ketone	0.11			0.1			0.1			0.1		
Endrin aldehyde	0.11			0.1			0.1			0.1		
alpha-Chlordane	0.054			0.05			0.05			0.05		
gamma-Chlordane	0.054			0.05			0.05			0.05		
Toxaphene	5.2			5			5			5		
Aroclor 1016	1.1			1			1			1		
Aroclor 1221	2.2			2			2			2		
Aroclor 1232	1.1			1			1			1		
Aroclor 1242	1.1			1			1			1		
Aroclor 1248	1.1			1			1			1		
Aroclor 1254	1.1			1			1			1		
Aroclor 1260	1.1			1			1			1		

Dilution Factor: 1
Matrix: Water
Units: ug/L

META

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

_____	A blank space denotes no change to the laboratory reported results.
J[1], UJ[1]	Holding times have been exceeded or samples were improperly preserved prior to analysis: estimate positive results (J[1]) and non-detects (UJ[1]). Refer to Section on "Holding Times" for details.
J[2], UJ[2]	Linearity was poor near the CRDL (low levels). Estimate the results. Refer to Section on "Calibration Verification Results" for details.
U[3]	The compound was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. Alternatively, the associated blank had a value below the negative IDL. The detection limit and/or positive results may be biased low. Refer to Section on "Laboratory Blank Results" for details.
J[4], UJ[4]	The ICS recovery for an element is outside of criteria or interelement interferences were indicated. The reported result or detection limit is estimated. See the Section on "ICP Interference Check Sample Results" for details.
J[5], UJ[5]	The recovery of an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Matrix Spike Results" for details.
J[6]	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated See the Section on "Laboratory Duplicate Results" for details.
J[7]	The RPD for the field duplicate sample analysis results exceeded 30% (50% for soils) for this analyte. The reported results are estimated. See the Section on "Field Duplicate Results" for details.
J[8], UJ[8]	The LCS recovery for an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Laboratory Control Sample Results" for details.
J[9]	The %RSD of duplicate injections for GFAA analysis do not agree within ± 20%. The sample results are estimatedd. See the Section on "Furnace AA Results" for details.

J^{10}, UJ^{10}	The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated. See the Section on "Furnace AA Results" for details.
J^{11}	The sample required MSA which either was not performed, was performed incorrectly, or the correlation coefficient was < 0.995. The positive results are estimated. See the Section on "Furnace AA Results" for details.
J^{12}, UJ^{12}	The results of the ICP Serial Dilution experiment was outside of criteria. Positive sample results or detection limits are estimated. See the Section on "ICP Serial Dilution Results" for details.
J^{13}	Element should have been run by GFAA. The reported value is an estimate.
J^{14}	The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.
R^1	Holding times have been grossly exceeded. Reject all non-detects.
R^2	Instrument calibration was either not performed or not performed properly. Reject all associated data.
R^3	The ICS recovery for an element was less than 50% or severe interelement interferences were detected. Reject all associated data.
R^4	The matrix spike recovery for an element was less than 30%. Reject all associated data.
R^5	The recovery of an element in the aqueous LCS was less than 50%. Reject all associated data.
R^6	The analytical spike recovery for GFAA analysis was less than 10%. Reject the sample result.
R^7	The MSA did not meet criteria. Reject the sample result.
R^8	The ICP Serial Dilution did not meet criteria. Reject all associated data.

SAMPLE DATA SHEETS:

INORGANIC ANALYTES

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:		19GW2			19GW3			19MW4			20GW5		
	IDL	Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	56	143	B	U3	153	B	U3	238		J1, U3	210		U3
Antimony	30									UJ1			
Arsenic	2.5	2.5	B	U3	4.3	B	U3	30.2	W	J1, U3	4.5	B	U3
Barium	1	43.7	B	U3	72.8	B	U3	66.1	B	J1, U3	398		
Beryllium	1									UJ1			
Cadmium	2	2.2	B	U3						UJ1			
Calcium	625	22700		J6	33300	*	J6	72800	*	J6,1	44300	*	J6
Chromium	4									UJ1			
Cobalt	3							11.5	B	J1			
Copper	3									UJ1			
Iron	13	30.9	B	J6, U3	10700	*	J6	31900	*	J6,1	68.6	B*	J6, U3
Lead	1	1.3	B	U3	4.4		U3	1.7	B	J1, U3	6	W	
Magnesium	41	3360		J6	4410	B*	J6	4090	B*	J6,1	9740	*	J6
Manganese	1	6.2	B	J6, U3	912	*	J6	4140	*	J6,1	191	*	J6
Mercury	0.18									UJ1			
Nickel	9									UJ1			
Potassium	145	3840		J6	4540	B*	J6	6480	*	J6,1	7870	*	J6
Selenium	1									UJ1			
Silver	4									UJ1			
Sodium	238	63400		J6	57400	*	J6	21900	*	J6,1	31800	*	J6
Thallium	1					W		1.3	BW	J1,9, U3		W	
Vanadium	5									UJ1			
Zinc	3				4.4	B	U3	9.6	B	J1, U3	3.3	B	U3
Cyanide	10									UJ1			
Boron	103	243	B	U3	247	B	U3	190	B	J1, U3	374	B	U3
Dilution Factor:		1			1			1			1		
Matrix:		Water			Water			Water			Water		
Units:		µg/L			µg/L			µg/L			µg/L		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:		20GW7			20GW17			20MW2			20MW3		
	IDL	Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	56	215		J1, U3	162	B	U3	158	B	U3	191	B	J1, U3
Antimony	30			UJ1									UJ1
Arsenic	2.5	3.9	B	J1, U3	4.2	B	U3	4.9	BW	J10, U3	3.8	BW	J1,10, U3
Barium	1	71.6	B	J1, U3	72.8	B	U3	131	B		72.8	B	J1, U3
Beryllium	1			UJ1									UJ1
Cadmium	2			UJ1									UJ1
Calcium	625	89200	*	J6,1	96900	*	J6	54700	*	J6	75600	*	J1,6
Chromium	4			UJ1									UJ1
Cobalt	3			UJ1				4.4	B				UJ1
Copper	3			UJ1									UJ1
Iron	13	1600	*	J6,1	1810	*	J6	12000			1910	*	UJ1
Lead	1	1.9	B	J1, U3	1.2	B	U3	1	B	J6, U3	1.8	B	J1,6, U3
Magnesium	41	14100	*	J6,1	15300	*	J6	20400	*	J6	27000	*	J1,6
Manganese	1	461	*	J6,1	487	*	J6	3490	*	J6	1450	*	J1,6
Mercury	0.18			UJ1									UJ1
Nickel	9			UJ1									UJ1
Potassium	145	11100	*	J6,1	12000	*	J6	21400		J6	14200	*	J1,6
Selenium	1			UJ1									UJ1
Silver	4			UJ1									UJ1
Sodium	238	45200	*	J6,1	49400	*	J6	143000		J6	156000	*	J1,6
Thallium	1		W	UJ1				5.4	B	U3	3.7	B	J1,10, U3
Vanadium	5			UJ1									UJ1
Zinc	3	3.6	B	J1, U3	8.9	B	U3	3.2	B	U3	9.8	B	J1, U3
Cyanide	10			UJ1									UJ1
Boron	103	353	B	J1, U3	259	B	U3	340	B	U3	407	B	J1, U3
Dilution Factor:		1			1			1			1		
Matrix:		Water			Water			Water			Water		
Units:		µg/L			µg/L			µg/L			µg/L		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	IDL	20MW4 Reported		20MW4 Validated	20MW6 Reported		20MW6 Validated	20GW7 Reported		20GW7 Validated	20GW17 Reported		20GW17 Validated
Aluminum	56	158	B	J1, U3	144	B	U3	149	B	J1,7, U3	244		J7, U3
Antimony	30			UJ1						UJ1			
Arsenic	2.5	4.2	BW	J1,10, U3	2.9	BW	J10, U3	4.9	B	J1, U3	4.2	BW	U3
Barium	1	27.3	B	J1, U3	58.2	B	U3	72.8	B	J1, U3	72.8	B	U3
Beryllium	1			UJ1						UJ1	1.2	B	U3
Cadmium	2			UJ1	3.1	B	U3			UJ1			
Calcium	625	18900	*	J1,6	30500	*	J6	92300		J1	100000		
Chromium	4			UJ1						UJ1			
Cobalt	3			UJ1						UJ1			
Copper	3			UJ1	24.4	B				UJ1			
Iron	13	64.4	B*	J1, U3	44.3	B*	J6, U3	1550		J1	1710		
Lead	1	2.2	B	J1,6, U3	117		J6	1.6	B	J1, U3	1.2	BE	U3
Magnesium	41	8030	*	J1,6	4030	B*	J6	14500		J1	15500		
Manganese	1	92.7	*	J1,6	14.8	B*	J6, U3	444		J1	480		
Mercury	0.18			UJ1						UJ1			
Nickel	9			UJ1						UJ1			
Potassium	145	11800	*	J1,6	5440	*	J6	11500		J1	12100		
Selenium	1			UJ1	1.3	B				UJ1			
Silver	4			UJ1						UJ1			
Sodium	238	114000	*	J1,6	18700	*	J6	46700		J1	49400		
Thallium	1	4.1	BW	J1,10, U3	2.6	BW	J10, U3			UJ1			
Vanadium	5			UJ1						UJ1			
Zinc	3	6.8	B	J1, U3	816			6.8	B	J1,7, U3	37.7		J7
Cyanide	10			UJ1					*	UJ1		*	
Boron	103	924		J1, U3	220	B	U3	261	BE	J1, U3	317	BE	U3
Dilution Factor:		1			1			1			1		
Matrix:		Water			Water			Filtered Water			Filtered Water		
Units:		µg/L			µg/L			µg/L			µg/L		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930721A
Site: Naval Submarine Base, Groton, CT
SDG No.: 20MW6

Sample ID:	IDL	ER1 Reported		ER1 Validated	ER3 Reported		ER3 Validated	ER4 Reported		ER4 Validated	Reported	Validated
Aluminum	56	111	B		125	B		140	B			
Antimony	30											
Arsenic	2.5	4	B									
Barium	1											
Beryllium	1											
Cadmium	2											
Calcium	625		*						*			
Chromium	4											
Cobalt	3											
Copper	3											
Iron	13	21.2	B*	J6	13.8	B*	J6	159	B*	J6		
Lead	1	1.1	BW			W			W			
Magnesium	41		*			*			*			
Manganese	1		*			*			*			
Mercury	0.18											
Nickel	9											
Potassium	145	171	B*	J6	159	B*	J6	177	B*	J6		
Selenium	1					W						
Silver	4											
Sodium	238	604	B*	J6	559	B*	J6	577	B*	J6		
Thallium	1		W			W						
Vanadium	5											
Zinc	3	4.2	B		6.2	B		4.8	B			
Cyanide	10											
Boron	103	212	B		181	B		239	B			

	ER1	ER3	ER4
Dilution Factor:	1	1	1
Matrix:	Water	Water	Water
Units:	µg/L	µg/L	µg/L

META

META Environmental, Inc.

49 Clarendon Street
Watertown, MA 02172
TEL: (617) 923-4662
FAX: (617) 923-4610

DATA VALIDATION REPORT
FOR THE
NAVAL SUBMARINE BASE SITE
IN GROTON, CT
PIER 33/BERTH 16 SOILS
SDG NO: MW409 LEAD ONLY

Prepared for:

Atlantic Environmental Services, Inc.
118 Norwich Avenue
Colchester, CT 06415

Prepared by:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02172

August 6, 1993

TABLE OF CONTENTS

Section	Page
INTRODUCTION	1
INORGANIC DATA	1

List of Tables and Attachments

- Glossary of Terms
- Data Validation Recommendation Footnotes - Inorganics
- Sample Data Sheets: Inorganic Analytes

DATA VALIDATION REPORT

RE: SDG Nº: MW409
Site: Naval Submarine Base, Groton, CT
Reference: NVDV930607B

Lead Only: 3/soil/19TB4(0-2), 19TB4(2-4), 19TB4(4-6).

INTRODUCTION

META Environmental, Inc. (META) has completed a validation of the inorganic (lead only) analytical data from SDG No. MW409 low level soil samples collected from the Naval Submarine Base site in Groton, CT. The data were evaluated according to guidelines adapted by META, and based on the U.S. EPA Region I Functional Guidelines for Evaluating Inorganic Analyses (6/88), and the NEESA Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (20.2-047B). As specified, only the samples analyzed for lead only were validated.

Triclustered Sample Data Sheets detailing the laboratory reported results, Instrument Detection Limits (IDLs), data validation results, and recommendations for each fraction of each validated sample have been submitted for your convenience.

The data submitted for SDG No. MW409 were found to be generally good, but all lead results were qualified due to blank contamination. The reader should refer to the report for a more detailed discussion of the results.

INORGANIC DATA

The inorganic data were evaluated based on the following parameters:

☺ • Data completeness
☺ • Holding times
☺ • Calibration verification results
• Laboratory blank results
☺ • Method blank/spike results
☺ • Matrix spike results
☺ • Field duplicate results
☺ • Laboratory duplicate results
☺ • Laboratory control sample results
☺ • Furnace AA results
☺ • Instrument detection limits
☺ • Calculations and transcriptions

☺ - all criteria were met for this parameter.

Data Completeness

The data package contained all required forms and raw data. Copy quality was good.

Holding Times

Holding times were reviewed and found to meet criteria for all parameters. No action is recommended. It should be noted that uner NEESA guidelines, samples must be shippe within 24 hours of collection. The samples in this case were received at the laboratory two days after they were collected, but since all holding time criteria were met, no action is recommended.

Calibration Verification Results

Initial and continuing calibration verifications were reviewed. All standards had acceptable recoveries and frequency criteria were met.

The 2 X CRDL standard was low for lead (78.3%). All lead results were greater than 3 X CRDL, so no action is necessary.

Laboratory Blank Results

The calibration blanks, equipment blanks, and preparation blanks contained low levels of lead. The following table lists the maximum concentration of each metal found in any laboratory blank with the resultant action levels. The action level is calculated as 5X the maximum concentration found in any blank. Sample results less than 5X the maximum concentration found in any blank may be due to contamination or instrumental problems, and thus may not be indicative of the actual concentration of the native sample.

Element	Concentration (µg/L)	Action Level (µg/Kg)
Lead	43.4	43.4

The action level values were compared to the sample values after application of sample preparation and dilution factors, and sample results less than the action level were reported as not detected (UJ[3]) (see Sample Data Sheets attached to this report).

Method Blank/Spike Results

A laboratory control sample was analyzed with each batch of field samples. The LCS results were plotted on control charts, and satisfy the NEESA QC requirement for the method blank/spike control program. The LCS results are discussed elsewhere in this report.

Matrix Spike Results

The matrix spike was performed on sample MMW246 (not validated). Spike recoveries for lead met all criteria. No action is recommended.

Field Duplicate Results

The samples MMW246 and MW1246 (not validated) were identified as field duplicate samples by the client. The RPD for lead met the acceptance criterion. No action is recommended.

Laboratory Duplicate Results

The laboratory duplicate was performed on sample MMW246 (not validated). The RPD for lead met the acceptance criterion. No action is recommended.

Laboratory Control Sample Results

The laboratory control sample (LCS) results were reviewed, and the criteria were met for all parameters.

Furnace AA Results

The lead furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and all met the acceptance criteria. No action is recommended.

Instrument Detection Limits

Instrument Detection Limits (IDLs) were reviewed and found to meet all criteria.

Calculations and Transcriptions

A spot check of calculations and transcriptions was performed and no problems were noted.

Data Assessment

This case did not contain any dilution, reextraction, or reanalysis. No recommendations are necessary.

Inorganic Section prepared by:

JTS for

Karen Stone

Karen Stone

Inorganic Data Validator

Report reviewed and approved by:

June A Schneider

June A. Schneider

Data Validation Manager

David M Mauro

David M. Mauro

Vice President

META Environmental, Inc.

GLOSSARY OF TERMS

GLOSSARY OF TERMS

(In alphabetical order)

ABN	Acid/Base-Neutral. An extraction and analytical method for the determination of semivolatile organic compounds, or a sample extracted and analyzed by that method. Also: BNA, semivolatile, SVOC.
ASP	Analytical Services Protocol. The NYSDEC statement of work.
BFB	Bromofluorobenzene. The compound used for initial tuning of the GC/MS system, prior to the analysis of volatile organic compounds.
CC	Continuing Calibration. A standard solution of organic compounds of known concentration is analyzed periodically to check the continued calibration of the system.
CF	Calibration Factor. In pesticide/PCB analyses, the calibration factor is the area of the standard compound divided by the concentration of that compound in the standard.
CCC	Calibration Check Compound. Any one of a defined subgroup of compounds present in the calibration standards. Used to check the acceptability of instrument performance.
CCV	Continuing Calibration Verfication. A standard solution of inorganic compounds of known concentration is analyzed periodically during sample analyses to verify the continued calibration of the instrument.
CLP	Contract Laboratory Program. The U.S. EPA program that defines analytical, QC, and reporting procedures to generate high quality, defensible data. CLP also has associated the most highly developed and regulated set of data validation guidelines, on which most data validation decisions are based.
COC	Chain of Custody. The documentation that details the history of a given sample, from the time it is collected until the time it has been analyzed.
CRDL	Contract Required Detection Limit. As defned by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the inorganic analyte of interest. Results below the CRDL are reported, but as estimated values.

GLOSSARY OF TERMS

CRQL	Contract Required Quantitation Limit. As defined by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the organic compound of interest. Results below the CRQL are reported, but as estimated values.
CRR	Contract Required Recovery range. As defined in the U.S. EPA Region I Functional Guidelines for Evaluating Organics Analyses (11/88), the acceptable recovery range for surrogate spike and matrix spike compounds.
DFTPP	Decafluorotriphenylphosphine. The compound used for initial tuning of the GC/MS system, prior to the analysis of semivolatile organic compounds.
EICP	Extracted Ion Current Profiles. Recommended by the U.S. EPA CLP and required by the NYSDEC ASP, the EICP displays the chromatographic peak specific to a m/z ion in a GC/MS analysis.
EPA	Environmental Protection Agency. The United States federal agency governing environmental concerns.
FP	False Positive. Used to designate as non-detect any compound incorrectly identified by the computer.
GC/MS	Gas Chromatography/Mass Spectrometry. An analytical technique used commonly for the determination of volatile and semivolatile organic compounds.
HT	Holding Time. The contractually defined time in which a sample must be extracted and/or analyzed by the analytical laboratory. Generally calculated from date of sampling.
IC	Initial Calibration. A series of standard solutions of organic compounds are analyzed at different concentration levels to define the initial linearity of the analytical system.
ICV	Initial Calibration Verification. A standard solution of inorganic compounds is analyzed immediately following instrument calibration to confirm the accuracy of that calibration.

GLOSSARY OF TERMS

IDL — Instrument Detection Limit. The lowest concentration at which a particular instrument can reliably detect a given analyte. As differs from the CRQL which is the lowest concentration at which a given analyte may be reliably quantitated. IDLs vary from instrument to instrument, and their determination is required by NYSDEC.

MS/MSD — Matrix Spike/Matrix Spike Duplicate. Prior to extraction, a known quantity of several analytes is spiked into a sample. The sample is analyzed in duplicate and %Recs and RPDs are calculated. Used to monitor matrix effects of the native sample upon the observed sample results.

MSB — Matrix Spike Blank. An aliquot of contaminant-free soil or water is spiked with a known quantity of several analytes. The MSB is analyzed and %Recs are calculated. Required by NYSDEC.

NEESA — Naval Energy and Environmental Support Activity. The regulatory agency for the Navy Installation Restoration Program.

NYSDEC — New York State Department of Environmental Conservation. The New York State agency governing environmental concerns.

%D — Percent Difference. A measure of the variance between two results, relative to the first result.

$$\%D = \frac{R_1 - R_2}{R_2} \times 100$$

where, R_1 is the first result and R_2 is the second result.

%Rec — Percent Recovery. A measure of the recovery of a known amount of analyte.

$$\%Rec = \frac{A_r}{A_s} \times 100$$

where, A_r is the amount recovered and A_s is the amount spiked. (When calculating matrix spike recoveries, the amount of analyte present in the unspiked sample must first be subtracted from the amount recovered).

GLOSSARY OF TERMS

%RSD — Percent Relative Standard Deviation. A measure of the variance between multiple results.

$$\%RSD = \frac{SD}{X} \times 100$$

where, SD is the standard deviation and X is the mean of the values.

PEST — Pesticide/PCB. An extraction and analytical method for the detremination of pesticide and/or PCB compounds, or a sample extracted and analyzed by that method. Also: Pest/PCB, PCB.

QA — Quality Assurance. The system of management that guarantees high quality data output.

QC — Quality Control. Any system of analytical tests and checks that monitors the progress of the data, leading to high quality data output. May also refer to the criteria by which those tests and checks are evaluated.

RPD — Relative Percent Difference. A measure of precision comparing two results.

$$RPD = \frac{D_1 - D_2}{(D_1 + D_2)/2} \times 100$$

where, D_1 is the result from sample 1 and D_2 is the result from sample 2.

RRF — Relative Response Factor. A measure of the response of the instrument to a given compound relative to the response of the instrument to a standard compound.

RT — Retention Time. In GC, the time it takes for a given analyte to move through the analytical system to the detector.

SD — Standard Deviation. In statistics, the standard deviation is a measure of the dispersion of all values around the mean value.

GLOSSARY OF TERMS

$$SD = \frac{\sqrt{(n\Sigma x^2 - (\Sigma x)^2)}}{n(n-1)}$$

where n = number of values and x = individual values.

SOW — Statement of Work. A document describing in detail the contractual obligations of the laboratory to the contractor with regards to analytical methods, reporting requirements, and QC, financial, and litigational obligations.

TAL — Target Analyte List. The list that defines the specific inorganic parameters of interest in a given analysis.

TCL — Target Compound List. The list that defines the specific organic compounds of interest in a given analysis.

TIC — Tentatively Identified Compound. Any non-TCL compound which is detected during sample analysis and identified by mass spectral matching alone.

VOA — Volatile Organic Compound Analysis. An analytical method for the determination of volatile organic compounds, or a sample analyzed by that method. Also: VOC.

VTSR — Verified Time of Sample Receipt. The date and time a group of samples is accepted at the analytical laboratory. Appears on the COC. NYSDEC calculates holding times from VTSR rather than from sampling date.

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

_____	A blank space denotes no change to the laboratory reported results.
J^1, UJ^1	Holding times have been exceeded or samples were improperly preserved prior to analysis: estimate positive results (J^1) and non-detects (UJ^1). Refer to Section on "Holding Times" for details.
J^2, UJ^2	Linearity was poor near the CRDL (low levels). Estimate the results. Refer to Section on "Calibration Verification Results" for details.
U^3	The compound was present in the associated blank. The sample result was less than the action level of 5X the maximum concentration found in any blank, and has been rejected. Alternatively, the associated blank had a value below the negative IDL. The detection limit and/or positive results may be biased low. Refer to Section on "Laboratory Blank Results" for details.
J^4, UJ^4	The ICS recovery for an element is outside of criteria or interelement interferences were indicated. The reported result or detection limit is estimated. See the Section on "ICP Interference Check Sample Results" for details.
J^5, UJ^5	The recovery of an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Matrix Spike Results" for details.
J^6	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated See the Section on "Laboratory Duplicate Results" for details.
J^7	The RPD for the field duplicate sample analysis results exceeded 30% (50% for soils) for this analyte. The reported results are estimated. See the Section on "Field Duplicate Results" for details.
J^8, UJ^8	The LCS recovery for an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Laboratory Control Sample Results" for details.
J^9	The %RSD of duplicate injections for GFAA analysis do not agree within $\pm$ 20%. The sample results are estimatedd. See the Section on "Furnace AA Results" for details.

J^{10}, UJ^{10}	The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated. See the Section on "Furnace AA Results" for details.
J^{11}	The sample required MSA which either was not performed, was performed incorrectly, or the correlation coefficient was < 0.995. The positive results are estimated. See the Section on "Furnace AA Results" for details.
J^{12}, UJ^{12}	The results of the ICP Serial Dilution experiment was outside of criteria. Positive sample results or detection limits are estimated. See the Section on "ICP Serial Dilution Results" for details.
J^{13}	Element should have been run by GFAA. The reported value is an estimate.
J^{14}	The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.
R^1	Holding times have been grossly exceeded. Reject all non-detects.
R^2	Instrument calibration was either not performed or not performed properly. Reject all associated data.
R^3	The ICS recovery for an element was less than 50% or severe interelement interferences were detected. Reject all associated data.
R^4	The matrix spike recovery for an element was less than 30%. Reject all associated data.
R^5	The recovery of an element in the aqueous LCS was less than 50%. Reject all associated data.
R^6	The analytical spike recovery for GFAA analysis was less than 10%. Reject the sample result.
R^7	The MSA did not meet criteria. Reject the sample result.
R^8	The ICP Serial Dilution did not meet criteria. Reject all associated data.

SAMPLE DATA SHEETS:

INORGANIC ANALYTES

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930607B
Site: Naval Submarine Base, Groton, CT
SDG No.: MW409

Sample ID:	IDL	19TB4(0-2) Reported	19TB4(0-2) Validated	19TB4(2-4) Reported	19TB4(2-4) Validated	19TB4(4-6) Reported	19TB4(4-6) Validated
Lead	1	10.4	U3	31.5	U3	12.1	U3

Dilution Factor:	4	10	1
Matrix:	Soil	Soil	Soil
Units:	mg/kg	mg/kg	mg/kg

META Environmental, Inc.

49 Clarendon Street
Watertown, MA 02172
TEL: (617) 923-4662
FAX: (617) 923-4610

DATA VALIDATION REPORT
FOR THE
NAVAL SUBMARINE BASE SITE
IN GROTON, CT
PIER 33/BERTH 16 SOILS
SDG NO: MW612

Prepared for:

Atlantic Environmental Services, Inc.
118 Norwich Avenue
Colchester, CT 06415

Prepared by:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02172

July 29, 1993

TABLE OF CONTENTS

Section	Page
INTRODUCTION	1
ORGANIC DATA	2
INORGANIC DATA	16

List of Tables and Attachments

- Table 1: Tentatively Identified Compound Summary
- Glossary of Terms
- Data Validation Recommendation Footnotes - Organics
- Sample Data Sheets: Volatile Organic Compounds
- Sample Data Sheets: Semivolatile Organic Compounds
- Sample Data Sheets: Pesticide Organic Compounds
- Data Validation Recommendation Footnotes - Inorganics
- Sample Data Sheets: Inorganic Analytes

DATA VALIDATION REPORT

RE: SDG Nº: MW612
Site: Naval Submarine Base, Groton, CT
Reference: NVDV930609A

Volatiles: 16/soil/20MW2(0-2), 20MW2(14-16), 20MW3(2-4), 20MW3(8-10), 20MW4(2-4), 20MW4(4-6), 20MW5(0-2), 20MW5(6-8), 20MW6(12-14), 20MW6(2-4), 20MW7(2-4), 20MW7(4-6), 20TB2(14-16), 20TB2(2-4), 20TB3(10-12), 20TB3(2-4).
4/aqueous/ER5, ER7, TB5, TB6.

Semivolatiles: 16/soil/20MW2(0-2), 20MW2(14-16), 20MW3(2-4), 20MW3(8-10), 20MW4(2-4), 20MW4(4-6), 20MW5(0-2), 20MW5(6-8), 20MW6(12-14), 20MW6(2-4), 20MW7(2-4), 20MW7(4-6), 20TB2(14-16), 20TB2(2-4), 20TB3(10-12), 20TB3(2-4).
2/aqueous/ER5, ER7.

Pesticides: 16/soil/20MW2(0-2), 20MW2(14-16), 20MW3(2-4), 20MW3(8-10), 20MW4(2-4), 20MW4(4-6), 20MW5(0-2), 20MW5(6-8), 20MW6(12-14), 20MW6(2-4), 20MW7(2-4), 20MW7(4-6), 20TB2(14-16), 20TB2(2-4), 20TB3(10-12), 20TB3(2-4).
2/aqueous/ER5, ER7.

Metals/CN: 16/soil/20MW2(0-2), 20MW2(14-16), 20MW3(2-4), 20MW3(8-10), 20MW4(2-4), 20MW4(4-6), 20MW5(0-2), 20MW5(6-8), 20MW6(2-4), 20MW7(2-4), 20MW7(4-6), 20TB2(2-4), 20TB3(2-4), 20TB4(0-2), 20TB5(0-2), 20TB5(4-6).
2/aqueous/ER5, ER7.

INTRODUCTION

META Environmental, Inc. (META) has completed a validation of the volatile, semivolatile, and pesticide organic and inorganic analytical data from SDG No. MW612 low level soil samples collected from the Naval Submarine Base site in Groton, CT. The data were evaluated according to guidelines adapted by META, and based on the U.S. EPA Region I Functional Guidelines for Evaluating Organic Analyses (2/88), the U.S. EPA Region I Functional Guidelines for Evaluating Inorganic Analyses (6/88), and the NEESA Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (20.2-047B). As specified, only 25% of the samples submitted were validated.

Triclustered Sample Data Sheets detailing the Contract Required Quantitation Limits (CRQLs), laboratory reported results, Instrument Detection Limits (IDLs), data validation results, and recommendations for each fraction of each validated sample have been submitted for your convenience.

The data submitted for SDG No. MW612 were found to be generally good. There was some qualification of VOA data due to blank contamination, some qualification of ABN data due to calibration, internal and surrogate standard performance, and holding times, and some qualification of inorganic data due to uncertainty near the CRDL, blank contamination, and furnace AA QC violations. The reader should refer to the report for a more detailed discussion of the results.

ORGANIC DATA

Evaluation of the volatile (VOA), semivolatile (ABN), and pesticide (PEST) organic data was based on the following parameters:

☺ • Data completeness
• Holding times
☺ • GC/MS Tuning
• Calibration
• Blanks
☺ • Method blank/spikes
• Surrogate recoveries
• Matrix spike/matrix spike duplicate
• Field duplicate precision
• Internal standard performance
• Pesticide instrument performance
• Compound identification
☺ • Compound quantitation

☺ - All criteria were met for this parameter.

Data Completeness

The data package contained all of the forms required by the SOW. In addition to the forms required by the SOW, the following items are necessary for a NEESA compliant data package:

- The analysis of method/blank spikes, and submission of raw data, summary forms, and control charts for those analyses.

Control charts and raw data were submitted with the data package. Copy quality was good.

Holding Times

All of the VOA fraction samples were analyzed within the required holding times. No action is recommended.

The ABN fraction soil sample 20MW6(2-4) was extracted one day outside the required holding time of ten days from the date of collection. It is recommended to estimate (J^1, UJ^1) all positive and non-detected results for that sample. All ABN fraction samples were analyzed within the required holding times.

All of the PEST fraction samples were extracted and analyzed within required holding times. No action is recommended.

GC/MS Tuning

All of the BFB and DFTPP tuning criteria were within the required limits.

Calibration

The following problems were noted with the initial and/or continuing calibration of the VOA and ABN GC/MS systems:

VOA instrument GMS-HP (initial calibration date 01/11/93):

Compound	CC 04/15/93
4-Methyl-2-pentanone	X
Associated Samples:	ER5, ER7, TB5, TB6.

It should be noted that both the initial and the continuing calibration standards associated with the water samples ER5, ER7, TB5, and TB6 were contractually non-compliant. The RRFs for the compounds bromoform and 1 .2,2-tetrachloroethane were below the contract specified limit. No action is recommended because the validation criteria were met, but the client should be aware of this issue when using these data.

VOA instrument GMS-HP (initial calibration date 02/16/93):

Compound	IC 02/16/93	CC 04/16/93
Acetone	X	
Carbon disulfide		X

Associated Samples: All listed plus 20MW6(2-4), 20MW3(2-4), 20MW3(8-10), 20MW5(0-2), 20TB3(2-4), 20MW2(0-2), 20MW2(14-16), 20TB3(10-12), 20MW4(2-4), 20TB2(2-4), 20TB2(14-16). 20MW4(2-4)MS/MSD, 20MW4(4-6), 20MW7(2-4), 20MW7(4-6).

VOA instrument GMS-HP (initial calibration date 04/02/93):

Compound	IC 04/02/93
Acetone	X

Associated Samples: 20MW6(12-14), 20MW5(6-8).

ABN instrument FMS-HP (initial calibration date 02/01/93):

Compound	CC 04/06/93	CC 04/07/93	CC 04/09/93
Phenol	X		
bis(2-Chloroethyl)ether			X
2,2'-Oxybis(1-chloropropane)		XX	XX
Hexachlorocyclobutadiene	X		X
Hexachlorocyclopentadiene	XX	XX	X
2,4-Dinitrophenol	X	XX	
4-Nitrophenol	X	XX	X
4,6-Dinitro-2-methylphenol		XX	
Pentachlorophenol	X	X	X
Pyrene			X
Benz(a)anthracene			X
di-n-Octylphthalate		X	
*Phenol-d5		X	
*2,4,6-Tribromophenol	X	X	

Associated Samples: ER5, 20TB3(2-4), 20TB3(10-12), 20MW7(2-4). ER7, 20MW2(14-16), 20TB2(2-4), 20TB2(14-16), 20MW4(2-4), 20MW4(4-6), 20MW2(0-2), 20MW7(4-6), 20MW6(12-14), 20MW3(8-10), 20MW5(6-8). 20MW5(0-2), 20MW6(2-4), 20MW3(2-4).

It should be especially noted that the compounds phenol-d5 and 2,4,6-tribromophenol are surrogate standard compounds. It is recommended to estimate (J^{22}) positive results for all compounds associated with the out of control surrogates in the affected samples.

X %RSD > 30% or %D > 25%; Estimate (J^3) positive results in associated samples.
XX %RSD or %D > 50%; Estimate (J^4) positive results and (UJ^4) non-detected results in the associated samples.

Blanks

The VOA, ABN, and PEST fraction low level laboratory method blanks, equipment, and trip blanks contained the following maximum quantities of contaminants:

Compound	Maximum [ ]	Action Level
Methylene chloride	4 µg/Kg	40 µg/Kg
Acetone	42 µg/L	420 µg/Kg
Chloroform	4 µg/L	20 µg/Kg
2-Butanone	7 µg/L	70 µg/Kg
2-Hexanone	5 µg/Kg	25 µg/Kg
Toluene	4 µg/L	40 µg/Kg
Total xylenes	3 µg/L	15 µg/Kg

Blank Actions:

- Value < CRQL; report CRQL followed by "U" (U^5).
- Value > CRQL and < action level; report value followed by "U" (U^6).
- Value > CRQL and > action level; report value unqualified.

The action level values were compared to the sample values, and the following recommendations are made: methylene chloride in samples ER5, 20MW2(0-2), 20MW2(14-16), 20MW3(2-4), 20MW3(8-10), 20MW4(2-4), 20MW4(4-6), 20MW5(0-2), 20MW6(12-14),

20MW6(2-4), 20MW7(2-4), 20MW7(4-6), 20TB2(14-16), 20TB2(2-4), 20TB3(10-12), 20TB3(2-4), 20MW4(2-4)MS, and 20MW4(2-4)MSD, and acetone in samples 20MW2(14-16) and 20MW6(2-4) should be reported as the CRQL followed by "U" (U^5); methylene chloride in the samples ER7 and 20MW5(6-8), and acetone in the samples ER5, 20MW2(0-2), 20MW3(2-4), 20MW3(8-10), 20MW4(2-4), 20MW4(4-6), 20MW5(0-2), 20MW5(6-8), 20MW6(12-14), 20MW7(2-4), 20MW7(4-6), 20TB2(14-16), 20TB2(2-4), 20TB3(10-12), 20TB3(2-4), 20MW4(2-4)MS, and 20MW4(2-4)MSD should be reported as the value followed by "U" (U^6) (i.e., the CRQL has been raised and the value is considered to be non-detect).

Several TIC compounds were detected in the ABN fraction method blanks. The RTs of the blank TICs were compared to the RTs of the sample TICs, and where similarities were found, the sample TIC result was flagged with a "B" on the Tentatively Identified Compound Summary table (Table 1) at the end of this report.

In addition, all TIC compounds were flagged on the Forms I in the following way:

"JN" Presumptive evidence for the tentative identification of a compound at an approximate concentration (required flag).

"BR" TIC was also found in an associated blank, and is rejected in the sample.

Method Blank/Spikes

NEESA requires the analysis of method blank/spikes along with the analysis of samples. The results of the method/blank spikes are to be plotted on control charts and submitted with the data package.

For the VOA and ABN fractions, the method blank/spike is essentially the same thing as a method blank. The method blanks submitted by the laboratory may be evaluated as method blank/spikes by plotting the surrogate recovery results on a control chart. In compliance with NEESA requirements, the laboratory did submit control charts which plotted the surrogate recoveries.

For the PEST fraction, a method blank/spike must contain at least two pesticide compounds and/or one PCB compound, and the recovery results are plotted on a control chart. The laboratory submitted control charts depicting the recovery of one PCB and three pesticide compounds, as well as the associated raw data.

Surrogate Recoveries

All VOA fraction aqueous and soil surrogate recoveries were within the Contract Required Recovery range (CRR). No action is recommended.

The ABN fraction surrogates nitrobenzene-d5, 2-fluorophenol, and 1,2-dichlorobenzene-d4 were under-recovered in sample 20MW4(4-6). It is recommended to estimate (J^8, UJ^8) positive and non-detected results for all compounds associated with the out of control surrogates in that sample.

It is contractually required that ABN fraction samples containing two or more out of control surrogates be reextracted and reanalyzed. Sample 20MW4(4-6) was not reextracted. It is not known why that sample was not reextracted, as required.

The PEST fraction surrogates tetrachloro-m-xylene (TCMX) and decachlorobiphenyl (DCB) were recovered outside the CRR in many samples. The following table is a summary of the surrogates that were out of control:

	TCMX		DCB	
Sample ID	Col 1	Col 2	Col 1	Col 2
ER5		>		<
ER7			<	<
20MW2(0-2)			> >	
20MW2(14-16)	<	<	<	<
20MW3(2-4)	>		NR	NR
20MW3(8-10)			> >	
20MW4(2-4)			>	
20MW5(0-2)			> >	NR
20MW5(6-8)			> >	
20MW6(12-14)			>	
20MW6(2-4)			NR	NR
20TB3(2-4)			> >	NR

<	Surrogate result was below the CRR.	>	Result was above the CRR.
> >	Surrogate result was grossly above the CRR.	NR	Surrogate was not recovered.

All of the grossly over- and under-recovered surrogates in the soil samples were due to the presence of significant interferences from non-TCL compounds in the chromatograms, even though the extracts were GPC cleaned. For this reason, and because PEST surrogate recovery limits are advisory only, no action is recommended.

The water sample ER7 has DCB under-recovered on both columns. No interferences were present in the chromatograms. It is recommended to estimate (J^8, UJ^8) all positive and non-detected results in that sample.

It should be noted that both of the aqueous method blanks had surrogate recoveries that were outside the CRR. It is contractually required that method blanks meet all QC criteria. If

a method blank does not meet the QC criteria, then the blank and all associated samples should be reextracted or reanalyzed. Contractually, the laboratory should have reextracted and reanalyzed all of the PEST fraction samples associated with the out of control aqueous method blanks. It is not known why the samples were not reanalyzed.

Matrix Spike/Matrix Spike Duplicate

All VOA matrix spike compound %Recs and RPDs were within the Contract Required Recovery range (CRR).

No ABN fraction MS/MSD was submitted. The laboratory is contractually required to submit at least batch QC to demonstrate contractual compliance. No action is recommended.

The RPDs for the PEST fraction matrix spike compounds heptachlor and dieldrin were outside the CRR. However, since the MS/MSD was not performed on a sample from this case, no action is recommended.

The results for the unspiked compounds present in the sample, MS, and MSD were compared, and the %RSDs calculated. All of the %RSDs were less than the advisory criterion of < 50% for soils.

Field Duplicate Precision

No field duplicate samples were submitted with this case.

Internal Standard Performance

All VOA fraction internal standard (IS) areas were within the CRR.

The ABN IS perylene-d12 was under-recovered in the samples 20MW2(0-2), 20MW3(8-10), 20MW4(2-4), and 20MW6(12-14). It is recommended to estimate (J^{15}, UJ^{15}) all positive and non-detected results for all compounds quantitated from that IS in those samples.

The ABN IS perylene-12 was grossly under-recovered in the sample 20MW7(4-6). It is recommended to estimate (J^{16}) positive results and reject (R^{5}) non-detected results for compounds quantitated from that IS in that sample.

It should be noted that all of the above samples were reanalyzed as required, but the data for the reinjected samples was not reported. This was done at the request of the client to "control analytical costs". However, it does not allow for a complete evaluation of the data by the validator. The validator was unable to evaluate the reanalyzed sample results.

Pesticide Instrument Performance

The following problems were noted with the initial calibration of the PEST GC system: Instruments GC-15, GC-16 (initial calibration date 05/04/93):

Compound	(SPB-1701) Column 1	(SPB-608) Column 2
α-BHC		X
β-BHC	X	
δ-BHC		X
γ-BHC		X
Heptachlor		X
Dieldrin		X
Endrin	X	X
4,4'-DDE	X	
Endosulfan II		X
Endosulfan sulfate	X	
Methoxychlor		X
Endrin aldehyde	X	
*Tetrachloro-m-xylene	X	X
*Decachlorobiphenyl	X	

Associated Samples: All samples in this case.

X %RSD > 10%; Estimate (J^{18}) positive results for compounds quantitated on that column in the associated samples.

It should be noted that although the data have been qualified according to the criteria set forth in the validation guidelines, the laboratory was contractually compliant with all initial calibration requirements set forth in SOW OLM01.0.

It should also be especially noted that the compounds tetrachloro-m-xylene and decachlorobiphenyl are surrogate standard compounds. Since there were no positive detects for any PEST fraction compounds in any sample, no further actions are recommended.

All continuing calibration standard compound RTs were within the established RT windows. All DDT and endrin %breakdowns were < 20%. The laboratory followed the correct analytical sequence as stated in SOW OLM01.0. No actions are recommended.

The following continuing calibration compounds exceeded the %D criterion of < 15% on both columns:

Standard	Compound	Column
04/14/93 1034	*TCMX	1
04/15/93 0933	Methoxychlor	1
04/15/93 0933	α-BHC γ-BHC 4,4'-DDD 4,4'-DDT Endrin Methoxychlor	2
04/15/93 1038	β-BHC δ-BHC Endrin ketone *TCMX	2
04/16/93 0311	Methoxychlor Endrin	2
04/16/93 0522	4,4'-DDE Endrin ketone Endrin aldehyde	2

Since there were no positive detects in any PEST fraction sample, no action is required. It should be noted that although the continuing calibration standard %Ds did exceed the validation criterion of < 15%, they did not exceed the contractual requirement of < 25%.

The TCMX and DCB RT %Ds were less than the criterion of < 1.5% for wide bore capillary columns for all standards and samples. It should be noted that several of the DCB RT %Ds were not reported, because of severe matrix interference. No action is necessary.

Compound Identification

In accordance with contractual requirements, mass spectra were submitted for all VOA and ABN compounds detected, whether they were identified as false positives or not. It should be noted that Extracted Ion Current Profiles (EICPs) were not submitted, so it was not possible to determine whether compound peaks had been integrated correctly.

Most mass spectral identifications were good, although it should be noted that the validator recommends rejecting (R^8) positive results for the compound dibenz(a,h)anthracene in the sample 20MW5(0-2) due to poor spectral matching.

All VOA and ABN compound RRTs were within $\pm$ 0.06 units of the standard RRT.

PEST fraction compound identifications were good.

Compound Quantitation

VOA, ABN, and PEST fraction sample quantitation calculations were performed correctly.

It should be noted that the laboratory reported aqueous CRQLs for the VOA fraction compounds acetone, 2-butanone, vinyl acetate, 4-methyl-2-pentanone, and 2-hexanone that exceeded the SOW OLM01.0 contractually required CRQLs by a factor of 2.5. Many of the other compound CRQLs were below the contractually required CRQLs. The laboratory stated that the samples were analyzed by SW846 Method 8260, but the samples were not analyzed for the full 8260 compound list. Also, Method 8260 does not list compound CRQLs (CRQLs are defined in the CLP SOW only), so it is inappropriate to report CRQLs based upon another

method on CLP forms. The laboratory should have obtained CRQLs that were in compliance with SOW OLM01.0, regardless of what method was used to analyze the samples, since the results were reported in the SOW format.

Tentatively Identified Compounds

It should be noted that the laboratory did a poor job with TIC compound identifications. It appears that in many cases the first TIC picked by the library search program was reported, without bothering to compare the sample and reference spectra. It is inappropriate to determine TIC results based upon library search results only. An experienced, qualified spectroscopist should evaluate all TIC results individually before reporting the results on the Forms I. The validator disagreed with the majority of the reported TIC identifications. It is not the job of the validator to review and correct all TIC results reported by the laboratory. All TIC results for this case have been rejected, and should be considered unusable until the laboratory resubmits corrected TIC results.

Since they were rejected, the TIC results have not been summarized in this report.

Data Assessment

Although this case does contain reextractions and reanalyses, the laboratory did not report the sample information for the reanalyzed samples. Therefore, no recommendations are possible.

INORGANIC DATA

The inorganic data were evaluated based on the following parameters:

- Data completeness
- ☺ Holding times
- Calibration verification results
- Laboratory blank results
- Method blank/spike results
- ☺ Interference check standard results
- Matrix spike results
- Field duplicate results
- Laboratory duplicate results
- ☺ Laboratory control sample results
- ☺ ICP serial dilution results
- Furnace AA results
- ☺ Instrument detection limits
- ☺ Calculations and transcriptions

☺ - all criteria were met for this parameter.

Data Completeness

The data package contained most of the forms and raw data required by the EPA SOW, with the following exceptions:

- A laboratory duplicate sample was not analyzed, and the Form VI was not submitted. The case narrative does not give any explanation of why the laboratory duplicates were not analyzed. Refer to the Section on "Laboratory Duplicate Results" for details.

- Matrix spike samples were not analyzed. The case narrative states that "matrix QC was not requested to be performed on any samples associated with this SDG."

However, the laboratory is required to submit at least batch QC to demonstrate contractual compliance. Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

In addition, the following items are necessary for a NEESA compliant data package:

- The analysis of method/blank spikes, and submission of raw data, summary forms, and control charts for those analyses.

Control charts and raw data were submitted with the data package. Copy quality was good.

Holding Times

Holding times were reviewed and found to meet criteria for all parameters. No action is recommended.

Calibration Verification Results

Initial and continuing calibration verifications were reviewed. All standards had acceptable recoveries and frequency criteria were met.

The correlation coefficient for the calibration curve for the furnace element thallium was less then 0.995. It is recommended to estimate (J^2, UJ^2) positive and non-detected results for that analyte in all samples. The correlation coefficient for the calibration curve for the furnace element lead also was less than 0.995. It is recommended to estimate (J^2) positive results for lead in the associated sample, 20MW4(2-4).

The 2 X CRDL standard was high for selenium (125%). Positive results less than 3 X CRDL should be considered estimated (J^2) due to poor linearity near the CRDL. All samples are associated, with the following exceptions: 20MW3(2-4), 20MW2(0-2), 20TB2(2-4), and 20MW6(2-4).

The 2 X CRDL standard was low for lead (61.7%). No samples were associated with this standard, so no action is necessary. The 2 X CRDL standard was low for cadmium (78.3%) and chromium (74.8%). Positive results less than 3 X CRDL and non-detected results in the associated samples should be considered estimated (J^2, UJ^2) due to poor linearity near the CRDL. All soil samples are associated.

Laboratory Blank Results

The calibration blanks, equipment blanks, and preparation blanks contained low levels of several metals. For water samples, only the calibration and preparation blanks are used to determine the action levels. For soil samples, the equipment blanks must also be considered. Therefore, separate action levels were established for soil and water samples.

The following table lists the maximum concentration of each metal found in any laboratory blank with the resultant water action levels. The action level is calculated as 5X the maximum concentration found in any blank. Sample results less than 5X the maximum concentration found in any blank may be due to contamination or instrumental problems, and thus may not be indicative of the actual concentration of the native sample.

Element	Concentration (μg/L)	Water Action Level (μg/L)
Aluminum	25.7	128.5
Antimony	12.7	63.5
Barium	4.6	23.0
Beryllium	0.3	1.5

Continued . . .

Element	Concentration (µg/L)	Water Action Level (µg/L)
Boron	22.5	112.5
Calcium	39.2	195.8
Cobalt	3.0	15.0
Chromium	5.6	28.0
Iron	87.7	438.5
Manganese	1.6	8.0
Mercury	0.1	0.5
Lead	1.0	5.0
Sodium	58.1	290.5
Vanadium	5.4	27
Zinc	7.16	35.8

The following table lists the maximum concentration of each metal found in any laboratory or equipment blank, and the soil action levels. In this case, due to sample preparation factors, the concentration is equivalent to the action level:

Element	Concentration(µg/L)/Soil Action Level (µg/Kg)
Aluminum	27.2
Antimony	12.7
Barium	4.6
Beryllium	0.3
Boron	21.6
Calcium	52.7
Chromium	5.6
Cobalt	3.0
Copper	1.6
Iron	99.8
Lead	0.7
Manganese	1.6
Mercury	0.1
Selenium	1.1
Sodium	58.1
Thallium	0.65
Vanadium	5.4
Zinc	7.16

The action level values were compared to the sample values after application of sample preparation and dilution factors, and sample results less than the action level were reported as not detected (UJ[3]) (see Sample Data Sheets attached to this report).

Method Blank/Spike Results

A laboratory control sample was analyzed with each batch of field samples. The LCS results were plotted on control charts, and satisfy the NEESA QC requirement for the method blank/spike control program. The LCS results are discussed elsewhere in this report.

Interference Check Standard Results

The ICP interference check sample results were reviewed and all recoveries met required criteria. The ICS solutions were analyzed at the proper frequency. Several elements were detected in the ICS that should not have been present. However, no action was required because levels of interferents in the samples were less than 50% of levels in the ICS.

Matrix Spike Results

As mentioned previously, the case narrative stated that "matrix QC was not requested to be performed on any samples associated with this SDG." As a result, matrix interference was not evaluated. The laboratory is required to submit at least batch QC to demonstrate contractual compliance. The validation guidelines do not provide recommended actions for when matrix xpikes are not performed. Since matrix effeccts could not be evaluated, it is recommended to estimate (J[5], UJ[5]) all positive and non-detected results in all samples.

Field Duplicate Results

No field duplicate samples were submitted with this case.

Laboratory Duplicate Results

As mentioned previously, no laboratory duplicate samples were analyzed or submitted with this case. Since the precision is unknown, it is recommended to estimate (J^6) all positive results in all samples.

Laboratory Control Sample Results

The laboratory control sample (LCS) results were reviewed, and the criteria were met for all parameters.

ICP Serial Dilution Results

The ICP serial dilution analysis was evaluated and the results met the acceptance criteria.

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. Duplicate injections did not agree within $\pm$ 20% for lead and selenium in several samples. The associated actions are as follows:

- For lead, estimate (J^9) positive results the samples ER5 and ER7.
- For selenium, estimate (J^9) positive results in the sample 20MW3(8-10).

Several analytical spike recoveries for arsenic, selenium, and thallium did not meet the criterion of ± 15%. The associated actions are as follows:

- For arsenic, estimate (J^{10}) positive results on the samples 20MW5(0-2), 20MW5(6-8), 20TB5(0-2), 20TB5(4-6), 20TB3(2-4), 20MW7(2-4), and 20MW7(4-6), and reject (R^6) positive results in the sample 20MW6(2-4).
- For selenium and thallium, estimate (UJ^{10}) non-detected results in the sample 20MW6(2-4).

Instrument Detection Limits

Instrument Detection Limits (IDLs) were reviewed and found to meet all criteria.

Calculations and Transcriptions

A spot check of calculations and transcriptions was performed and no problems were noted.

Data Assessment

This case did not contain any dilution, reextraction, or reanalysis. No recommendations are necessary.

Organic Section prepared by:

JAS for

Elissa McDonagh

Elissa McDonagh

Organic Data Validator

Inorganic Section prepared by:

JAS for

Karen Stone

Karen Stone

Inorganic Data Validator

Report reviewed and approved by:

June A Schneider

June A. Schneider

Data Validation Manager

JAS for

David M. Mauro

David M. Mauro

Vice President

META Environmental, Inc.

TABLE 1:

TENTATIVELY IDENTIFIED COMPOUND SUMMARY:
NOT SUBMITTED - ALL RESULTS REJECTED

GLOSSARY OF TERMS

GLOSSARY OF TERMS

(In alphabetical order)

ABN	Acid/Base-Neutral. An extraction and analytical method for the determination of semivolatile organic compounds, or a sample extracted and analyzed by that method. Also: BNA, semivolatile, SVOC.
ASP	Analytical Services Protocol. The NYSDEC statement of work.
BFB	Bromofluorobenzene. The compound used for initial tuning of the GC/MS system, prior to the analysis of volatile organic compounds.
CC	Continuing Calibration. A standard solution of organic compounds of known concentration is analyzed periodically to check the continued calibration of the system.
CF	Calibration Factor. In pesticide/PCB analyses, the calibration factor is the area of the standard compound divided by the concentration of that compound in the standard.
CCC	Calibration Check Compound. Any one of a defined subgroup of compounds present in the calibration standards. Used to check the acceptability of instrument performance.
CCV	Continuing Calibration Verfication. A standard solution of inorganic compounds of known concentration is analyzed periodically during sample analyses to verify the continued calibration of the instrument.
CLP	Contract Laboratory Program. The U.S. EPA program that defines analytical, QC, and reporting procedures to generate high quality, defensible data. CLP also has associated the most highly developed and regulated set of data validation guidelines, on which most data validation decisions are based.
COC	Chain of Custody. The documentation that details the history of a given sample, from the time it is collected until the time it has been analyzed.
CRDL	Contract Required Detection Limit. As defned by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the inorganic analyte of interest. Results below the CRDL are reported, but as estimated values.

GLOSSARY OF TERMS

CRQL	Contract Required Quantitation Limit. As defined by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the organic compound of interest. Results below the CRQL are reported, but as estimated values.
CRR	Contract Required Recovery range. As defined in the U.S. EPA Region I Functional Guidelines for Evaluating Organics Analyses (11/88), the acceptable recovery range for surrogate spike and matrix spike compounds.
DFTPP	Decafluorotriphenylphosphine. The compound used for initial tuning of the GC/MS system, prior to the analysis of semivolatile organic compounds.
EICP	Extracted Ion Current Profiles. Recommended by the U.S. EPA CLP and required by the NYSDEC ASP, the EICP displays the chromatographic peak specific to a m/z ion in a GC/MS analysis.
EPA	Environmental Protection Agency. The United States federal agency governing environmental concerns.
FP	False Positive. Used to designate as non-detect any compound incorrectly identified by the computer.
GC/MS	Gas Chromatography/Mass Spectrometry. An analytical technique used commonly for the determination of volatile and semivolatile organic compounds.
HT	Holding Time. The contractually defined time in which a sample must be extracted and/or analyzed by the analytical laboratory. Generally calculated from date of sampling.
IC	Initial Calibration. A series of standard solutions of organic compounds are analyzed at different concentration levels to define the initial linearity of the analytical system.
ICV	Initial Calibration Verification. A standard solution of inorganic compounds is analyzed immediately following instrument calibration to confirm the accuracy of that calibration.

GLOSSARY OF TERMS

IDL — Instrument Detection Limit. The lowest concentration at which a particular instrument can reliably detect a given analyte. As differs from the CRQL which is the lowest concentration at which a given analyte may be reliably quantitated. IDLs vary from instrument to instrument, and their determination is required by NYSDEC.

MS/MSD — Matrix Spike/Matrix Spike Duplicate. Prior to extraction, a known quantity of several analytes is spiked into a sample. The sample is analyzed in duplicate and %Recs and RPDs are calculated. Used to monitor matrix effects of the native sample upon the observed sample results.

MSB — Matrix Spike Blank. An aliquot of contaminant-free soil or water is spiked with a known quantity of several analytes. The MSB is analyzed and %Recs are calculated. Required by NYSDEC.

NEESA — Naval Energy and Environmental Support Activity. The regulatory agency for the Navy Installation Restoration Program.

NYSDEC — New York State Department of Environmental Conservation. The New York State agency governing environmental concerns.

%D — Percent Difference. A measure of the variance between two results, relative to the first result.

$$\%D = \frac{R_1 - R_2}{R_2} \times 100$$

where, R_1 is the first result and R_2 is the second result.

%Rec — Percent Recovery. A measure of the recovery of a known amount of analyte.

$$\%Rec = \frac{A_r}{A_s} \times 100$$

where, A_r is the amount recovered and A_s is the amount spiked. (When calculating matrix spike recoveries, the amount of analyte present in the unspiked sample must first be subtracted from the amount recovered).

GLOSSARY OF TERMS

%RSD — Percent Relative Standard Deviation. A measure of the variance between multiple results.

$$\%RSD = \frac{SD}{X} \times 100$$

where, SD is the standard deviation and X is the mean of the values.

PEST — Pesticide/PCB. An extraction and analytical method for the detremination of pesticide and/or PCB compounds, or a sample extracted and analyzed by that method. Also: Pest/PCB, PCB.

QA — Quality Assurance. The system of management that guarantees high quality data output.

QC — Quality Control. Any system of analytical tests and checks that monitors the progress of the data, leading to high quality data output. May also refer to the criteria by which those tests and checks are evaluated.

RPD — Relative Percent Difference. A measure of precision comparing two results.

$$RPD = \frac{D_1 - D_2}{(D_1 + D_2)/2} \times 100$$

where, D_1 is the result from sample 1 and D_2 is the result from sample 2.

RRF — Relative Response Factor. A measure of the response of the instrument to a given compound relative to the response of the instrument to a standard compound.

RT — Retention Time. In GC, the time it takes for a given analyte to move through the analytical system to the detector.

SD — Standard Deviation. In statistics, the standard deviation is a measure of the dispersion of all values around the mean value.

GLOSSARY OF TERMS

$$SD = \frac{\sqrt{(n\Sigma x^2 - (\Sigma x)^2)}}{n(n-1)}$$

where n = number of values and x = individual values.

SOW — Statement of Work. A document describing in detail the contractual obligations of the laboratory to the contractor with regards to analytical methods, reporting requirements, and QC, financial, and litigational obligations.

TAL — Target Analyte List. The list that defines the specific inorganic parameters of interest in a given analysis.

TCL — Target Compound List. The list that defines the specific organic compounds of interest in a given analysis.

TIC — Tentatively Identified Compound. Any non-TCL compound which is detected during sample analysis and identified by mass spectral matching alone.

VOA — Volatile Organic Compound Analysis. An analytical method for the determination of volatile organic compounds, or a sample analyzed by that method. Also: VOC.

VTSR — Verified Time of Sample Receipt. The date and time a group of samples is accepted at the analytical laboratory. Appears on the COC. NYSDEC calculates holding times from VTSR rather than from sampling date.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES

____	A blank space denotes no change to the laboratory reported result.
J^1, UJ^1	Holding times have been exceeded: estimate positive results (J^1) and non-detects (UJ^1). Refer to Section on "Holding Times" for details.
J^2, R^2	The initial or continuing calibration RF was low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on GC/MS "Calibration" for details.
J^3	The initial calibration %RSD was high: estimate positive results (J^3). Refer to Section on GC/MS "Calibration" for details.
J^4, UJ^4	The initial calibration %RSD was greater than 50% or the continuing calibration %D was greater than 25%: estimate positive results (J^4) and non-detects (UJ^4). Refer to Section on GC/MS "Calibration" for details.
U^5	Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U^5). Refer to Section on "Blanks" for details.
U^6	Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U^6). (i.e., the Limit of Detection has been raised for that compound, and the result is considered to be non-detect). Refer to Section on "Blanks" for details.
J^7	One or more of the surrogate standard %Recs was greater than the Contract Required Recovery range (CRR): estimate positive results within that area of the chromatogram (J^7). Refer to Section on "Surrogate Recoveries" for details.
J^8, UJ^8	One or more of the surrogate standard %Recs was less than the CRR: estimate positive results (J^8) and non-detects (UJ^8) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.
J^9	One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{10}	The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) %Recs were not within the CRR for this compound: estimate positive results in the unspiked sample (J^{10}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{11}	The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{12}	The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J^{12}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{13}	Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J^{13}). Refer to Section on "Field Duplicates" for details.
J^{14}, UJ^{14}	One value was non-detect and the other value was greater than the CRQL for this compound in the field duplicate pair: estimate the positive (J^{14}) and non-detected (UJ^{14}) results for that compound. Refer to Section on "Field Duplicates" for details.
J^{15}, UJ^{15}	One or more Internal Standard (IS) areas were not within the CRR: estimate positive results (J^{15}) and non-detects (UJ^{15}) for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{16}, R^5	One or more IS areas were grossly low: estimate (J^{16}) positive results and reject (R^5) non-detected results for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{17}, JN^{17}, R^6	% Breakdown for DDT exceeded 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.
J^{18}, JN^{18}, R^7	% Breakdown for endrin exceeded 20%: estimate positive results for endrin (J^{18}), and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{19} Initial calibration %RSD for this compound exceeded 10%: estimate positive results (J^{19}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{20} Continuing calibration %D for this compound exceeded 15% (quantitation column) and/or 20% (confirmation column): estimate positive results (J^{20}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{21} The %RSD for this unspiked compound in the sample/MS/MSD set exceeded the advisory criterion of < 30% for aqueous samples or < 50% for soil samples: estimate (J^{21}) positive results for that compound in the sample, MS, and MSD. Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

J^{22} The continuing calibration %D exceeded 25% for a surrogate standard compound: estimate (J^{22}) positive results for all compounds associated with the out of control surrogate in the affected samples. Refer to Section on GC/MS "Calibration" for details.

R^1 Holding times have been grossly exceeded: reject all non-detects (R^1).

R^2 The initial or continuing calibration RFs were low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on "GC/MS Calibration" for details.

R^3 One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

R^4 The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R^5 One or more IS areas were grossly low: reject non-detects (R^5). Refer to Section on "Internal Standard Performance" for details.

R^6 % Breakdown for DDT was greater than 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

R^7 % Breakdown for endrin was greater than 20%: estimate positive results for endrin (J^{18}) and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

SAMPLE DATA SHEETS:

VOLATILE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No. : MW612

Sample ID:	20MW2(0-2)			20MW2(14-16)			20MW3(2-4)			20MW3(8-10)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	11			12			11			11		
Bromomethane	11			12			11			11		
Vinyl Chloride	11			12			11			11		
Chloroethane	11			12			11			11		
Methylene Chloride	11	5J	11U5	12	6J	12U5	11	6J	11U5	11	6J	11U5
Acetone	11	14	J3, 14U6	12	9J	J3, 12U5	11	12	J3, 12U6	11	19	J3, 19U6
Carbon Disulfide	11			12			11			11		
1,1-Dichloroethene	11			12			11			11		
1,1-Dichloroethane	11			12			11			11		
1,2- Dichloroethene(total)	11			12			11			11		
Chloroform	11			12			11			11		
1,2-Dichloroethane	11			12			11			11		
2-Butanone	11			12			11			11		
1,1,1-Trichloroethane	11			12			11			11		
Carbon Tetrachloride	11			12			11			11		
Vinyl Acetate	11			12			11			11		
Bromodichloromethane	11			12			11			11		
1,2-Dichloropropane	11			12			11			11		
cis-1,3-Dichloropropene	11			12			11			11		
Trichlorethene	11			12			11			11		
Dibromochloromethane	11			12			11			11		
1,1,2-Trichloroethane	11			12			11			11		
Benzene	11			12			11			11		
trans-1,3-Dichloropropene	11			12			11			11		
Bromoform	11			12			11			11		
4-Methyl-2-pentanone	11			12			11			11		
2-Hexanone	11			12			11			11		
Tetrachloroethane	11			12			11			11		
1,1,2,2-Tetrachloroethane	11			12			11			11		
Toluene	11			12			11			11		
Chlorobenzene	11			12			11			11		
Ethylbenzene	11			12			11			11		
Styrene	11			12			11			11		
Total Xylenes	11			12			11			11		
Dilution Factor:		1			1			1			1	
Matrix:		Soil			Soil			Soil			Soil	
Units:		ug/Kg			ug/Kg			ug/Kg			ug/Kg	

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No. : MW612

Sample ID:	20MW4(2-4)			20MW4(4-6)			20MW5(0-2)			20MW5(6-8)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	11			11			11			12		
Bromomethane	11			11			11			12		
Vinyl Chloride	11			11			11			12		
Chloroethane	11			11			11			12		
Methylene Chloride	11	8J	11U5	11	8J	11U5	11	7J	11U5	12	13	13U6
Acetone	11	18	J3, 18U6	11	17	J3, 17U6	11	32	J3, 32U6	12	35	J3, 35U6
Carbon Disulfide	11			11			11			12	7J	
1,1-Dichloroethene	11			11			11			12		
1,1-Dichloroethane	11			11			11			12		
1,2- Dichloroethene(total)	11			11			11			12		
Chloroform	11			11			11			12		
1,2-Dichloroethane	11			11			11			12		
2-Butanone	11			11			11			12		
1,1,1-Trichloroethane	11			11			11			12		
Carbon Tetrachloride	11			11			11			12		
Vinyl Acetate	11			11			11			12		
Bromodichloromethane	11			11			11			12		
1,2-Dichloropropane	11			11			11			12		
cis-1,3-Dichloropropene	11			11			11			12		
Trichlorethene	11			11			11			12		
Dibromochloromethane	11			11			11			12		
1,1,2-Trichloroethane	11			11			11			12		
Benzene	11			11			11			12		
trans-1,3-Dichloropropene	11			11			11			12		
Bromoform	11			11			11			12		
4-Methyl-2-pentanone	11			11			11			12		
2-Hexanone	11			11			11			12		
Tetrachloroethane	11			11			11			12		
1,1,2,2-Tetrachloroethane	11			11			11			12		
Toluene	11			11			11			12		
Chlorobenzene	11			11			11			12		
Ethylbenzene	11			11			11			12		
Styrene	11			11			11			12		
Total Xylenes	11			11			11			12		
Dilution Factor:		1			1			1			1	
Matrix:		Soil			Soil			Soil			Soil	
Units:		ug/Kg			ug/Kg			ug/Kg			ug/Kg	

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No. : MW612

Sample ID:	20MW6(12-14)			20MW6(2-4)			20MW7(2-4)			20MW7(4-6)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	11			12			11			12		
Bromomethane	11			12			11			12		
Vinyl Chloride	11			12			11			12		
Chloroethane	11			12			11			12		
Methylene Chloride	11	11	11U5	12	9J	12U5	11	8J	11U5	12	8J	12U5
Acetone	11	20	J3, 20U6	12	12	J3, 12U5	11	26	J3, 26U6	12	20	J3, 20U6
Carbon Disulfide	11			12			11			12		
1,1-Dichloroethene	11			12			11			12		
1,1-Dichloroethane	11			12			11			12		
1,2- Dichloroethene(total)	11			12			11			12		
Chloroform	11			12			11			12		
1,2-Dichloroethane	11			12			11			12		
2-Butanone	11			12			11			12		
1,1,1-Trichloroethane	11			12			11			12		
Carbon Tetrachloride	11			12			11			12		
Vinyl Acetate	11			12			11			12		
Bromodichloromethane	11			12			11			12		
1,2-Dichloropropane	11			12			11			12		
cis-1,3-Dichloropropene	11			12			11			12		
Trichlorethene	11			12			11			12		
Dibromochloromethane	11			12			11			12		
1,1,2-Trichloroethane	11			12			11			12		
Benzene	11			12			11			12		
trans-1,3-Dichloropropene	11			12			11			12		
Bromoform	11			12			11			12		
4-Methyl-2-pentanone	11			12			11			12		
2-Hexanone	11			12			11			12		
Tetrachloroethane	11			12			11			12		
1,1,2,2-Tetrachloroethane	11			12			11			12		
Toluene	11			12			11			12		
Chlorobenzene	11			12			11			12		
Ethylbenzene	11			12			11			12		
Styrene	11			12			11			12		
Total Xylenes	11			12			11			12		
Dilution Factor:		1			1			1			1	
Matrix:		Soil			Soil			Soil			Soil	
Units:		ug/Kg			ug/Kg			ug/Kg			ug/Kg	

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No. : MW612

Sample ID:	20TB2(14-16)			20TB2(2-4)			20TB3(10-12)			20TB3(2-4)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	11			10			11			11		
Bromomethane	11			10			11			11		
Vinyl Chloride	11			10			11			11		
Chloroethane	11			10			11			11		
Methylene Chloride	11	5J	11U5	10	5J	10U5	11	4J	11U5	11	5J	11U5
Acetone	11	17	J3, 17U6	10	13	J3, 13U6	11	20	J3, 20U6	11	19	J3, 19U6
Carbon Disulfide	11			10			11			11		
1,1-Dichloroethene	11			10			11			11		
1,1-Dichloroethane	11			10			11			11		
1,2- Dichloroethene(total)	11			10			11			11		
Chloroform	11			10			11			11		
1,2-Dichloroethane	11			10			11			11		
2-Butanone	11			10			11			11		
1,1,1-Trichloroethane	11			10			11			11		
Carbon Tetrachloride	11			10			11			11		
Vinyl Acetate	11			10			11			11		
Bromodichloromethane	11			10			11			11		
1,2-Dichloropropane	11			10			11			11		
cis-1,3-Dichloropropene	11			10			11			11		
Trichlorethene	11			10			11			11		
Dibromochloromethane	11			10			11			11		
1,1,2-Trichloroethane	11			10			11			11		
Benzene	11			10			11			11		
trans-1,3-Dichloropropene	11			10			11			11		
Bromoform	11			10			11			11		
4-Methyl-2-pentanone	11			10			11			11		
2-Hexanone	11			10			11			11		
Tetrachloroethane	11			10			11			11		
1,1,2,2-Tetrachloroethane	11			10			11			11		
Toluene	11			10			11			11		
Chlorobenzene	11			10			11			11		
Ethylbenzene	11			10			11			11		
Styrene	11			10			11			11		
Total Xylenes	11			10			11			11		
Dilution Factor:		1			1			1			1	
Matrix:		Soil			Soil			Soil			Soil	
Units:		ug/Kg			ug/Kg			ug/Kg			ug/Kg	

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine base, Groton, CT
SDG No. : MW612

Sample ID:	20MW4(2-4)MS			20MW4(2-4)MSD			ER5			ER7		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	11			11			2			2		
Bromomethane	11			11			2			2		
Vinyl Chloride	11			11			2			2		
Chloroethane	11			11			2			2		
Methylene Chloride	11	8J	11U5	11	8J	11U5	2	1		2	6	
Acetone	11	15	J3, 15U6	11	25	J3, 25U6	5	12		5	42	
Carbon Disulfide	11			11			1			1		
1,1-Dichloroethene	11	*		11	*		1			1		
1,1-Dichloroethane	11			11			1			1		
1,2- Dichloroethene(total)	11			11			1			1		
Chloroform	11			11			1			1	4	
1,2-Dichloroethane	11			11			1			1		
2-Butanone	11			11			5			5	7	
1,1,1-Trichloroethane	11			11			1			1		
Carbon Tetrachloride	11			11			1			1		
Vinyl Acetate	11			11			5			5		
Bromodichloromethane	11			11			1			1		
1,2-Dichloropropane	11			11			1			1		
cis-1,3-Dichloropropene	11			11			1			1		
Trichlorethene	11	*		11	*		1			1		
Dibromochloromethane	11			11			1			1		
1,1,2-Trichloroethane	11			11			1			1		
Benzene	11	*		11	*		1			1		
trans-1,3-Dichloropropene	11			11			1			1		
Bromoform	11			11			1			1		
4-Methyl-2-pentanone	11			11			5			5		
2-Hexanone	11			11			5			5		
Tetrachloroethane	11			11			1			1		
1,1,2,2-Tetrachloroethane	11			11			1			1		
Toluene	11	*		11	*		1	4		1		
Chlorobenzene	11	*		11	*		1			1		
Ethylbenzene	11			11			1			1		
Styrene	11			11			1			1		
Total Xylenes	11			11			1	3		1		
Dilution Factor:		1			1			1			1	
Matrix:		Soil			Soil			Water			Water	
Units:		ug/Kg			ug/Kg			ug/L			ug/L	

* Indic[illegible] matrix spike compound.

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine base, Groton, CT
SDG No. : MW612

Sample ID:	TB5			TB6								
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	2			2			2			2		
Bromomethane	2			2			2			2		
Vinyl Chloride	2			2			2			2		
Chloroethane	2			2			2			2		
Methylene Chloride	2	1		2	1		2			2		
Acetone	5			5			5			5		
Carbon Disulfide	1			1			1			1		
1,1-Dichloroethene	1			1			1			1		
1,1-Dichloroethane	1			1			1			1		
1,2- Dichloroethene(total)	1			1			1			1		
Chloroform	1			1			1			1		
1,2-Dichloroethane	1			1			1			1		
2-Butanone	5			5			5			5		
1,1,1-Trichloroethane	1			1			1			1		
Carbon Tetrachloride	1			1			1			1		
Vinyl Acetate	5			5			5			5		
Bromodichloromethane	1			1			1			1		
1,2-Dichloropropane	1			1			1			1		
cis-1,3-Dichloropropene	1			1			1			1		
Trichlorethene	1			1			1			1		
Dibromochloromethane	1			1			1			1		
1,1,2-Trichloroethane	1			1			1			1		
Benzene	1			1			1			1		
trans-1,3-Dichloropropene	1			1			1			1		
Bromoform	1			1			1			1		
4-Methyl-2-pentanone	5			5			5			5		
2-Hexanone	5			5			5			5		
Tetrachloroethane	1			1			1			1		
1,1,2,2-Tetrachloroethane	1			1			1			1		
Toluene	1			1			1			1		
Chlorobenzene	1			1			1			1		
Ethylbenzene	1			1			1			1		
Styrene	1			1			1			1		
Total Xylenes	1			1			1			1		

Dilution Factor:	1	1
Matrix:	Water	Water
Units:	ug/L	ug/L

META

SAMPLE DATA SHEETS:

SEMIVOLATILE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW2(0-2)			20MW2(14-16)			20MW3(2-4)			20MW3(8-10)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	340			400			11000			1500		
bis(2-Chloroethyl)ether	340			400			11000			1500		
2-Chlorophenol	340			400			11000			1500		
1,3-Dichlorobenzene	340			400			11000			1500		
1,4-Dichlorobenzene	340			400			11000			1500		
1,2-Dichlorobenzene	340			400			11000			1500		
2-Methylphenol	340			400			11000			1500		
2,2'-oxybis(1-Chloropropane)	340		UJ4	400		UJ4	11000		UJ4	1500		UJ4
4-Methylphenol	340			400			11000			1500		
n-Nitroso-di-n-propylamine	340			400			11000			1500		
Hexachloroethane	340			400			11000			1500		
Nitrobenzene	340			400			11000			1500		
Isophorone	340			400			11000			1500		
2-Nitrophenol	340			400			11000			1500		
2,4-Dimethylphenol	340			400			11000			1500		
bis(2-Chloroethoxy)methane	340			400			11000			1500		
2,4-Dichlorophenol	340			400			11000			1500		
1,2,4-Trichlorobenzene	340			400			11000			1500		
Naphthalene	340			400			11000			1500		
4-Chloroaniline	340			400			11000			1500		
Hexachlorobutadiene	340			400			11000			1500		
4-Chloro-3-methylphenol	340			400			11000			1500		
2-Methylnaphthalene	340			400			11000			1500		
Hexachlorocyclopentadiene	340		UJ4	400		UJ4	11000			1500		UJ4
2,4,6-Trichlorophenol	340			400			11000			1500		
2,4,5-Trichlorophenol	830			960			27000			1500		
2-Chloronaphthalene	340			400			11000			1500		
2-Nitroaniline	830			960			27000			1500		
Dimethylphthalate	340			400			11000			1500		
Acenaphthalene	340			400			11000			1500		
2,6-Dinitrotoluene	340			400			11000			1500		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW2(0-2)			20MW2(14-16)			20MW3(2-4)			20MW3(8-10)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	830			960			27000			1500		
Acenaphthene	340			400			11000			1500	1100J	J22
2,4-Dinitrophenol	830		UJ4	960		UJ4	27000			1500		UJ4
4-Nitrophenol	830		UJ4	960		UJ4	27000			1500		UJ4
Dibenzofuran	340			400			11000			1500		
2,4-Dinitrotoluene	340			400			11000			1500		
Diethylphthalate	340			400			11000			1500		
4-Chlorophenyl-phenylether	340			400			11000			1500		
Fluorene	340			400			11000			1500	1200J	J22
4-Nitroaniline	830			960			27000			1500		
4,6-Dinitro-2-methylphenol	830		UJ4	960		UJ4	27000			1500		UJ4
n-Nitrosodiphenylamine	340			400			11000			1500		
4-Bromophenyl-phenylether	340			400			11000			1500		
Hexachlorobenzene	340			400			11000			1500		
Pentachlorophenol	830			960			27000			1500		
Phenanthrene	340	220J		400			11000	13000		1500		
Anthracene	340			400			11000			1500		
Carbazole	340			400			11000			1500		
di-n-Butylphthalate	340			400			11000			1500		
Fluoranthene	340	670		400			11000	15000		1500	2100	J22
Pyrene	340	650		400			11000	9400J	J3	1500	1200J	
Butylbenzylphthalate	340			400			11000			1500		
3,3'-Dichlorobenzidine	340			400			11000			1500		
Benzo(a)anthracene	340	350		400			11000			1500		
Chrysene	340	350		400			11000			1500		
bis(2-Ethylhexyl)phthalate	340			400			11000			1500		
di-n-Octylphthalate	340		UJ15	400			11000			1500		UJ15
Benzo(b)fluoranthene	340	430	J15	400			11000	9500J		1500		UJ15
Benzo(k)fluoranthene	340	330J	J15	400			11000			1500		UJ15
Benzo(a)pyrene	340	380	J15	400			11000			1500		UJ15
Indeno(1,2,3-cd)pyrene	340		UJ15	400			11000			1500		UJ15
Dibenzo(a,h)anthracene	340		UJ15	400			11000			1500		UJ15
Benzo(g,h,i)perylene	340		UJ15	400			11000			1500		UJ15
Dilution Factor:		1			1			30			4	
Matrix:		Soil			Soil			Soil			Soil	
Units:		ug/Kg			ug/Kg			ug/Kg			ug/Kg	

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW4(2-4)			20MW4(4-6)			20MW5(0-2)			20MW5(6-8)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	360			380		UJ8	350			1500		
bis(2-Chloroethyl)ether	360			380		UJ8	350			1500		
2-Chlorophenol	360			380		UJ8	350			1500		
1,3-Dichlorobenzene	360			380		UJ8	350			1500		
1,4-Dichlorobenzene	360			380		UJ8	350			1500		
1,2-Dichlorobenzene	360			380		UJ8	350			1500		
2-Methylphenol	360			380		UJ8	350			1500		
2,2'-oxybis(1-Chloropropane)	360		UJ4	380		UJ4,8	350		UJ4	1500		UJ4
4-Methylphenol	360			380		UJ8	350			1500		
n-Nitroso-di-n-propylamine	360			380		UJ8	350			1500		
Hexachloroethane	360			380		UJ8	350			1500		
Nitrobenzene	360			380		UJ8	350			1500		
Isophorone	360			380		UJ8	350			1500		
2-Nitrophenol	360			380		UJ8	350			1500		
2,4-Dimethylphenol	360			380		UJ8	350			1500		
bis(2-Chloroethoxy)methane	360			380		UJ8	350			1500		
2,4-Dichlorophenol	360			380		UJ8	350			1500		
1,2,4-Trichlorobenzene	360			380		UJ8	350			1500		
Naphthalene	360			380		UJ8	350			1500		
4-Chloroaniline	360			380		UJ8	350			1500		
Hexachlorobutadiene	360			380		UJ8	350			1500		
4-Chloro-3-methylphenol	360			380		UJ8	350			1500		
2-Methylnaphthalene	360			380		UJ8	350			1500		
Hexachlorocyclopentadiene	360		UJ4	380		UJ4	350			1500		UJ4
2,4,6-Trichlorophenol	360			380			350			1500		
2,4,5-Trichlorophenol	860			910			860			3700		
2-Chloronaphthalene	360			380			350			1500		
2-Nitroaniline	860			910			860			3700		
Dimethylphthalate	360			380			350			1500		
Acenaphthalene	360			380			350			1500		
2,6-Dinitrotoluene	360			380			350			1500		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW4(2-4)			20MW4(4-6)			20MW5(0-2)			20MW5(6-8)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	860			910			860			3700		
Acenaphthene	360			380			350			1500		
2,4-Dinitrophenol	860		UJ4	910		UJ4	860			3700		UJ4
4-Nitrophenol	860		UJ4	910		UJ4	860			3700		UJ4
Dibenzofuran	360			380			350			1500		
2,4-Dinitrotoluene	360			380			350			1500		
Diethylphthalate	360			380			350			1500		
4-Chlorophenyl-phenylether	360			380			350			1500		
Fluorene	360			380			350			1500		
4-Nitroaniline	860			910			860			3700		
4,6-Dinitro-2-methylphenol	860		UJ4	910		UJ4	860			3700		UJ4
n-Nitrosodiphenylamine	360			380			350			1500		
4-Bromophenyl-phenylether	360			380			350			1500		
Hexachlorobenzene	360			380			350			1500		
Pentachlorophenol	860			910			860			3700		
Phenanthrene	360			380			350	310J		1500		
Anthracene	360			380			350			1500		
Carbazole	360			380			350			1500		
di-n-Butylphthalate	360			380			350			1500		
Fluoranthene	360	200J	J22	380			350	910		1500	1200J	J22
Pyrene	360			380			350	860	J3	1500	850J	
Butylbenzylphthalate	360			380			350			1500		
3,3'-Dichlorobenzidine	360			380			350			1500		
Benzo(a)anthracene	360			380			350	570	J3	1500		
Chrysene	360			380			350	690		1500		
bis(2-Ethylhexyl)phthalate	360			380			350			1500		
di-n-Octylphthalate	360		UJ15	380			350			1500		
Benzo(b)fluoranthene	360		UJ15	380			350	1400		1500		
Benzo(k)fluoranthene	360		UJ15	380			350			1500		
Benzo(a)pyrene	360		UJ15	380			350	700		1500		
Indeno(1,2,3-cd)pyrene	360		UJ15	380			350	450		1500		
Dibenzo(a,h)anthracene	360		UJ15	380			350	190J	R8	1500		
Benzo(g,h,i)perylene	360		UJ15	380			350	560		1500		
Dilution Factor:	1			1			1			4		
Matrix:	Soil			Soil			Soil			Soil		
Units:	ug/Kg			ug/Kg			ug/Kg			ug/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW6(12-14)			20MW6(2-4)			20MW7(2-4)			20MW7(4-6)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	370			11000		UJ1	370			370		
bis(2-Chloroethyl)ether	370			11000		UJ1	370			370		
2-Chlorophenol	370			11000		UJ1	370			370		
1,3-Dichlorobenzene	370			11000		UJ1	370			370		
1,4-Dichlorobenzene	370			11000		UJ1	370			370		
1,2-Dichlorobenzene	370			11000		UJ1	370			370		
2-Methylphenol	370			11000		UJ1	370			370		
2,2'-oxybis(1-Chloropropane)	370		UJ4	11000		UJ1,4	370			370		UJ4
4-Methylphenol	370			11000		UJ1	370			370		
n-Nitroso-di-n-propylamine	370			11000		UJ1	370			370		
Hexachloroethane	370			11000		UJ1	370			370		
Nitrobenzene	370			11000		UJ1	370			370		
Isophorone	370			11000		UJ1	370			370		
2-Nitrophenol	370			11000		UJ1	370			370		
2,4-Dimethylphenol	370			11000		UJ1	370			370		
bis(2-Chloroethoxy)methane	370			11000		UJ1	370			370		
2,4-Dichlorophenol	370			11000		UJ1	370			370		
1,2,4-Trichlorobenzene	370			11000		UJ1	370			370		
Naphthalene	370			11000		UJ1	370			370		
4-Chloroaniline	370			11000		UJ1	370			370		
Hexachlorobutadiene	370			11000		UJ1	370			370		
4-Chloro-3-methylphenol	370			11000		UJ1	370			370		
2-Methylnaphthalene	370			11000		UJ1	370			370		
Hexachlorocyclopentadiene	370		UJ4	11000		UJ1	370		UJ4	370		UJ4
2,4,6-Trichlorophenol	370			11000		UJ1	370			370		
2,4,5-Trichlorophenol	900			28000		UJ1	900			900		
2-Chloronaphthalene	370			11000		UJ1	370			370		
2-Nitroaniline	900			28000		UJ1	900			900		
Dimethylphthalate	370			11000		UJ1	370			370		
Acenaphthalene	370			11000		UJ1	370			370		
2,6-Dinitrotoluene	370			11000		UJ1	370			370		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW6(12-14)			20MW6(2-4)			20MW7(2-4)			20MW7(4-6)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	900			28000		UJ1	900			900		
Acenaphthene	370			11000		UJ1	370			370		
2,4-Dinitrophenol	900		UJ4	28000		UJ1	900			900		UJ4
4-Nitrophenol	900		UJ4	28000		UJ1	900			900		UJ4
Dibenzofuran	370			11000		UJ1	370			370		
2,4-Dinitrotoluene	370			11000		UJ1	370			370		
Diethylphthalate	370			11000		UJ1	370			370		
4-Chlorophenyl-phenylether	370			11000		UJ1	370			370		
Fluorene	370			11000		UJ1	370			370		
4-Nitroaniline	900			28000		UJ1	900			900		
4,6-Dinitro-2-methylphenol	900		UJ4	28000		UJ1	900			900		UJ4
n-Nitrosodiphenylamine	370			11000		UJ1	370			370		
4-Bromophenyl-phenylether	370			11000		UJ1	370			370		
Hexachlorobenzene	370			11000		UJ1	370			370		
Pentachlorophenol	900			28000		UJ1	900			900		
Phenanthrene	370	400	J22	11000	7600J	J1	370			370		
Anthracene	370			11000		UJ1	370			370		
Carbazole	370			11000		UJ1	370			370		
di-n-Butylphthalate	370			11000		UJ1	370			370		
Fluoranthene	370	660	J22	11000	19000	J1	370			370		
Pyrene	370	560		11000	14000	J1,3	370			370		
Butylbenzylphthalate	370			11000		UJ1	370			370		
3,3'-Dichlorobenzidine	370			11000		UJ1	370			370		
Benzo(a)anthracene	370	250J		11000	9500J	J1,3	370			370		
Chrysene	370	270J		11000	11000J	J1	370			370		
bis(2-Ethylhexyl)phthalate	370			11000		UJ1	370			370		
di-n-Octylphthalate	370		UJ15	11000		UJ1	370			370		R5
Benzo(b)fluoranthene	370	230J	J15	11000	16000	J1	370			370		R5
Benzo(k)fluoranthene	370	290J	J15	11000	9700J	J1	370			370		R5
Benzo(a)pyrene	370	260J	J15	11000	14000	J1	370			370		R5
Indeno(1,2,3-cd)pyrene	370		UJ15	11000	7000J	J1	370			370		R5
Dibenzo(a,h)anthracene	370		UJ15	11000		UJ1	370			370		R5
Benzo(g,h,i)perylene	370		UJ15	11000	7300J	J1	370			370		R5
Dilution Factor:	1			30			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	ug/Kg			ug/Kg			ug/Kg			ug/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20TB2(14-16)			20TB2(2-4)			20TB3(10-12)			20TB3(2-4)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	360			360			360			350		
bis(2-Chloroethyl)ether	360			360			360			350		
2-Chlorophenol	360			360			360			350		
1,3-Dichlorobenzene	360			360			360			350		
1,4-Dichlorobenzene	360			360			360			350		
1,2-Dichlorobenzene	360			360			360			350		
2-Methylphenol	360			360			360			350		
2,2'-oxybis(1-Chloropropane)	360		UJ4	360		UJ4	360			350		
4-Methylphenol	360			360			360			350		
n-Nitroso-di-n-propylamine	360			360			360			350		
Hexachloroethane	360			360			360			350		
Nitrobenzene	360			360			360			350		
Isophorone	360			360			360			350		
2-Nitrophenol	360			360			360			350		
2,4-Dimethylphenol	360			360			360			350		
bis(2-Chloroethoxy)methane	360			360			360			350		
2,4-Dichlorophenol	360			360			360			350		
1,2,4-Trichlorobenzene	360			360			360			350		
Naphthalene	360			360			360			350		
4-Chloroaniline	360			360			360			350		
Hexachlorobutadiene	360			360			360			350		
4-Chloro-3-methylphenol	360			360			360			350		
2-Methylnaphthalene	360			360			360			350		
Hexachlorocyclopentadiene	360		UJ4	360		UJ4	360		UJ4	350		UJ4
2,4,6-Trichlorophenol	360			360			360			350		
2,4,5-Trichlorophenol	880			860			880			850		
2-Chloronaphthalene	360			360			360			350		
2-Nitroaniline	880			860			880			850		
Dimethylphthalate	360			360			360			350		
Acenaphthalene	360			360			360			350		
2,6-Dinitrotoluene	360			360			360			350		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20TB2(14-16)			20TB2(2-4)			20TB3(10-12)			20TB3(2-4)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	880			860			880			850		
Acenaphthene	360			360			360			350		
2,4-Dinitrophenol	880		UJ4	860		UJ4	880			850		
4-Nitrophenol	880		UJ4	860		UJ4	880			850		
Dibenzofuran	360			360			360			350		
2,4-Dinitrotoluene	360			360			360			350		
Diethylphthalate	360			360			360			350		
4-Chlorophenyl-phenylether	360			360			360			350		
Fluorene	360			360			360			350		
4-Nitroaniline	880			860			880			850		
4,6-Dinitro-2-methylphenol	880		UJ4	860		UJ4	880			850		
n-Nitrosodiphenylamine	360			360			360			350		
4-Bromophenyl-phenylether	360			360			360			350		
Hexachlorobenzene	360			360			360			350		
Pentachlorophenol	880			860			880			850		
Phenanthrene	360			360			360			350	190J	
Anthracene	360			360			360			350		
Carbazole	360			360			360			350		
di-n-Butylphthalate	360			360			360			350		
Fluoranthene	360			360			360	290J	J22	350	400	J22
Pyrene	360			360			360	230J		350	410	
Butylbenzylphthalate	360			360			360			350		
3,3'-Dichlorobenzidine	360			360			360			350		
Benzo(a)anthracene	360			360			360			350	260J	
Chrysene	360			360			360			350	250J	
bis(2-Ethylhexyl)phthalate	360			360			360			350		
di-n-Octylphthalate	360			360			360			350		
Benzo(b)fluoranthene	360			360			360			350	240J	
Benzo(k)fluoranthene	360			360			360			350	230J	
Benzo(a)pyrene	360			360			360			350	210J	
Indeno(1,2,3-cd)pyrene	360			360			360			350		
Dibenzo(a,h)anthracene	360			360			360			350		
Benzo(g,h,i)perylene	360			360			360			350		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	ug/Kg			ug/Kg			ug/Kg			ug/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	ER5			ER7								
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	10			10			9700			400		
bis(2-Chloroethyl)ether	10			10			9700			400		
2-Chlorophenol	10			10			9700			400		
1,3-Dichlorobenzene	10			10			9700			400		
1,4-Dichlorobenzene	10			10			9700			400		
1,2-Dichlorobenzene	10			10			9700			400		
2-Methylphenol	10			10			9700			400		
2,2'-oxybis(1-Chloropropane)	10			10		UJ4	9700			400		
4-Methylphenol	10			10			9700			400		
n-Nitroso-di-n-propylamine	10			10			9700			400		
Hexachloroethane	10			10			9700			400		
Nitrobenzene	10			10			9700			400		
Isophorone	10			10			9700			400		
2-Nitrophenol	10			10			9700			400		
2,4-Dimethylphenol	10			10			9700			400		
bis(2-Chloroethoxy)methane	10			10			47000			400		
2,4-Dichlorophenol	10			10			9700			400		
1,2,4-Trichlorobenzene	10			10			9700			400		
Naphthalene	10			10			9700			400		
4-Chloroaniline	10			10			9700			400		
Hexachlorobutadiene	10			10			9700			400		
4-Chloro-3-methylphenol	10			10			9700			400		
2-Methylnaphthalene	10			10			9700			400		
Hexachlorocyclopentadiene	10		UJ4	10		UJ4	9700			400		
2,4,6-Trichlorophenol	10			10			9700			400		
2,4,5-Trichlorophenol	26			25			47000			2000		
2-Chloronaphthalene	10			10			9700			400		
2-Nitroaniline	26			25			47000			2000		
Dimethylphthalate	10			10			9700			400		
Acenaphthalene	10			10			9700			400		
2,6-Dinitrotoluene	10			10			9700			400		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	ER5			ER7								
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	26			25			47000			2000		
Acenaphthene	10			10			9700			400		
2,4-Dinitrophenol	26			25		UJ4	47000			2000		
4-Nitrophenol	26			25		UJ4	47000			2000		
Dibenzofuran	10			10			9700			400		
2,4-Dinitrotoluene	10			10			9700			400		
Diethylphthalate	10			10			9700			400		
4-Chlorophenyl-phenylether	10			10			9700			400		
Fluorene	10			10			9700			400		
4-Nitroaniline	26			25			47000			2000		
4,6-Dinitro-2-methylphenol	26			25		UJ4	47000			2000		
n-Nitrosodiphenylamine	10			10			9700			400		
4-Bromophenyl-phenylether	10			10			9700			400		
Hexachlorobenzene	10			10			9700			400		
Pentachlorophenol	26			25			47000			2000		
Phenanthrene	10			10			9700			400		
Anthracene	10			10			9700			400		
Carbazole	10			10			9700			400		
di-n-Butylphthalate	10			10			9700			400		
Fluoranthene	10			10			9700			400		
Pyrene	10			10			9700			400		
Butylbenzylphthalate	10			10			9700			400		
3,3'-Dichlorobenzidine	10			10			19000			810		
Benzo(a)anthracene	10			10			9700			400		
Chrysene	10			10			9700			400		
bis(2-Ethylhexyl)phthalate	10			10			9700			400		
di-n-Octylphthalate	10			10			9700			400		
Benzo(b)fluoranthene	10			10			9700			400		
Benzo(k)fluoranthene	10			10			9700			400		
Benzo(a)pyrene	10			10			9700			400		
Indeno(1,2,3-cd)pyrene	10			10			9700			400		
Dibenzo(a,h)anthracene	10			10			9700			400		
Benzo(g,h,i)perylene	10			10			9700			400		

Dilution Factor:	1	1
Matrix:	Water	Water
Units:	ug/L	ug/L

META

SAMPLE DATA SHEETS:

PESTICIDE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW2(0-2)			20MW2(14-16)			20MW3(2-4)			20MW3(8-10)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	1.8			2.0			1.8			1.9		
beta-BHC	1.8			2.0			1.8			1.9		
delta-BHC	1.8			2.0			1.8			1.9		
gamma-BHC (Lindane)	1.8			2.0			1.8			1.9		
Heptachlor	1.8			2.0			1.8			1.9		
Aldrin	1.8			2.0			1.8			1.9		
Heptachlor epoxide	1.8			2.0			1.8			1.9		
Endosulfan I	1.8			2.0			1.8			1.9		
Dieldrin	3.5			3.9			3.5			3.7		
4,4'-DDE	3.5			3.9			3.5			3.7		
Endrin	3.5			3.9			3.5			3.7		
Endosulfan II	3.5			3.9			3.5			3.7		
4,4'-DDD	3.5			3.9			3.5			3.7		
Endosulfan sulfate	3.5			3.9			3.5			3.7		
4,4'-DDT	3.5			3.9			3.5			3.7		
Methoxychlor	18			20			18			19		
Endrin ketone	3.5			3.9			3.5			3.7		
Endrin aldehyde	3.5			3.9			3.5			3.7		
alpha-Chlordane	1.8			2.0			1.8			1.9		
gamma-Chlordane	1.8			2.0			1.8			1.9		
Toxaphene	180			200			180			190		
Aroclor-1016	35			39			35			37		
Aroclor-1221	70			79			71			75		
Aroclor-1232	35			39			35			37		
Aroclor-1242	35			39			35			37		
Aroclor-1248	35			39			35			37		
Aroclor-1254	35			39			35			37		
Aroclor-1260	35			39			35			37		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	ug/Kg			ug/Kg			ug/Kg			ug/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW4(2-4)			20MW4(4-6)			20MW5(0-2)			20MW5(6-8)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	1.8			1.9			1.8			2.0		
beta-BHC	1.8			1.9			1.8			2.0		
delta-BHC	1.8			1.9			1.8			2.0		
gamma-BHC (Lindane)	1.8			1.9			1.8			2.0		
Heptachlor	1.8			1.9			1.8			2.0		
Aldrin	1.8			1.9			1.8			2.0		
Heptachlor epoxide	1.8			1.9			1.8			2.0		
Endosulfan I	1.8			1.9			1.8			2.0		
Dieldrin	3.5			3.7			3.5			3.9		
4,4'-DDE	3.5			3.7			3.5			3.9		
Endrin	3.5			3.7			3.5			3.9		
Endosulfan II	3.5			3.7			3.5			3.9		
4,4'-DDD	3.5			3.7			3.5			3.9		
Endosulfan sulfate	3.5			3.7			3.5			3.9		
4,4'-DDT	3.5			3.7			3.5			3.9		
Methoxychlor	18			19			18.0			20		
Endrin ketone	3.5			3.7			3.5			3.9		
Endrin aldehyde	3.5			3.7			3.5			3.9		
alpha-Chlordane	1.8			1.9			1.8			2.0		
gamma-Chlordane	1.8			1.9			1.8			2.0		
Toxaphene	180			190			180			200		
Aroclor-1016	35			37			35			39		
Aroclor-1221	72			75			72			78		
Aroclor-1232	35			37			35			39		
Aroclor-1242	35			37			35			39		
Aroclor-1248	35			37			35			39		
Aroclor-1254	35			37			35			39		
Aroclor-1260	35			37			35			39		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	ug/Kg			ug/Kg			ug/Kg			ug/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20MW6(12-14)			20MW6(2-4)			20MW7(2-4)			20MW7(4-6)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	1.9			1.9			1.9			1.9		
beta-BHC	1.9			1.9			1.9			1.9		
delta-BHC	1.9			1.9			1.9			1.9		
gamma-BHC (Lindane)	1.9			1.9			1.9			1.9		
Heptachlor	1.9			1.9			1.9			1.9		
Aldrin	1.9			1.9			1.9			1.9		
Heptachlor epoxide	1.9			1.9			1.9			1.9		
Endosulfan I	1.9			1.9			1.9			1.9		
Dieldrin	3.7			3.7			3.7			3.8		
4,4'-DDE	3.7			3.7			3.7			3.8		
Endrin	3.7			3.7			3.7			3.8		
Endosulfan II	3.7			3.7			3.7			3.8		
4,4'-DDD	3.7			3.7			3.7			3.8		
Endosulfan sulfate	3.7			3.7			3.7			3.8		
4,4'-DDT	3.7			3.7			3.7			3.8		
Methoxychlor	19			19			19			19		
Endrin ketone	3.7			3.7			3.7			3.8		
Endrin aldehyde	3.7			3.7			3.7			3.8		
alpha-Chlordane	1.9			1.9			1.9			1.9		
gamma-Chlordane	1.9			1.9			1.9			1.9		
Toxaphene	190			190			190			190		
Aroclor-1016	37			37			37			38		
Aroclor-1221	76			75			74			77		
Aroclor-1232	37			37			37			38		
Aroclor-1242	37			37			37			38		
Aroclor-1248	37			37			37			38		
Aroclor-1254	37			37			37			38		
Aroclor-1260	37			37			37			38		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	ug/Kg			ug/Kg			ug/Kg			ug/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	20TB2(14-16)			20TB2(2-4)			20TB3(10-12)			20TB3(2-4)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	1.9			1.8			1.9			1.8		
beta-BHC	1.9			1.8			1.9			1.8		
delta-BHC	1.9			1.8			1.9			1.8		
gamma-BHC (Lindane)	1.9			1.8			1.9			1.8		
Heptachlor	1.9			1.8			1.9			1.8		
Aldrin	1.9			1.8			1.9			1.8		
Heptachlor epoxide	1.9			1.8			1.9			1.8		
Endosulfan I	1.9			1.8			1.9			1.8		
Dieldrin	3.6			3.6			3.7			3.6		
4,4'-DDE	3.6			3.6			3.7			3.6		
Endrin	3.6			3.6			3.7			3.6		
Endosulfan II	3.6			3.6			3.7			3.6		
4,4'-DDD	3.6			3.6			3.7			3.6		
Endosulfan sulfate	3.6			3.6			3.7			3.6		
4,4'-DDT	3.6			3.6			3.7			3.6		
Methoxychlor	19			18			19			18		
Endrin ketone	3.6			3.6			3.7			3.6		
Endrin aldehyde	3.6			3.6			3.7			3.6		
alpha-Chlordane	1.9			1.8			1.9			1.8		
gamma-Chlordane	1.9			1.8			1.9			1.8		
Toxaphene	190			180			190			180		
Aroclor-1016	36			36			37			36		
Aroclor-1221	74			73			75			73		
Aroclor-1232	36			36			37			36		
Aroclor-1242	36			36			37			36		
Aroclor-1248	36			36			37			36		
Aroclor-1254	36			36			37			36		
Aroclor-1260	36			36			37			36		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	ug/Kg			ug/Kg			ug/Kg			ug/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	ER5			ER7								
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	0.052			0.052		UJ8	120			1200		
beta-BHC	0.052			0.052		UJ8	120			1200		
delta-BHC	0.052			0.052		UJ8	120			1200		
gamma-BHC (Lindane)	0.052			0.052		UJ8	120			1200		
Heptachlor	0.052			0.052		UJ8	120			1200		
Aldrin	0.052			0.052		UJ8	120			1200		
Heptachlor epoxide	0.052			0.052		UJ8	120			1200		
Endosulfan I	0.052			0.052		UJ8	120			1200		
Dieldrin	0.10			0.10		UJ8	250			2500		
4,4'-DDE	0.10			0.10		UJ8	250			2500		
Endrin	0.10			0.10		UJ8	250			2500		
Endosulfan II	0.10			0.10		UJ8	250			2500		
4,4'-DDD	0.10			0.10		UJ8	250			2500		
Endosulfan sulfate	0.10			0.10		UJ8	250			2500		
4,4'-DDT	0.10			0.10		UJ8	250			2500		
Methoxychlor	0.52			0.52		UJ8	1200			12000		
Endrin ketone	0.10			0.10		UJ8	250			2500		
Endrin aldehyde	0.10			0.10		UJ8	250			2500		
alpha-Chlordane	0.052			0.052		UJ8	1200			12000		
gamma-Chlordane	0.052			0.052		UJ8	1200			12000		
Toxaphene	5.2			5.2		UJ8	2500			25000		
Aroclor-1016	1.0			1.0		UJ8	1200			12000		
Aroclor-1221	2.1			2.1		UJ8	1200			12000		
Aroclor-1232	1.0			1.0		UJ8	1200			12000		
Aroclor-1242	1.0			1.0		UJ8	1200			12000		
Aroclor-1248	1.0			1.0		UJ8	1200			12000		
Aroclor-1254	1.0			1.0		UJ8	2500			25000		
Aroclor-1260	1.0			1.0		UJ8	2500			25000		

Dilution Factor:	1	1
Matrix:	Water	Water
Units:	ug/L	ug/L

META

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

_____	A blank space denotes no change to the laboratory reported results.
J[1], UJ[1]	Holding times have been exceeded or samples were improperly preserved prior to analysis: estimate positive results (J[1]) and non-detects (UJ[1]). Refer to Section on "Holding Times" for details.
J[2], UJ[2]	Linearity was poor near the CRDL (low levels). Estimate the results. Refer to Section on "Calibration Verification Results" for details.
U[3]	The compound was present in the associated blank. The sample result was less than the action level of 5x the maximum concentration found in any blank, and has been rejected. Alternatively, the associated blank had a value below the negative IDL. The detection limit and/or positive results may be biased low. Refer to Section on "Laboratory Blank Results" for details.
J[4], UJ[4]	The ICS recovery for an element is outside of criteria or interelement interferences were indicated. The reported results or detection limit is estimated. See the Section on "ICP Inference Check Sample Results" for details.
J[5], UJ[5]	The recovery of an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Matrix Spike Results" for details.
J[6]	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated See the Section on "Laboratory Duplicate Results" for details.
J[7]	The RPD for the field duplicate sample analysis results exceeded 30% (50% for soils) for this analyte. The reported results are estimated. See the Section on "Field Duplicate Results" for details.
J[8], UJ[8]	The LCS recovery for an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Laboratory Control Sample Results" for details.
J[9]	The %RSD of duplicate injections for GFAA analysis do not agree within ± 20%. The sample results are estimatedd. See the Section on "Furnace AA Results" for details.

J[10], UJ[10]	The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated. See the Section on "Furnace AA Results" for details.
J[11]	The sample required MSA which either was not performed, was performed incorrectly, or the correlation coefficient was < 0.995. The positive results are estimated. See the Section on "Furnace AA Results" for details.
J[12], UJ[12]	The results of the ICP Serial Dilution experiment was outside of criteria. Positive sample results or detection limits are estimated. See the Section on "ICP Serial Dilution Results" for details.
J[13]	Element should have been run by GFAA. The reported value is an estimate.
J[14]	The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.
R[1]	Holding times have been grossly exceeded. Reject all non-detects.
R[2]	Instrument calibration was either not performed or not performed properly. Reject all associated data.
R[3]	The ICS recovery for an element was less than 50% or severe interelement interferences were detected. Reject all associated data.
R[4]	The matrix spike recovery for an element was less than 30%. Reject all associated data.
R[5]	The recovery of an element in the aqueous LCS was less than 50%. Reject all associated data.
R[6]	The analytical spike recovery for GFAA analysis was less than 10%. Reject the sample result.
R[7]	The MSA did not meet criteria. Reject the sample result.
R[8]	The ICP Serial Dilution did not meet criteria. Reject all associated data.

SAMPLE DATA SHEETS:

INORGANIC ANALYTES

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:		ER5			ER7			20MW2(0-2)			20MW3(2-4)		
	IDL	Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	12.8	27.2	B	J5,6, U3	22.9	B	J5,6, U3	4470		J5,6	4410		J5,6
Antimony	12.3			UJ5			UJ5	1.8	B	J5,6, U3	2.2	U	UJ5
Arsenic	1			UJ5			UJ5	1	B	J5,6	1.2	B	J5,6
Barium	0.9			UJ5			UJ5	25.2	B	J5,6	27.3	B	J5,6
Beryllium	0.3			UJ5			UJ5	0.22	B	J5,6, U3	0.29	B	J5,6, U3
Cadmium	1.8			UJ5			UJ5	0.25	U	UJ2,5	0.32	U	UJ2,5
Calcium	11.6	52.7	B	J5,6, U3	36.1	B	J5,6, U3	832		J,56	2590		J5,6
Chromium	3.1			UJ5			UJ5	6.4		J5,6,2	8		J5,6,2
Cobalt	2.6			UJ5			UJ5	2.8	B	J5,6, U3	3.7	B	J5,6
Copper	1.6	1.6	B	J5,6	1.6	B	J5,6	10		J5,6	26.6		J5,6
Iron	2.2	99.8	B	J5,6, U3	35.2	B	J5,6, U3	5960		J5,6	6980		J5,6
Lead	0.6	0.7	B	J5,6,2,9, U3	0.65	B	J5,6,2,9, U3	65.1		J5,6,2	60.7		J5,6,2
Magnesium	14			UJ5			UJ5	1400		J5,6	1830		J5,6
Manganese	0.7	1.6	B	J5.6, U3	1.3	B	J5,6, U3	100		J5,6	109		J5,6
Mercury	0.1			UJ5			UJ5	0.06	U	UJ5	0.06	U	UJ5
Nickel	8			UJ5			UJ5	4.9	B	J5,6	11.5		J5,6
Potassium	290			UJ5			UJ5	1120		J5,6	975		J5,6
Selenium	1	1.1	B	J5,6,2	1.1	B	J5,6,2	0.18	U	UJ5	0.2	U	UJ5
Silver	2.9			UJ5			UJ5	0.41	U	UJ5	0.51	U	UJ5
Sodium	16.1	57.4	B	J5,6, U3	43	B	J5,6, U3	49.5	B	J5,6, U3	164	B	J5,6
Thallium	0.6	0.65	B	J5,6,2			UJ2,5	0.11	UW	UJ2,5	0.12	U	UJ2,5
Vanadium	5			UJ5			UJ5	10		J5,6	14.9		J5,6
Zinc	1.5	6.8	B	J5,6, U3	5.9	B	J5,6, U3	23.1		J5,6	68.1		J5,6
Cyanide	3.7			UJ5			UJ5	0.16	U	UJ5	0.18	B	J5,6
Boron	8.8	16.4	B	J5,6, U3	13.7	B	J5,6, U3	1.2	U	UJ5	3.7	B	J5,6, U3
Dilution Factor:		1			1			1			1		
Matrix:		Water			Water			Soil			Soil		
Units:		ug/L			ug/L			mg/kg			mg/kg		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	IDL	20MW4(2-4)			20MW4(4-6)			20MW5(0-2)			20MW5(6-8)		
		Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	12.8	7280		J5,6	3590		J5,6	3860		J5,6	6530		J5,6
Antimony	12.3	2.3	U	UJ5	2.1	U	UJ5	5.3	B	J5,6, U3	14.3		J5,6
Arsenic	1	0.4	B	J5,6	0.32	B	J5,6	0.89	BW	J5,6,10	2.2		J5,6,10
Barium	0.9	56.8		J5,6	20.3	B	J5,6	30.7	B	J5,6	101		J5,6
Beryllium	0.3	0.31	B	J5,6	0.18	B	J5,6, U3	0.17	B	J5,6, U3	0.3	B	J5,6
Cadmium	1.8	0.33	U	UJ2,5	0.31	U	UJ2,5	0.34	U	UJ2,5	0.5	B	J5,6,2
Calcium	11.6	1490		J5,6	678	B	J5,6	670	B	J5,6	2410		J5,6
Chromium	3.1	11		J5,6,2	4.1		J5,6,2, U3	9.1		J5,6,2	12.8		J5,6,2
Cobalt	2.6	5.3	B	J5,6	2.2	B	J5,6, U3	3.4	B	J5,6	4.7	B	J5,6
Copper	1.6	11.6		J5,6	4.7		J5,6	122		J5,6	123		J5,6
Iron	2.2	10400		J5,6	5570		J5,6	6850		J5,6	10100		J5,6
Lead	0.6	20.4		J5,6,2	12		J5,6,2	128		J5,6,2	1040		J5,6,2
Magnesium	14	2560		J5,6	1250		J5,6	1520		J5,6	2120		J5,6
Manganese	0.7	149		J5,6	99.1		J5,6	113		J5,6	97.7		J5,6
Mercury	0.1	0.02	U	UJ5	0.02	U	UJ5	0.12		J5,6	0.09		J5,6, U3
Nickel	8	7.8		J5,6	3.7	B	J5,6	4.8	B	J5,6	11		J5,6
Potassium	290	1970		J5,6	1280		J5,6	1420		J5,6	1210		J5,6
Selenium	1	0.19	BW	J5,6,2, U3	0.22	B	J5,6,2, U3	0.2	UW	UJ5	0.18	BW	J5,6,2, U3
Silver	2.9	0.54	U	UJ5	0.5	U	UJ5	0.54	U	UJ5	0.49	U	UJ5
Sodium	16.1	95.2	B	J5,6	158	B	J5,6	103	B	J5,6	107	B	J5,6
Thallium	0.6	0.12	UW	UJ2,5	0.11	UW	UJ2,5	0.12	UW	UJ2,5	0.11	U	UJ2,5
Vanadium	5	20.4		J5,6	9		J5,6	10.7		J5,6	15.2		J5,6
Zinc	1.5	22.5		J5,6	13.1		J5,6	146		J5,6	229		J5,6
Cyanide	3.7	0.19	U	UJ5	0.19	U	UJ5	0.17	U	UJ5	0.21	U	UJ5
Boron	8.8	1.8	B	J5,6, U3	1.5	U	UJ5	1.6	U	UJ5	2	B	J5,6, U3
Dilution Factor:		1			1			1			1		
Matrix:		Soil			Soil			Soil			Soil		
Units:		mg/kg			mg/kg			mg/kg			mg/kg		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:		20MW6(2-4)			20MW7(2-4)			20MW7(4-6)			20TB2(2-4)		
	IDL	Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	12.8	136		J5,6	3220		J5,6	3880		J5,6	5780		J5,6
Antimony	12.3	7580		J5,6	2.3	U	UJ5	2.5	U	UJ5	2.1	U	UJ5
Arsenic	1	1.9		J5,6, R6	0.32	B	J5,6,10	0.49	B	J5,6,10	2	S	J5,6
Barium	0.9	170		J5,6	25	B	J5,6	21.5	B	J5,6	24.1	B	J5,6
Beryllium	0.3	0.05	U	UJ5	0.17	B	J5,6, U3	0.19	B	J5,6, U3	0.23	B	J5,6, U3
Cadmium	1.8	6.8		J5,6,2	0.33	U	UJ2,5	0.37	U	UJ2,5	0.3	U	UJ2,5
Calcium	11.6	631	B	J5,6	471	B	J5,6	578	B	J5,6	661	B	J5,6
Chromium	3.1	4.1		J5,6,2, U3	4.1		J5,6,2, U3	6.1		J5,6,2	6.5		J5,6,2
Cobalt	2.6	1.1	B	J5,6, U3	2.6	B	J5,6, U3	4	B	J5,6	3.4	B	J5,6
Copper	1.6	74.9		J5,6	3	B	J5,6	6.4		J5,6	9.2		J5,6
Iron	2.2	4510		J5,6	5190		J5,6	6550		J5,6	5770		J5,6
Lead	0.6	189000		J5,6,2	6.3	S	J5,6,2	6.2	S	J5,6,2	33.6		J5,6,2
Magnesium	14	47.9	B	J5,6	1320		J5,6	1620		J5,6	1410		J5,6
Manganese	0.7	32.7		J5,6	120		J5,6	104		J5,6	117		J5,6
Mercury	0.1	1.2		J5,6	0.07	U	UJ5	0.04	U	UJ5	0.09	B	J5,6, U3
Nickel	8	1.8	B	J5,6	2.5	B	J5,6	4.6	B	J5,6	6.1	B	J5,6
Potassium	290	53	U	UJ5	1460		J5,6	1230		J5,6	593	B	J5,6
Selenium	1	1.7	UW	UJ5,10	0.2	UW	UJ5	0.22	UW	UJ5	0.14	U	UJ5
Silver	2.9	5.4		J5,6	0.54	U	UJ5	0.6	U	UJ5	0.49	U	UJ5
Sodium	16.1	68.1	B	J5,6	123	B	J5,6	164	B	J5,6	141	B	J5,6
Thallium	0.6	1	UW	UJ2,5,10	0.12	UW	UJ2,5	0.13	UW	UJ2,5	0.08	UW	UJ2,5
Vanadium	5	1.9	B	J5,6, U3	8.2	B	J5,6	10.7		J5,6	11.3		J5,6
Zinc	1.5	608		J5,6	13.6		J5,6	14		J5,6	26.8		J5,6
Cyanide	3.7	0.21	U	UJ5	0.18	U	UJ5	0.17	U	UJ5	0.17	U	UJ5
Boron	8.8	2.3	B	J5,6, U3	1.6	U	UJ5	2.7	B	J5,6, U3	1.5	U	UJ5
Dilution Factor:		1			1			1			1		
Matrix:		Soil			Soil			Soil			Soil		
Units:		mg/kg			mg/kg			mg/kg			mg/kg		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	IDL	20TB3(2-4)			20TB4(0-2)			20TB5(0-2)			20TB5(4-6)		
		Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	12.8	5390		J5,6	4510		J5,6	5040		J5,6	7730		J5,6
Antimony	12.3	2.2	U	UJ5	7.8	B	J5,6, U3	3.8	B	J5,6, U3	2.6	U	UJ5
Arsenic	1	0.75	B	J5,6,10	1.4	B	J5,6	1.4	B	J5,6,10	3		J5,6,10
Barium	0.9	31.9	B	J5,6	364		J5,6	45.3		J5,6	38	B	J5,6
Beryllium	0.3	0.26	B	J5,6, U3	0.22	B	J5,6, U3	0.26	B	J5,6, U3	0.35	B	J5,6
Cadmium	1.8	0.32	U	UJ2,5	0.39	U	UJ2,5	0.32	U	UJ2,5	0.39	U	UJ2,5
Calcium	11.6	908		J5,6	5480		J5,6	2220		J5,6	1140		J5,6
Chromium	3.1	7.1		J5,6,2	6.6		J5,6,2	11.1		J5,6,2	10.4		J5,6,2
Cobalt	2.6	4.3	B	J5,6	3.5	B	J5,6	3.8	B	J5,6	4	B	J5,6
Copper	1.6	11.2		J5,6	59.4		J5,6	37.8		J5,6	21.7		J5,6
Iron	2.2	7630		J5,6	6140		J5,6	8060		J5,6	8480		J5,6
Lead	0.6	66.1		J5,6,2	726		J5,6,2	220		J5,6,2	31.8		J5,6,2
Magnesium	14	2260		J5,6	2060		J5,6	2080		J5,6	1660		J5,6
Manganese	0.7	129		J5,6	162		J5,6	113		J5,6	114		J5,6
Mercury	0.1	0.03	B	J5,6, U3	0.06	U	UJ5	0.11		J5,6	0.25		J5,6
Nickel	8	6.4	B	J5,6	5.4	B	J5,6	9.7		J5,6	7.6	B	J5,6
Potassium	290	1390		J5,6	1240		J5,6	1520		J5,6	839	B	J5,6
Selenium	1	0.15	UW	UJ5	0.18	U	UJ5	0.2	UW	UJ5	0.21	BW	J5,6,2, U3
Silver	2.9	0.51	U	UJ5	0.63	U	UJ5	0.52	U	UJ5	0.62	U	UJ5
Sodium	16.1	90.9	B	J5,6	162	B	J5,6	95.1	B	J5,6	99.9	B	J5,6
Thallium	0.6	0.09	UW	UJ2,5	0.11	U	UJ2,5	0.12	UW	UJ2,5	0.11	UW	UJ2,5
Vanadium	5	13.2		J55,6	11.9		J5,6	16.5		J5,6	16		J5,6
Zinc	1.5	28.8		J5,6	188		J5,6	101		J5,6	53.7		J5,6
Cyanide	3.7	0.18	U	UJ5	0.2	U	UJ5	0.18	U	UJ5	0.19	U	UJ5
Boron	8.8	1.5	U	UJ5	2.9	B	J5,6, U3	2.6	B	J5,6, U3	2	B	J5,6, U3
Dilution Factor:		1			1			1			1		
Matrix:		Soil			Soil			Soil			Soil		
Units:		mg/kg			mg/kg			mg/kg			mg/kg		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930609A
Site: Naval Submarine Base, Groton, CT
SDG No.: MW612

Sample ID:	IDL	20MW2(14-16) Reported		20MW2(14-16) Validated	20MW3(8-10) Reported		20MW3(8-10) Validated	Reported	Validated	Reported	Validated
Aluminum	12.8	4350		J5,6	4620		J5,6				
Antimony	12.3	2.5	U	UJ5	2.3	U	UJ5				
Arsenic	1	0.79	B	J5,6	1.1	B	J5,6				
Barium	0.9	29.6	B	J5,6	33.8	B	J5,6				
Beryllium	0.3	0.19	B	J5,6, U3	0.33	B	J5,6				
Cadmium	1.8	0.37	U	UJ2,5	0.34	U	UJ2,5				
Calcium	11.6	723	B	J5,6	896	B	J5,6				
Chromium	3.1	4.6		J5,6,2, U3	9.1		J5,6,2				
Cobalt	2.6	2.8	B	J5,6, U3	4.3	B	J5,6				
Copper	1.6	3.5	B	J5,6	15.6		J5,6				
Iron	2.2	6130		J5,6	6830		J5,6				
Lead	0.6	2.3	S	J5,6,2	38.3		J5,6,2				
Magnesium	14	1540		J5,6	2060		J5,6				
Manganese	0.7	79.2		J5,6	79.8		J5,6				
Mercury	0.1	0.02	U	UJ5	0.03	B	J5,6, U3				
Nickel	8	5.2	B	J5,6	7.5		J5,6				
Potassium	290	1290		J5,6	1690		J5,6				
Selenium	1	0.22	U	UJ5	0.18	B	J5,6,2,9, U3				
Silver	2.9	0.59	U	UJ5	0.54	U	UJ5				
Sodium	16.1	159	B	J5,6	237	B	J5,6				
Thallium	0.6	0.13	UW	UJ2,5	0.1	UW	UJ2,5				
Vanadium	5	10.7		J5,6	15.1		J5,6				
Zinc	1.5	12.8		J5,6	41.5		J5,6				
Cyanide	3.7	0.19	U	UJ5	0.19	U	UJ5				
Boron	8.8	5.7	B	J5,6, U3	3.4	B	J5,6, U3				
Dilution Factor:		1			1						
Matrix:		Soil			Soil						
Units:		mg/kg			mg/kg						

META

APPENDIX D

LABORATORY ANALYTICAL RESULTS

PIER 33

SOILS

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW12 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-021
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		14.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	8.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW2 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-020
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	J	7.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	6.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	J	3.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW2 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-019
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	J	8.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	5.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW3 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-027
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	10.0000	
1,1,2,2-Tetrachloroethane	U	10.0000	
1,1,2-Trichloroethane	U	10.0000	
1,1-Dichloroethane	U	10.0000	
1,1-Dichloroethene	U	10.0000	
1,2-Dichloroethane	U	10.0000	
1,2-Dichloroethene_(total)	U	10.0000	
1,2-Dichloropropane	U	10.0000	
2-Butanone	U	10.0000	
2-Hexanone	U	10.0000	
4-Methyl-2-pentanone	U	10.0000	
Acetone	B	23.0000	
Benzene	U	10.0000	
Bromodichloromethane	U	10.0000	
Bromoform	U	10.0000	
Bromomethane	U	10.0000	
Carbon Disulfide	U	10.0000	
Carbon Tetrachloride	U	10.0000	
Chlorobenzene	U	10.0000	
Chloroethane	U	10.0000	
Chloroform	U	10.0000	
Chloromethane	U	10.0000	
Dibromochloromethane	U	10.0000	
Ethylbenzene	U	10.0000	
Methylene_Chloride	BJ	7.0000	
Styrene	U	10.0000	
Tetrachloroethene	U	10.0000	
Toluene	U	10.0000	
Trichloroethene	U	10.0000	
Vinyl Chloride	U	10.0000	
Xylene (total)	U	10.0000	
cis-1,3-Dichloropropene	U	10.0000	
trans-1,3-Dichloropropene	U	10.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW3 (4-6) *
****

Sample Collection Date: 3/25/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-026
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	2800.0000	
1,1,2,2-Tetrachloroethane	U	2800.0000	
1,1,2-Trichloroethane	U	2800.0000	
1,1-Dichloroethane	U	2800.0000	
1,1-Dichloroethene	U	2800.0000	
1,2-Dichloroethane	U	2800.0000	
1,2-Dichloroethene_(total)	U	2800.0000	
1,2-Dichloropropane	U	2800.0000	
2-Butanone	U	2800.0000	
2-Hexanone	U	2800.0000	
4-Methyl-2-pentanone	U	2800.0000	
Acetone	U	2800.0000	
Benzene	U	2800.0000	
Bromodichloromethane	U	2800.0000	
Bromoform	U	2800.0000	
Bromomethane	U	2800.0000	
Carbon Disulfide	U	2800.0000	
Carbon Tetrachloride	U	2800.0000	
Chlorobenzene	U	2800.0000	
Chloroethane	U	2800.0000	
Chloroform	U	2800.0000	
Chloromethane	U	2800.0000	
Dibromochloromethane	U	2800.0000	
Ethylbenzene	U	2800.0000	
Methylene_Chloride	BJ	1900.0000	
Styrene	U	2800.0000	
Tetrachloroethene	U	2800.0000	
Toluene	U	2800.0000	
Trichloroethene	U	2800.0000	
Vinyl Chloride	U	2800.0000	
Xylene (total)	U	2800.0000	
cis-1,3-Dichloropropene	U	2800.0000	
trans-1,3-Dichloropropene	U	2800.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 (0-2) *
****

Sample Collection Date: 3/23/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35490-013
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	55.0000	
1,1,2,2-Tetrachloroethane	U	55.0000	
1,1,2-Trichloroethane	U	55.0000	
1,1-Dichloroethane	U	55.0000	
1,1-Dichloroethene	U	55.0000	
1,2-Dichloroethane	U	55.0000	
1,2-Dichloroethene_(total)	U	55.0000	
1,2-Dichloropropane	U	55.0000	
2-Butanone	U	55.0000	
2-Hexanone	U	55.0000	
4-Methyl-2-pentanone	U	55.0000	
Acetone		140.0000	
Benzene	U	55.0000	
Bromodichloromethane	U	55.0000	
Bromoform	U	55.0000	
Bromomethane	U	55.0000	
Carbon Disulfide	U	55.0000	
Carbon Tetrachloride	U	55.0000	
Chlorobenzene	U	55.0000	
Chloroethane	U	55.0000	
Chloroform	U	55.0000	
Chloromethane	U	55.0000	
Dibromochloromethane	U	55.0000	
Ethylbenzene	J	38.0000	
Methylene_Chloride	BJ	20.0000	
Styrene	U	55.0000	
Tetrachloroethene	U	55.0000	
Toluene	J	10.0000	
Trichloroethene	U	55.0000	
Vinyl Chloride	U	55.0000	
Xylene (total)		150.0000	
cis-1,3-Dichloropropene	U	55.0000	
trans-1,3-Dichloropropene	U	55.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****

SAMPLE ID: 19MW4 (6-8) *

****

Sample Collection Date: 3/23/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35490-014
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	57.0000	
1,1,2,2-Tetrachloroethane	U	57.0000	
1,1,2-Trichloroethane	U	57.0000	
1,1-Dichloroethane	U	57.0000	
1,1-Dichloroethene	U	57.0000	
1,2-Dichloroethane	U	57.0000	
1,2-Dichloroethene_(total)	U	57.0000	
1,2-Dichloropropane	U	57.0000	
2-Butanone	U	57.0000	
2-Hexanone	U	57.0000	
4-Methyl-2-pentanone	U	57.0000	
Acetone		180.0000	
Benzene	U	57.0000	
Bromodichloromethane	U	57.0000	
Bromoform	U	57.0000	
Bromomethane	U	57.0000	
Carbon Disulfide	U	57.0000	
Carbon Tetrachloride	U	57.0000	
Chlorobenzene	U	57.0000	
Chloroethane	U	57.0000	
Chloroform	U	57.0000	
Chloromethane	U	57.0000	
Dibromochloromethane	U	57.0000	
Ethylbenzene	J	33.0000	
Methylene_Chloride	BJ	19.0000	
Styrene	U	57.0000	
Tetrachloroethene	U	57.0000	
Toluene	U	57.0000	
Trichloroethene	U	57.0000	
Vinyl Chloride	U	57.0000	
Xylene (total)	J	32.0000	
cis-1,3-Dichloropropene	U	57.0000	
trans-1,3-Dichloropropene	U	57.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD1 *
****

Sample Collection Date: 4/07/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-020
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/12/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
2-Hexanone	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Acetone		220.0000	
Benzene	U	13.0000	
Bromodichloromethane	U	13.0000	
Bromoform	U	13.0000	
Bromomethane	U	13.0000	
Carbon Disulfide	U	13.0000	
Carbon Tetrachloride	U	13.0000	
Chlorobenzene	U	13.0000	
Chloroethane	U	13.0000	
Chloroform	U	13.0000	
Chloromethane	U	13.0000	
Dibromochloromethane	U	13.0000	
Ethylbenzene	U	13.0000	
Methylene_Chloride	JB	9.0000	
Styrene	U	13.0000	
Tetrachloroethene	U	13.0000	
Toluene	J	4.0000	
Trichloroethene	U	13.0000	
Vinyl Chloride	U	13.0000	
Xylene (total)	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD11 *
****

Sample Collection Date: 4/07/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-021
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/12/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
2-Hexanone	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Acetone		130.0000	
Benzene	U	12.0000	
Bromodichloromethane	U	12.0000	
Bromoform	U	12.0000	
Bromomethane	U	12.0000	
Carbon Disulfide	U	12.0000	
Carbon Tetrachloride	U	12.0000	
Chlorobenzene	U	12.0000	
Chloroethane	U	12.0000	
Chloroform	U	12.0000	
Chloromethane	U	12.0000	
Dibromochloromethane	U	12.0000	
Ethylbenzene	U	12.0000	
Methylene_Chloride	JB	9.0000	
Styrene	U	12.0000	
Tetrachloroethene	U	12.0000	
Toluene	J	3.0000	
Trichloroethene	U	12.0000	
Vinyl Chloride	U	12.0000	
Xylene (total)	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD2 *
****

Sample Collection Date: 4/07/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-022
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/12/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
2-Hexanone	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Acetone		58.0000	
Benzene	U	13.0000	
Bromodichloromethane	U	13.0000	
Bromoform	U	13.0000	
Bromomethane	U	13.0000	
Carbon Disulfide	U	13.0000	
Carbon Tetrachloride	U	13.0000	
Chlorobenzene	U	13.0000	
Chloroethane	U	13.0000	
Chloroform	U	13.0000	
Chloromethane	U	13.0000	
Dibromochloromethane	U	13.0000	
Ethylbenzene	U	13.0000	
Methylene_Chloride	JB	12.0000	
Styrene	U	13.0000	
Tetrachloroethene	U	13.0000	
Toluene	U	13.0000	
Trichloroethene	U	13.0000	
Vinyl Chloride	U	13.0000	
Xylene (total)	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SS1 *
****

Sample Collection Date: 4/07/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-019
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/12/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		140.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	JB	8.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB1 (0-2) *
****

Sample Collection Date: 3/23/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35490-015
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	10.0000	
1,1,2,2-Tetrachloroethane	U	10.0000	
1,1,2-Trichloroethane	U	10.0000	
1,1-Dichloroethane	U	10.0000	
1,1-Dichloroethene	U	10.0000	
1,2-Dichloroethane	U	10.0000	
1,2-Dichloroethene_(total)	U	10.0000	
1,2-Dichloropropane	U	10.0000	
2-Butanone	U	10.0000	
2-Hexanone	U	10.0000	
4-Methyl-2-pentanone	U	10.0000	
Acetone		25.0000	
Benzene	U	10.0000	
Bromodichloromethane	U	10.0000	
Bromoform	U	10.0000	
Bromomethane	U	10.0000	
Carbon Disulfide	U	10.0000	
Carbon Tetrachloride	U	10.0000	
Chlorobenzene	U	10.0000	
Chloroethane	U	10.0000	
Chloroform	U	10.0000	
Chloromethane	U	10.0000	
Dibromochloromethane	U	10.0000	
Ethylbenzene	U	10.0000	
Methylene_Chloride	BJ	6.0000	
Styrene	U	10.0000	
Tetrachloroethene	U	10.0000	
Toluene	U	10.0000	
Trichloroethene	U	10.0000	
Vinyl Chloride	U	10.0000	
Xylene (total)	U	10.0000	
cis-1,3-Dichloropropene	U	10.0000	
trans-1,3-Dichloropropene	U	10.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB1 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35490-016
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
2-Hexanone	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Acetone		28.0000	
Benzene	U	13.0000	
Bromodichloromethane	U	13.0000	
Bromoform	U	13.0000	
Bromomethane	U	13.0000	
Carbon Disulfide	U	13.0000	
Carbon Tetrachloride	U	13.0000	
Chlorobenzene	U	13.0000	
Chloroethane	U	13.0000	
Chloroform	U	13.0000	
Chloromethane	U	13.0000	
Dibromochloromethane	U	13.0000	
Ethylbenzene	U	13.0000	
Methylene_Chloride	BJ	6.0000	
Styrene	U	13.0000	
Tetrachloroethene	U	13.0000	
Toluene	U	13.0000	
Trichloroethene	U	13.0000	
Vinyl Chloride	U	13.0000	
Xylene (total)	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB2 (0-2) *
****

Sample Collection Date: 3/22/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35490-017
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	10.0000	
1,1,2,2-Tetrachloroethane	U	10.0000	
1,1,2-Trichloroethane	U	10.0000	
1,1-Dichloroethane	U	10.0000	
1,1-Dichloroethene	U	10.0000	
1,2-Dichloroethane	U	10.0000	
1,2-Dichloroethene_(total)	U	10.0000	
1,2-Dichloropropane	U	10.0000	
2-Butanone	U	10.0000	
2-Hexanone	U	10.0000	
4-Methyl-2-pentanone	U	10.0000	
Acetone	J	8.0000	
Benzene	U	10.0000	
Bromodichloromethane	U	10.0000	
Bromoform	U	10.0000	
Bromomethane	U	10.0000	
Carbon Disulfide	U	10.0000	
Carbon Tetrachloride	U	10.0000	
Chlorobenzene	U	10.0000	
Chloroethane	U	10.0000	
Chloroform	U	10.0000	
Chloromethane	U	10.0000	
Dibromochloromethane	U	10.0000	
Ethylbenzene	U	10.0000	
Methylene_Chloride	BJ	4.0000	
Styrene	U	10.0000	
Tetrachloroethene	U	10.0000	
Toluene	U	10.0000	
Trichloroethene	U	10.0000	
Vinyl Chloride	U	10.0000	
Xylene (total)	U	10.0000	
cis-1,3-Dichloropropene	U	10.0000	
trans-1,3-Dichloropropene	U	10.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB2 (6-8) *
****

Sample Collection Date: 3/22/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35490-018
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	BJ	5.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		44.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	7.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	J	3.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	J	7.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB3 (10-12) *
****

Sample Collection Date: 3/24/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-022
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		26.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	7.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB3 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-023
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		20.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	6.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (0-2) *
****

Sample Collection Date: 3/24/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-025
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	B	28.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	9.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-024
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	B	120.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	8.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****

* SAMPLE ID: 19MW1 (0.25-2.25) *

****

Sample Collection Date: 4/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35954-009
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
2-Hexanone	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Acetone	U	12.0000	
Benzene	U	12.0000	
Bromodichloromethane	U	12.0000	
Bromoform	U	12.0000	
Bromomethane	U	12.0000	
Carbon Disulfide	U	12.0000	
Carbon Tetrachloride	U	12.0000	
Chlorobenzene	U	12.0000	
Chloroethane	U	12.0000	
Chloroform	U	12.0000	
Chloromethane	U	12.0000	
Dibromochloromethane	U	12.0000	
Ethylbenzene	U	12.0000	
Methylene_Chloride	BJ	9.0000	
Styrene	U	12.0000	
Tetrachloroethene	U	12.0000	
Toluene	U	12.0000	
Trichloroethene	U	12.0000	
Vinyl Chloride	U	12.0000	
Xylene (total)	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****

* SAMPLE ID: 19MW11 (0.25-2.25) *

****

Sample Collection Date: 4/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35954-010
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
2-Hexanone	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Acetone	BJ	9.0000	
Benzene	U	12.0000	
Bromodichloromethane	U	12.0000	
Bromoform	U	12.0000	
Bromomethane	U	12.0000	
Carbon Disulfide	U	12.0000	
Carbon Tetrachloride	U	12.0000	
Chlorobenzene	U	12.0000	
Chloroethane	U	12.0000	
Chloroform	U	12.0000	
Chloromethane	U	12.0000	
Dibromochloromethane	U	12.0000	
Ethylbenzene	U	12.0000	
Methylene_Chloride	BJ	9.0000	
Styrene	U	12.0000	
Tetrachloroethene	U	12.0000	
Toluene	U	12.0000	
Trichloroethene	U	12.0000	
Vinyl Chloride	U	12.0000	
Xylene (total)	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW12 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-012
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	900	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	900	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	900		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	900	
4,6-Dinitro-2-methylphenol	U	900		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	900		4-Nitrophenol	U	900	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	J	190	
Benzo(a)pyrene	U	370		Benzo(b)fluoranthene	J	310	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	U	370	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	J	340	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	900	
Phenanthrene	U	370		Phenol	U	370	
Pyrene	J	310		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW2 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-011
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	360		1,2-Dichlorobenzene	U	360	
1,3-Dichlorobenzene	U	360		1,4-Dichlorobenzene	U	360	
2,2'-oxybis(1-Chloropropane)	U	360		2,4,5-Trichlorophenol	U	880	
2,4,6-Trichlorophenol	U	360		2,4-Dichlorophenol	U	360	
2,4-Dimethylphenol	U	360		2,4-Dinitrophenol	U	880	
2,4-Dinitrotoluene	U	360		2,6-Dinitrotoluene	U	360	
2-Chloronaphthalene	U	360		2-Chlorophenol	U	360	
2-Methylnaphthalene	U	360		2-Methylphenol	U	360	
2-Nitroaniline	U	880		2-Nitrophenol	U	360	
3,3'-Dichlorobenzidine	U	360		3-Nitroaniline	U	880	
4,6-Dinitro-2-methylphenol	U	880		4-Bromophenyl-phenylether	U	360	
4-Chloro-3-methylphenol	U	360		4-Chloroaniline	U	360	
4-Chlorophenyl-phenylether	U	360		4-Methylphenol	U	360	
4-Nitroaniline	U	880		4-Nitrophenol	U	880	
Acenaphthene	U	360		Acenaphthylene	U	360	
Anthracene	U	360		Benzo(a)anthracene	U	360	
Benzo(a)pyrene	U	360		Benzo(b)fluoranthene	U	360	
Benzo(g,h,i)perylene	U	360		Benzo(k)fluoranthene	U	360	
Butylbenzylphthalate	U	360		Carbazole	U	360	
Chrysene	U	360		Di-n-butylphthalate	U	360	
Di-n-octylphthalate	U	360		Dibenz(a,h)anthracene	U	360	
Dibenzofuran	U	360		Diethylphthalate	U	360	
Dimethylphthalate	U	360		Fluoranthene	J	220	
Fluorene	U	360		Hexachlorobenzene	U	360	
Hexachlorobutadiene	U	360		Hexachlorocyclopentadiene	U	360	
Hexachloroethane	U	360		Indeno(1,2,3-cd)pyrene	U	360	
Isophorone	U	360		N-Nitroso-di-n-propylamine	U	360	
N-Nitrosodiphenylamine (1)	U	360		Naphthalene	U	360	
Nitrobenzene	U	360		Pentachlorophenol	U	880	
Phenanthrene	U	360		Phenol	U	360	
Pyrene	J	200		bis(2-Chloroethoxy)methane	U	360	
bis(2-Chloroethyl)ether	U	360		bis(2-Ethylhexyl)phthalate	U	360	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW2 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-010
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	390		1,2-Dichlorobenzene	U	390	
1,3-Dichlorobenzene	U	390		1,4-Dichlorobenzene	U	390	
2,2'-oxybis(1-Chloropropane)	U	390		2,4,5-Trichlorophenol	U	940	
2,4,6-Trichlorophenol	U	390		2,4-Dichlorophenol	U	390	
2,4-Dimethylphenol	U	390		2,4-Dinitrophenol	U	940	
2,4-Dinitrotoluene	U	390		2,6-Dinitrotoluene	U	390	
2-Chloronaphthalene	U	390		2-Chlorophenol	U	390	
2-Methylnaphthalene	U	390		2-Methylphenol	U	390	
2-Nitroaniline	U	940		2-Nitrophenol	U	390	
3,3'-Dichlorobenzidine	U	390		3-Nitroaniline	U	940	
4,6-Dinitro-2-methylphenol	U	940		4-Bromophenyl-phenylether	U	390	
4-Chloro-3-methylphenol	U	390		4-Chloroaniline	U	390	
4-Chlorophenyl-phenylether	U	390		4-Methylphenol	U	390	
4-Nitroaniline	U	940		4-Nitrophenol	U	940	
Acenaphthene	U	390		Acenaphthylene	U	390	
Anthracene	U	390		Benzo(a)anthracene	U	390	
Benzo(a)pyrene	U	390		Benzo(b)fluoranthene	U	390	
Benzo(g,h,i)perylene	U	390		Benzo(k)fluoranthene	U	390	
Butylbenzylphthalate	U	390		Carbazole	U	390	
Chrysene	U	390		Di-n-butylphthalate	U	390	
Di-n-octylphthalate	U	390		Dibenz(a,h)anthracene	U	390	
Dibenzofuran	U	390		Diethylphthalate	U	390	
Dimethylphthalate	U	390		Fluoranthene	U	390	
Fluorene	U	390		Hexachlorobenzene	U	390	
Hexachlorobutadiene	U	390		Hexachlorocyclopentadiene	U	390	
Hexachloroethane	U	390		Indeno(1,2,3-cd)pyrene	U	390	
Isophorone	U	390		N-Nitroso-di-n-propylamine	U	390	
N-Nitrosodiphenylamine (1)	U	390		Naphthalene	U	390	
Nitrobenzene	U	390		Pentachlorophenol	U	940	
Phenanthrene	U	390		Phenol	U	390	
Pyrene	U	390		bis(2-Chloroethoxy)methane	U	390	
bis(2-Chloroethyl)ether	U	390		bis(2-Ethylhexyl)phthalate	U	390	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW3 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-018
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	890	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	890	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	890		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	890	
4,6-Dinitro-2-methylphenol	U	890		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	890		4-Nitrophenol	U	890	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	J	230	
Benzo(a)pyrene	U	370		Benzo(b)fluoranthene	J	200	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	U	370	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene		480	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	890	
Phenanthrene	U	370		Phenol	U	370	
Pyrene		420		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW3 (4-6) *
****

Sample Collection Date: 3/25/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-017
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL	Validation Data	Analyte	Lab Result or DL	Validation Data
1,2,4-Trichlorobenzene	U 12000		1,2-Dichlorobenzene	U 12000	
1,3-Dichlorobenzene	U 12000		1,4-Dichlorobenzene	U 12000	
2,2'-oxybis(1-Chloropropane)	U 12000		2,4,5-Trichlorophenol	U 29000	
2,4,6-Trichlorophenol	U 12000		2,4-Dichlorophenol	U 12000	
2,4-Dimethylphenol	U 12000		2,4-Dinitrophenol	U 29000	
2,4-Dinitrotoluene	U 12000		2,6-Dinitrotoluene	U 12000	
2-Chloronaphthalene	U 12000		2-Chlorophenol	U 12000	
2-Methylnaphthalene	23000		2-Methylphenol	U 12000	
2-Nitroaniline	U 29000		2-Nitrophenol	U 12000	
3,3'-Dichlorobenzidine	U 12000		3-Nitroaniline	U 29000	
4,6-Dinitro-2-methylphenol	U 29000		4-Bromophenyl-phenylether	U 12000	
4-Chloro-3-methylphenol	U 12000		4-Chloroaniline	U 12000	
4-Chlorophenyl-phenylether	U 12000		4-Methylphenol	U 12000	
4-Nitroaniline	U 29000		4-Nitrophenol	U 29000	
Acenaphthene	U 12000		Acenaphthylene	U 12000	
Anthracene	U 12000		Benzo(a)anthracene	U 12000	
Benzo(a)pyrene	U 12000		Benzo(b)fluoranthene	U 12000	
Benzo(g,h,i)perylene	U 12000		Benzo(k)fluoranthene	U 12000	
Butylbenzylphthalate	U 12000		Carbazole	U 12000	
Chrysene	U 12000		Di-n-butylphthalate	U 12000	
Di-n-octylphthalate	U 12000		Dibenz(a,h)anthracene	U 12000	
Dibenzofuran	U 12000		Diethylphthalate	U 12000	
Dimethylphthalate	U 12000		Fluoranthene	U 12000	
Fluorene	U 12000		Hexachlorobenzene	U 12000	
Hexachlorobutadiene	U 12000		Hexachlorocyclopentadiene	U 12000	
Hexachloroethane	U 12000		Indeno(1,2,3-cd)pyrene	U 12000	
Isophorone	U 12000		N-Nitroso-di-n-propylamine	U 12000	
N-Nitrosodiphenylamine (1)	U 12000		Naphthalene	U 12000	
Nitrobenzene	U 12000		Pentachlorophenol	U 29000	
Phenanthrene	J 7000		Phenol	U 12000	
Pyrene	U 12000		bis(2-Chloroethoxy)methane	U 12000	
bis(2-Chloroethyl)ether	U 12000		bis(2-Ethylhexyl)phthalate	U 12000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 (0-4) *
****

Sample Collection Date: 3/23/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35490-007
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	1400		1,2-Dichlorobenzene	U	1400	
1,3-Dichlorobenzene	U	1400		1,4-Dichlorobenzene	U	1400	
2,2'-oxybis(1-Chloropropane)	U	1400		2,4,5-Trichlorophenol	U	3500	
2,4,6-Trichlorophenol	U	1400		2,4-Dichlorophenol	U	1400	
2,4-Dimethylphenol	U	1400		2,4-Dinitrophenol	U	3500	
2,4-Dinitrotoluene	U	1400		2,6-Dinitrotoluene	U	1400	
2-Chloronaphthalene	U	1400		2-Chlorophenol	U	1400	
2-Methylnaphthalene	J	960		2-Methylphenol	U	1400	
2-Nitroaniline	U	3500		2-Nitrophenol	U	1400	
3,3'-Dichlorobenzidine	U	1400		3-Nitroaniline	U	3500	
4,6-Dinitro-2-methylphenol	U	3500		4-Bromophenyl-phenylether	U	1400	
4-Chloro-3-methylphenol	U	1400		4-Chloroaniline	U	1400	
4-Chlorophenyl-phenylether	U	1400		4-Methylphenol	U	1400	
4-Nitroaniline	U	3500		4-Nitrophenol	U	3500	
Acenaphthene	U	1400		Acenaphthylene	U	1400	
Anthracene	U	1400		Benzo(a)anthracene	U	1400	
Benzo(a)pyrene	U	1400		Benzo(b)fluoranthene	U	1400	
Benzo(g,h,i)perylene	U	1400		Benzo(k)fluoranthene	U	1400	
Butylbenzylphthalate	U	1400		Carbazole	U	1400	
Chrysene	U	1400		Di-n-butylphthalate	U	1400	
Di-n-octylphthalate	U	1400		Dibenz(a,h)anthracene	U	1400	
Dibenzofuran	U	1400		Diethylphthalate	U	1400	
Dimethylphthalate	U	1400		Fluoranthene	U	1400	
Fluorene	U	1400		Hexachlorobenzene	U	1400	
Hexachlorobutadiene	U	1400		Hexachlorocyclopentadiene	U	1400	
Hexachloroethane	U	1400		Indeno(1,2,3-cd)pyrene	U	1400	
Isophorone	U	1400		N-Nitroso-di-n-propylamine	U	1400	
N-Nitrosodiphenylamine (1)	U	1400		Naphthalene	U	1400	
Nitrobenzene	U	1400		Pentachlorophenol	U	3500	
Phenanthrene	U	1400		Phenol	U	1400	
Pyrene	U	1400		bis(2-Chloroethoxy)methane	U	1400	
bis(2-Chloroethyl)ether	U	1400		bis(2-Ethylhexyl)phthalate	U	1400	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35490-008
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL	Validation Data	Analyte	Lab Result or DL	Validation Data
1,2,4-Trichlorobenzene	U 10000		1,2-Dichlorobenzene	U 10000	
1,3-Dichlorobenzene	U 10000		1,4-Dichlorobenzene	U 10000	
2,2'-oxybis(1-Chloropropane)	U 10000		2,4,5-Trichlorophenol	U 26000	
2,4,6-Trichlorophenol	U 10000		2,4-Dichlorophenol	U 10000	
2,4-Dimethylphenol	U 10000		2,4-Dinitrophenol	U 26000	
2,4-Dinitrotoluene	U 10000		2,6-Dinitrotoluene	U 10000	
2-Chloronaphthalene	U 10000		2-Chlorophenol	U 10000	
2-Methylnaphthalene	J 9700		2-Methylphenol	U 10000	
2-Nitroaniline	U 26000		2-Nitrophenol	U 10000	
3,3'-Dichlorobenzidine	U 10000		3-Nitroaniline	U 26000	
4,6-Dinitro-2-methylphenol	U 26000		4-Bromophenyl-phenylether	U 10000	
4-Chloro-3-methylphenol	U 10000		4-Chloroaniline	U 10000	
4-Chlorophenyl-phenylether	U 10000		4-Methylphenol	U 10000	
4-Nitroaniline	U 26000		4-Nitrophenol	U 26000	
Acenaphthene	U 10000		Acenaphthylene	U 10000	
Anthracene	U 10000		Benzo(a)anthracene	U 10000	
Benzo(a)pyrene	U 10000		Benzo(b)fluoranthene	U 10000	
Benzo(g,h,i)perylene	U 10000		Benzo(k)fluoranthene	U 10000	
Butylbenzylphthalate	U 10000		Carbazole	U 10000	
Chrysene	U 10000		Di-n-butylphthalate	U 10000	
Di-n-octylphthalate	U 10000		Dibenz(a,h)anthracene	U 10000	
Dibenzofuran	U 10000		Diethylphthalate	U 10000	
Dimethylphthalate	U 10000		Fluoranthene	U 10000	
Fluorene	U 10000		Hexachlorobenzene	U 10000	
Hexachlorobutadiene	U 10000		Hexachlorocyclopentadiene	U 10000	
Hexachloroethane	U 10000		Indeno(1,2,3-cd)pyrene	U 10000	
Isophorone	U 10000		N-Nitroso-di-n-propylamine	U 10000	
N-Nitrosodiphenylamine (1)	U 10000		Naphthalene	U 10000	
Nitrobenzene	U 10000		Pentachlorophenol	U 26000	
Phenanthrene	U 10000		Phenol	U 10000	
Pyrene	U 10000		bis(2-Chloroethoxy)methane	U 10000	
bis(2-Chloroethyl)ether	U 10000		bis(2-Ethylhexyl)phthalate	U 10000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD1 *
****

Sample Collection Date: 4/07/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-011
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/22/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	14000		1,2-Dichlorobenzene	U	14000	
1,3-Dichlorobenzene	U	14000		1,4-Dichlorobenzene	U	14000	
2,2'-oxybis(1-Chloropropane)	U	14000		2,4,5-Trichlorophenol	U	34000	
2,4,6-Trichlorophenol	U	14000		2,4-Dichlorophenol	U	14000	
2,4-Dimethylphenol	U	14000		2,4-Dinitrophenol	U	34000	
2,4-Dinitrotoluene	U	14000		2,6-Dinitrotoluene	U	14000	
2-Chloronaphthalene	U	14000		2-Chlorophenol	U	14000	
2-Methylnaphthalene	U	14000		2-Methylphenol	U	14000	
2-Nitroaniline	U	34000		2-Nitrophenol	U	14000	
3,3'-Dichlorobenzidine	U	14000		3-Nitroaniline	U	34000	
4,6-Dinitro-2-methylphenol	U	34000		4-Bromophenyl-phenylether	U	14000	
4-Chloro-3-methylphenol	U	14000		4-Chloroaniline	U	14000	
4-Chlorophenyl-phenylether	U	14000		4-Methylphenol	U	14000	
4-Nitroaniline	U	34000		4-Nitrophenol	U	34000	
cenaphthene	J	7300		Acenaphthylene	U	14000	
Anthracene	J	9500		Benzo(a)anthracene		17000	
Benzo(a)pyrene		18000		Benzo(b)fluoranthene		26000	
Benzo(g,h,i)perylene	J	10000		Benzo(k)fluoranthene	U	14000	
Butylbenzylphthalate	U	14000		Carbazole	J	8100	
Chrysene		19000		Di-n-butylphthalate	U	14000	
Di-n-octylphthalate	U	14000		Dibenz(a,h)anthracene	U	14000	
Dibenzofuran	U	14000		Diethylphthalate	U	14000	
Dimethylphthalate	U	14000		Fluoranthene		44000	
Fluorene	J	8000		Hexachlorobenzene	U	14000	
Hexachlorobutadiene	U	14000		Hexachlorocyclopentadiene	U	14000	
Hexachloroethane	U	14000		Indeno(1,2,3-cd)pyrene	J	9900	
Isophorone	U	14000		N-Nitroso-di-n-propylamine	U	14000	
N-Nitrosodiphenylamine (1)	U	14000		Naphthalene	J	8600	
Nitrobenzene	U	14000		Pentachlorophenol	U	34000	
Phenanthrene		40000		Phenol	U	14000	
Pyrene		31000		bis(2-Chloroethoxy)methane	U	14000	
bis(2-Chloroethyl)ether	U	14000		bis(2-Ethylhexyl)phthalate	U	14000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD11 *
****

Sample Collection Date: 4/07/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-012
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/22/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11000		1,2-Dichlorobenzene	U	11000	
1,3-Dichlorobenzene	U	11000		1,4-Dichlorobenzene	U	11000	
2,2'-oxybis(1-Chloropropane)	U	11000		2,4,5-Trichlorophenol	U	28000	
2,4,6-Trichlorophenol	U	11000		2,4-Dichlorophenol	U	11000	
2,4-Dimethylphenol	U	11000		2,4-Dinitrophenol	U	28000	
2,4-Dinitrotoluene	U	11000		2,6-Dinitrotoluene	U	11000	
2-Chloronaphthalene	U	11000		2-Chlorophenol	U	11000	
2-Methylnaphthalene	U	11000		2-Methylphenol	U	11000	
2-Nitroaniline	U	28000		2-Nitrophenol	U	11000	
3,3'-Dichlorobenzidine	U	11000		3-Nitroaniline	U	28000	
4,6-Dinitro-2-methylphenol	U	28000		4-Bromophenyl-phenylether	U	11000	
4-Chloro-3-methylphenol	U	11000		4-Chloroaniline	U	11000	
4-Chlorophenyl-phenylether	U	11000		4-Methylphenol	U	11000	
4-Nitroaniline	U	28000		4-Nitrophenol	U	28000	
Acenaphthene	U	11000		Acenaphthylene	U	11000	
Anthracene	U	11000		Benzo(a)anthracene	U	11000	
Benzo(a)pyrene	U	11000		Benzo(b)fluoranthene	U	11000	
Benzo(g,h,i)perylene	U	11000		Benzo(k)fluoranthene	U	11000	
Butylbenzylphthalate	U	11000		Carbazole	U	11000	
Chrysene	U	11000		Di-n-butylphthalate	U	11000	
Di-n-octylphthalate	U	11000		Dibenz(a,h)anthracene	U	11000	
Dibenzofuran	U	11000		Diethylphthalate	U	11000	
Dimethylphthalate	U	11000		Fluoranthene	J	8600	
Fluorene	U	11000		Hexachlorobenzene	U	11000	
Hexachlorobutadiene	U	11000		Hexachlorocyclopentadiene	U	11000	
Hexachloroethane	U	11000		Indeno(1,2,3-cd)pyrene	U	11000	
Isophorone	U	11000		N-Nitroso-di-n-propylamine	U	11000	
N-Nitrosodiphenylamine (1)	U	11000		Naphthalene	U	11000	
Nitrobenzene	U	11000		Pentachlorophenol	U	28000	
Phenanthrene	J	8200		Phenol	U	11000	
Pyrene	J	6000		bis(2-Chloroethoxy)methane	U	11000	
bis(2-Chloroethyl)ether	U	11000		bis(2-Ethylhexyl)phthalate	U	11000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD2 *
****

Sample Collection Date: 4/07/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-013
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/20/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	870		1,2-Dichlorobenzene	U	870	
1,3-Dichlorobenzene	U	870		1,4-Dichlorobenzene	U	870	
2,2'-oxybis(1-Chloropropane)	U	870		2,4,5-Trichlorophenol	U	2100	
2,4,6-Trichlorophenol	U	870		2,4-Dichlorophenol	U	870	
2,4-Dimethylphenol	U	870		2,4-Dinitrophenol	U	2100	
2,4-Dinitrotoluene	U	870		2,6-Dinitrotoluene	U	870	
2-Chloronaphthalene	U	870		2-Chlorophenol	U	870	
2-Methylnaphthalene	U	870		2-Methylphenol	U	870	
2-Nitroaniline	U	2100		2-Nitrophenol	U	870	
3,3'-Dichlorobenzidine	U	870		3-Nitroaniline	U	2100	
4,6-Dinitro-2-methylphenol	U	2100		4-Bromophenyl-phenylether	U	870	
4-Chloro-3-methylphenol	U	870		4-Chloroaniline	U	870	
4-Chlorophenyl-phenylether	U	870		4-Methylphenol	U	870	
4-Nitroaniline	U	2100		4-Nitrophenol	U	2100	
Acenaphthene	U	870		Acenaphthylene	U	870	
Anthracene	U	870		Benzo(a)anthracene	U	870	
Benzo(a)pyrene	U	870		Benzo(b)fluoranthene	J	530	
Benzo(g,h,i)perylene	U	870		Benzo(k)fluoranthene	U	870	
Butylbenzylphthalate	U	870		Carbazole	U	870	
Chrysene	U	870		Di-n-butylphthalate	U	870	
Di-n-octylphthalate	U	870		Dibenz(a,h)anthracene	U	870	
Dibenzofuran	U	870		Diethylphthalate	U	870	
Dimethylphthalate	U	870		Fluoranthene	J	630	
Fluorene	U	870		Hexachlorobenzene	U	870	
Hexachlorobutadiene	U	870		Hexachlorocyclopentadiene	U	870	
Hexachloroethane	U	870		Indeno(1,2,3-cd)pyrene	U	870	
Isophorone	U	870		N-Nitroso-di-n-propylamine	U	870	
N-Nitrosodiphenylamine (1)	U	870		Naphthalene	U	870	
Nitrobenzene	U	870		Pentachlorophenol	U	2100	
Phenanthrene	J	510		Phenol	U	870	
Pyrene	J	680		bis(2-Chloroethoxy)methane	U	870	
bis(2-Chloroethyl)ether	U	870		bis(2-Ethylhexyl)phthalate		2100	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19SS1 *
****

Sample Collection Date: 4/07/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-010
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/23/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	20000		1,2-Dichlorobenzene	U	20000	
1,3-Dichlorobenzene	U	20000		1,4-Dichlorobenzene	U	20000	
2,2'-oxybis(1-Chloropropane)	U	20000		2,4,5-Trichlorophenol	U	49000	
2,4,6-Trichlorophenol	U	20000		2,4-Dichlorophenol	U	20000	
2,4-Dimethylphenol	U	20000		2,4-Dinitrophenol	U	49000	
2,4-Dinitrotoluene	U	20000		2,6-Dinitrotoluene	U	20000	
2-Chloronaphthalene	U	20000		2-Chlorophenol	U	20000	
2-Methylnaphthalene	U	20000		2-Methylphenol	U	20000	
2-Nitroaniline	U	49000		2-Nitrophenol	U	20000	
3,3'-Dichlorobenzidine	U	20000		3-Nitroaniline	U	49000	
4,6-Dinitro-2-methylphenol	U	49000		4-Bromophenyl-phenylether	U	20000	
4-Chloro-3-methylphenol	U	20000		4-Chloroaniline	U	20000	
4-Chlorophenyl-phenylether	U	20000		4-Methylphenol	U	20000	
4-Nitroaniline	U	49000		4-Nitrophenol	U	49000	
Acenaphthene	U	20000		Acenaphthylene	U	20000	
Anthracene	U	20000		Benzo(a)anthracene	U	20000	
Benzo(a)pyrene	U	20000		Benzo(b)fluoranthene	U	20000	
Benzo(g,h,i)perylene	U	20000		Benzo(k)fluoranthene	U	20000	
Butylbenzylphthalate	U	20000		Carbazole	U	20000	
Chrysene	U	20000		Di-n-butylphthalate	U	20000	
Di-n-octylphthalate	U	20000		Dibenz(a,h)anthracene	U	20000	
Dibenzofuran	U	20000		Diethylphthalate	U	20000	
Dimethylphthalate	U	20000		Fluoranthene	U	20000	
Fluorene	U	20000		Hexachlorobenzene	U	20000	
Hexachlorobutadiene	U	20000		Hexachlorocyclopentadiene	U	20000	
Hexachloroethane	U	20000		Indeno(1,2,3-cd)pyrene	U	20000	
Isophorone	U	20000		N-Nitroso-di-n-propylamine	U	20000	
N-Nitrosodiphenylamine (1)	U	20000		Naphthalene	U	20000	
Nitrobenzene	U	20000		Pentachlorophenol	U	49000	
Phenanthrene	U	20000		Phenol	U	20000	
Pyrene	U	20000		bis(2-Chloroethoxy)methane	U	20000	
bis(2-Chloroethyl)ether	U	20000		bis(2-Ethylhexyl)phthalate	U	20000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB1 (0-4) *
****

Sample Collection Date: 3/23/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35490-009
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	350		1,2-Dichlorobenzene	U	350	
1,3-Dichlorobenzene	U	350		1,4-Dichlorobenzene	U	350	
2,2'-oxybis(1-Chloropropane)	U	350		2,4,5-Trichlorophenol	U	840	
2,4,6-Trichlorophenol	U	350		2,4-Dichlorophenol	U	350	
2,4-Dimethylphenol	U	350		2,4-Dinitrophenol	U	840	
2,4-Dinitrotoluene	U	350		2,6-Dinitrotoluene	U	350	
2-Chloronaphthalene	U	350		2-Chlorophenol	U	350	
2-Methylnaphthalene	U	350		2-Methylphenol	U	350	
2-Nitroaniline	U	840		2-Nitrophenol	U	350	
3,3'-Dichlorobenzidine	U	350		3-Nitroaniline	U	840	
4,6-Dinitro-2-methylphenol	U	840		4-Bromophenyl-phenylether	U	350	
4-Chloro-3-methylphenol	U	350		4-Chloroaniline	U	350	
4-Chlorophenyl-phenylether	U	350		4-Methylphenol	U	350	
4-Nitroaniline	U	840		4-Nitrophenol	U	840	
Acenaphthene	U	350		Acenaphthylene	U	350	
Anthracene	U	350		Benzo(a)anthracene	U	350	
Benzo(a)pyrene	U	350		Benzo(b)fluoranthene	U	350	
Benzo(g,h,i)perylene	U	350		Benzo(k)fluoranthene	U	350	
Butylbenzylphthalate	U	350		Carbazole	U	350	
Chrysene	U	350		Di-n-butylphthalate	U	350	
Di-n-octylphthalate	U	350		Dibenz(a,h)anthracene	U	350	
Dibenzofuran	U	350		Diethylphthalate	U	350	
Dimethylphthalate	U	350		Fluoranthene	U	350	
Fluorene	U	350		Hexachlorobenzene	U	350	
Hexachlorobutadiene	U	350		Hexachlorocyclopentadiene	U	350	
Hexachloroethane	U	350		Indeno(1,2,3-cd)pyrene	U	350	
Isophorone	U	350		N-Nitroso-di-n-propylamine	U	350	
N-Nitrosodiphenylamine (1)	U	350		Naphthalene	U	350	
Nitrobenzene	U	350		Pentachlorophenol	U	840	
Phenanthrene	U	350		Phenol	U	350	
Pyrene	U	350		bis(2-Chloroethoxy)methane	U	350	
bis(2-Chloroethyl)ether	U	350		bis(2-Ethylhexyl)phthalate	U	350	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****

* SAMPLE ID: 19TB1 (6-8) *

****

Sample Collection Date: 3/23/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35490-010
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	390		1,2-Dichlorobenzene	U	390	
1,3-Dichlorobenzene	U	390		1,4-Dichlorobenzene	U	390	
2,2'-oxybis(1-Chloropropane)	U	390		2,4,5-Trichlorophenol	U	940	
2,4,6-Trichlorophenol	U	390		2,4-Dichlorophenol	U	390	
2,4-Dimethylphenol	U	390		2,4-Dinitrophenol	U	940	
2,4-Dinitrotoluene	U	390		2,6-Dinitrotoluene	U	390	
2-Chloronaphthalene	U	390		2-Chlorophenol	U	390	
2-Methylnaphthalene	U	390		2-Methylphenol	U	390	
2-Nitroaniline	U	940		2-Nitrophenol	U	390	
3,3'-Dichlorobenzidine	U	390		3-Nitroaniline	U	940	
4,6-Dinitro-2-methylphenol	U	940		4-Bromophenyl-phenylether	U	390	
4-Chloro-3-methylphenol	U	390		4-Chloroaniline	U	390	
4-Chlorophenyl-phenylether	U	390		4-Methylphenol	U	390	
4-Nitroaniline	U	940		4-Nitrophenol	U	940	
Acenaphthene	U	390		Acenaphthylene	U	390	
Anthracene	U	390		Benzo(a)anthracene	U	390	
Benzo(a)pyrene	U	390		Benzo(b)fluoranthene	U	390	
Benzo(g,h,i)perylene	U	390		Benzo(k)fluoranthene	U	390	
Butylbenzylphthalate	U	390		Carbazole	U	390	
Chrysene	U	390		Di-n-butylphthalate	U	390	
Di-n-octylphthalate	U	390		Dibenz(a,h)anthracene	U	390	
Dibenzofuran	U	390		Diethylphthalate	U	390	
Dimethylphthalate	U	390		Fluoranthene	U	390	
Fluorene	U	390		Hexachlorobenzene	U	390	
Hexachlorobutadiene	U	390		Hexachlorocyclopentadiene	U	390	
Hexachloroethane	U	390		Indeno(1,2,3-cd)pyrene	U	390	
Isophorone	U	390		N-Nitroso-di-n-propylamine	U	390	
N-Nitrosodiphenylamine (1)	U	390		Naphthalene	U	390	
Nitrobenzene	U	390		Pentachlorophenol	U	940	
Phenanthrene	U	390		Phenol	U	390	
Pyrene	U	390		bis(2-Chloroethoxy)methane	U	390	
bis(2-Chloroethyl)ether	U	390		bis(2-Ethylhexyl)phthalate	U	390	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB2 (0-2) *
****

Sample Collection Date: 3/22/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35490-011
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	340		1,2-Dichlorobenzene	U	340	
1,3-Dichlorobenzene	U	340		1,4-Dichlorobenzene	U	340	
2,2'-oxybis(1-Chloropropane)	U	340		2,4,5-Trichlorophenol	U	830	
2,4,6-Trichlorophenol	U	340		2,4-Dichlorophenol	U	340	
2,4-Dimethylphenol	U	340		2,4-Dinitrophenol	U	830	
2,4-Dinitrotoluene	U	340		2,6-Dinitrotoluene	U	340	
2-Chloronaphthalene	U	340		2-Chlorophenol	U	340	
2-Methylnaphthalene	U	340		2-Methylphenol	U	340	
2-Nitroaniline	U	830		2-Nitrophenol	U	340	
3,3'-Dichlorobenzidine	U	340		3-Nitroaniline	U	830	
4,6-Dinitro-2-methylphenol	U	830		4-Bromophenyl-phenylether	U	340	
4-Chloro-3-methylphenol	U	340		4-Chloroaniline	U	340	
4-Chlorophenyl-phenylether	U	340		4-Methylphenol	U	340	
4-Nitroaniline	U	830		4-Nitrophenol	U	830	
Acenaphthene	U	340		Acenaphthylene	U	340	
Anthracene	U	340		Benzo(a)anthracene	U	340	
Benzo(a)pyrene	U	340		Benzo(b)fluoranthene	U	340	
Benzo(g,h,i)perylene	U	340		Benzo(k)fluoranthene	U	340	
Butylbenzylphthalate	U	340		Carbazole	U	340	
Chrysene	U	340		Di-n-butylphthalate	U	340	
Di-n-octylphthalate	U	340		Dibenz(a,h)anthracene	U	340	
Dibenzofuran	U	340		Diethylphthalate	U	340	
Dimethylphthalate	U	340		Fluoranthene	U	340	
Fluorene	U	340		Hexachlorobenzene	U	340	
Hexachlorobutadiene	U	340		Hexachlorocyclopentadiene	U	340	
Hexachloroethane	U	340		Indeno(1,2,3-cd)pyrene	U	340	
Isophorone	U	340		N-Nitroso-di-n-propylamine	U	340	
N-Nitrosodiphenylamine (1)	U	340		Naphthalene	U	340	
Nitrobenzene	U	340		Pentachlorophenol	U	830	
Phenanthrene	U	340		Phenol	U	340	
Pyrene	U	340		bis(2-Chloroethoxy)methane	U	340	
bis(2-Chloroethyl)ether	U	340		bis(2-Ethylhexyl)phthalate	U	340	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB2 (6-8) *
****

Sample Collection Date: 3/22/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35490-012
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL	Validation Data	Analyte	Lab Result or DL	Validation Data
1,2,4-Trichlorobenzene	U 22000		1,2-Dichlorobenzene	U 22000	
1,3-Dichlorobenzene	U 22000		1,4-Dichlorobenzene	U 22000	
2,2'-oxybis(1-Chloropropane)	U 22000		2,4,5-Trichlorophenol	U 56000	
2,4,6-Trichlorophenol	U 22000		2,4-Dichlorophenol	U 22000	
2,4-Dimethylphenol	U 22000		2,4-Dinitrophenol	U 56000	
2,4-Dinitrotoluene	U 22000		2,6-Dinitrotoluene	U 22000	
2-Chloronaphthalene	U 22000		2-Chlorophenol	U 22000	
2-Methylnaphthalene	U 22000		2-Methylphenol	U 22000	
2-Nitroaniline	U 56000		2-Nitrophenol	U 22000	
3,3'-Dichlorobenzidine	U 22000		3-Nitroaniline	U 56000	
4,6-Dinitro-2-methylphenol	U 56000		4-Bromophenyl-phenylether	U 22000	
4-Chloro-3-methylphenol	U 22000		4-Chloroaniline	U 22000	
4-Chlorophenyl-phenylether	U 22000		4-Methylphenol	U 22000	
4-Nitroaniline	U 56000		4-Nitrophenol	U 56000	
Acenaphthene	U 22000		Acenaphthylene	U 22000	
Anthracene	U 22000		Benzo(a)anthracene	U 22000	
Benzo(a)pyrene	U 22000		Benzo(b)fluoranthene	U 22000	
Benzo(g,h,i)perylene	U 22000		Benzo(k)fluoranthene	U 22000	
Butylbenzylphthalate	U 22000		Carbazole	U 22000	
Chrysene	U 22000		Di-n-butylphthalate	U 22000	
Di-n-octylphthalate	U 22000		Dibenz(a,h)anthracene	U 22000	
Dibenzofuran	U 22000		Diethylphthalate	U 22000	
Dimethylphthalate	U 22000		Fluoranthene	U 22000	
Fluorene	U 22000		Hexachlorobenzene	U 22000	
Hexachlorobutadiene	U 22000		Hexachlorocyclopentadiene	U 22000	
Hexachloroethane	U 22000		Indeno(1,2,3-cd)pyrene	U 22000	
Isophorone	U 22000		N-Nitroso-di-n-propylamine	U 22000	
N-Nitrosodiphenylamine (1)	U 22000		Naphthalene	U 22000	
Nitrobenzene	U 22000		Pentachlorophenol	U 56000	
Phenanthrene	U 22000		Phenol	U 22000	
Pyrene	U 22000		bis(2-Chloroethoxy)methane	U 22000	
bis(2-Chloroethyl)ether	U 22000		bis(2-Ethylhexyl)phthalate	U 22000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB3 (10-12) *
****

Sample Collection Date: 3/24/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-013
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	900	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	900	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	900		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	900	
4,6-Dinitro-2-methylphenol	U	900		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	900		4-Nitrophenol	U	900	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	U	370	
Benzo(a)pyrene	U	370		Benzo(b)fluoranthene	U	370	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	U	370	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	U	370	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	900	
Phenanthrene	U	370		Phenol	U	370	
Pyrene	U	370		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****

* SAMPLE ID: 19TB3 (2-4) *

****

Sample Collection Date: 3/24/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-014

Lab Receipt Date: 3/26/93

Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	890	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	890	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	890		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	890	
4,6-Dinitro-2-methylphenol	U	890		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	890		4-Nitrophenol	U	890	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	U	370	
Benzo(a)pyrene	U	370		Benzo(b)fluoranthene	U	370	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	U	370	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	U	370	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	890	
Phenanthrene	U	370		Phenol	U	370	
Pyrene	U	370		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (0-2) *
****

Sample Collection Date: 3/24/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-016
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	360		1,2-Dichlorobenzene	U	360	
1,3-Dichlorobenzene	U	360		1,4-Dichlorobenzene	U	360	
2,2'-oxybis(1-Chloropropane)	U	360		2,4,5-Trichlorophenol	U	880	
2,4,6-Trichlorophenol	U	360		2,4-Dichlorophenol	U	360	
2,4-Dimethylphenol	U	360		2,4-Dinitrophenol	U	880	
2,4-Dinitrotoluene	U	360		2,6-Dinitrotoluene	U	360	
2-Chloronaphthalene	U	360		2-Chlorophenol	U	360	
2-Methylnaphthalene	U	360		2-Methylphenol	U	360	
2-Nitroaniline	U	880		2-Nitrophenol	U	360	
3,3'-Dichlorobenzidine	U	360		3-Nitroaniline	U	880	
4,6-Dinitro-2-methylphenol	U	880		4-Bromophenyl-phenylether	U	360	
4-Chloro-3-methylphenol	U	360		4-Chloroaniline	U	360	
4-Chlorophenyl-phenylether	U	360		4-Methylphenol	U	360	
4-Nitroaniline	U	880		4-Nitrophenol	U	880	
Acenaphthene	U	360		Acenaphthylene	U	360	
Anthracene	U	360		Benzo(a)anthracene	U	360	
Benzo(a)pyrene	U	360		Benzo(b)fluoranthene	U	360	
Benzo(g,h,i)perylene	U	360		Benzo(k)fluoranthene	U	360	
Butylbenzylphthalate	U	360		Carbazole	U	360	
Chrysene	U	360		Di-n-butylphthalate	U	360	
Di-n-octylphthalate	U	360		Dibenz(a,h)anthracene	U	360	
Dibenzofuran	U	360		Diethylphthalate	U	360	
Dimethylphthalate	U	360		Fluoranthene	U	360	
Fluorene	U	360		Hexachlorobenzene	U	360	
Hexachlorobutadiene	U	360		Hexachlorocyclopentadiene	U	360	
Hexachloroethane	U	360		Indeno(1,2,3-cd)pyrene	U	360	
Isophorone	U	360		N-Nitroso-di-n-propylamine	U	360	
N-Nitrosodiphenylamine (1)	U	360		Naphthalene	U	360	
Nitrobenzene	U	360		Pentachlorophenol	U	880	
Phenanthrene	U	360		Phenol	U	360	
Pyrene	U	360		bis(2-Chloroethoxy)methane	U	360	
bis(2-Chloroethyl)ether	U	360		bis(2-Ethylhexyl)phthalate	U	360	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-015
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	890	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	890	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	890		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	890	
4,6-Dinitro-2-methylphenol	U	890		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	890		4-Nitrophenol	U	890	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	U	370	
Benzo(a)pyrene	U	370		Benzo(b)fluoranthene	U	370	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	U	370	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	U	370	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	890	
Phenanthrene	U	370		Phenol	U	370	
Pyrene	U	370		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****

* SAMPLE ID: 19MW1 (0.25-2.25) *

****

Sample Collection Date: 4/30/93 Method: OLM01.8 SOW Units: UG/KG Laboratory ID: 4061.7

Lab Receipt Date: 5/06/93

Sample Analysis Date: 5/27/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	410		1,2-Dichlorobenzene	U	410	
1,3-Dichlorobenzene	U	410		1,4-Dichlorobenzene	U	410	
2,2'-oxybis(1-Chloropropane)	U	410		2,4,5-Trichlorophenol	U	1000	
2,4,6-Trichlorophenol	U	410		2,4-Dichlorophenol	U	410	
2,4-Dimethylphenol	U	410		2,4-Dinitrophenol	U	1000	
2,4-Dinitrotoluene	U	410		2,6-Dinitrotoluene	U	410	
2-Chloronaphthalene	U	410		2-Chlorophenol	U	410	
2-Methylnaphthalene	J	32		2-Methylphenol	U	410	
2-Nitroaniline	U	1000		2-Nitrophenol	U	410	
3,3'-Dichlorobenzidine	U	410		3-Nitroaniline	U	1000	
4,6-Dinitro-2-methylphenol	U	1000		4-Bromophenyl-phenylether	U	410	
4-Chloro-3-methylphenol	U	410		4-Chloroaniline	U	410	
4-Chlorophenyl-phenylether	U	410		4-Methylphenol	U	410	
4-Nitroaniline	U	1000		4-Nitrophenol	U	1000	
Acenaphthene	U	410		Acenaphthylene	U	410	
Anthracene	J	1		Benzo(a)anthracene	J	24	
Benzo(a)pyrene	J	38		Benzo(b)fluoranthene	J	32	
Benzo(g,h,i)perylene	U	410		Benzo(k)fluoranthene	J	25	
Butylbenzylphthalate	U	410		Carbazole	U	410	
Chrysene	J	62		Di-n-butylphthalate	U	410	
Di-n-octylphthalate	U	410		Dibenz(a,h)anthracene	U	410	
Dibenzofuran	U	410		Diethylphthalate	U	410	
Dimethylphthalate	U	410		Fluoranthene	J	72	
Fluorene	U	410		Hexachlorobenzene	U	410	
Hexachlorobutadiene	U	410		Hexachlorocyclopentadiene	U	410	
Hexachloroethane	U	410		Indeno(1,2,3-cd)pyrene	U	410	
Isophorone	U	410		N-Nitroso-di-n-propylamine	U	410	
N-Nitrosodiphenylamine (1)	U	410		Naphthalene	J	22	
Nitrobenzene	U	410		Pentachlorophenol	U	1000	
Phenanthrene	J	64		Phenol	U	410	
Pyrene	J	41		bis(2-Chloroethoxy)methane	U	410	
bis(2-Chloroethyl)ether	U	410		bis(2-Ethylhexyl)phthalate	J	20	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****

* SAMPLE ID: 19MW11 (0.25-2.25) *

****

Sample Collection Date: 4/30/93 Method: OLM01.8 SOW Units: UG/KG Laboratory ID: 4062.5

Lab Receipt Date: 5/06/93

Sample Analysis Date: 5/27/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	400		1,2-Dichlorobenzene	U	400	
1,3-Dichlorobenzene	U	400		1,4-Dichlorobenzene	U	400	
2,2'-oxybis(1-Chloropropane)	U	400		2,4,5-Trichlorophenol	U	1000	
2,4,6-Trichlorophenol	U	400		2,4-Dichlorophenol	U	400	
2,4-Dimethylphenol	U	400		2,4-Dinitrophenol	U	1000	
2,4-Dinitrotoluene	U	400		2,6-Dinitrotoluene	U	400	
2-Chloronaphthalene	U	400		2-Chlorophenol	U	400	
2-Methylnaphthalene	J	51		2-Methylphenol	U	400	
2-Nitroaniline	U	1000		2-Nitrophenol	U	400	
3,3'-Dichlorobenzidine	U	400		3-Nitroaniline	U	1000	
4,6-Dinitro-2-methylphenol	U	1000		4-Bromophenyl-phenylether	U	400	
4-Chloro-3-methylphenol	U	400		4-Chloroaniline	U	400	
4-Chlorophenyl-phenylether	U	400		4-Methylphenol	U	400	
4-Nitroaniline	U	1000		4-Nitrophenol	U	1000	
Acenaphthene	U	400		Acenaphthylene	U	400	
Anthracene	J	8		Benzo(a)anthracene	J	77	
Benzo(a)pyrene	J	56		Benzo(b)fluoranthene	J	87	
Benzo(g,h,i)perylene	U	400		Benzo(k)fluoranthene	J	84	
Butylbenzylphthalate	J	24		Carbazole	U	400	
Chrysene	J	76		Di-n-butylphthalate	U	400	
Di-n-octylphthalate	J	62		Dibenz(a,h)anthracene	U	400	
Dibenzofuran	U	400		Diethylphthalate	U	400	
Dimethylphthalate	U	400		Fluoranthene	J	120	
Fluorene	U	400		Hexachlorobenzene	U	400	
Hexachlorobutadiene	U	400		Hexachlorocyclopentadiene	U	400	
Hexachloroethane	U	400		Indeno(1,2,3-cd)pyrene	U	400	
Isophorone	U	400		N-Nitroso-di-n-propylamine	U	400	
N-Nitrosodiphenylamine (1)	U	400		Naphthalene	U	400	
Nitrobenzene	U	400		Pentachlorophenol	U	1000	
Phenanthrene	J	100		Phenol	U	400	
Pyrene	J	88		bis(2-Chloroethoxy)methane	U	400	
bis(2-Chloroethyl)ether	U	400		bis(2-Ethylhexyl)phthalate	J	32	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19MW12 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35519-010
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	82.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19MW2 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35519-009
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	67.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19MW3 (4-6) *
****

Sample Collection Date: 3/25/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35519-013
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	5300.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19MW4 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35495-001
Lab Receipt Date: 3/24/93
Sample Analysis Date: 3/29/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	3300.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19SD1 *
****

Sample Collection Date: 4/07/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35674-005
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	3300.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19SD11 *
****

Sample Collection Date: 4/07/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35674-006
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	5000.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19SD2 *
****

Sample Collection Date: 4/07/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35674-007
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	1800.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19SS1 *
****

Sample Collection Date: 4/07/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35674-004
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	6800.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19TB1 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35495-002
Lab Receipt Date: 3/24/93
Sample Analysis Date: 3/29/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	82.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19TB2 (6-8) *
****

Sample Collection Date: 3/22/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35495-003
Lab Receipt Date: 3/24/93
Sample Analysis Date: 3/29/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	6200.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19TB3 (10-12) *
****

Sample Collection Date: 3/24/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35519-011
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	66.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19TB4 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35519-012
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	78.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****

* SAMPLE ID: 19MW1 (0.25-2.25) *

****

Sample Collection Date: 4/30/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35955-012
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	75.0000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****

* SAMPLE ID: 19MW11 (0.25-2.25) *

****

Sample Collection Date: 4/30/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35955-013
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	78.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW12 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-012
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/10/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260		42.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW2 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-011
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260		140.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	73.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW2 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-010
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260	U	36.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	74.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW3 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-018
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260		56.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	72.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW3 (4-6) *
****

Sample Collection Date: 3/25/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-017
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/11/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	76.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW4 (0-4) *
****

Sample Collection Date: 3/23/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35490-007
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260	U	35.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	72.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT	U	3.5000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW4 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35490-008
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.8000	
Aroclor-1260	U	38.0000	
Aroclor-1254	U	38.0000	
Aroclor-1221	U	77.0000	
Aroclor-1232	U	38.0000	
Aroclor-1248	U	38.0000	
Aroclor-1016	U	38.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.8000	
4,4'-DDT	U	3.8000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	38.0000	
Endrin ketone	U	3.8000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.8000	
Endrin	U	3.8000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.8000	
4,4'-DDE	U	3.8000	
Endrin aldehyde	U	3.8000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19SD1 *
****

Sample Collection Date: 4/07/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-011
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/29/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	23.0000	
Endosulfan sulfate	U	44.0000	
Aroclor-1260	U	440.0000	
Aroclor-1254	U	440.0000	
Aroclor-1221	U	890.0000	
Aroclor-1232	U	440.0000	
Aroclor-1248	U	440.0000	
Aroclor-1016	U	440.0000	
Aldrin	U	23.0000	
alpha-BHC	U	23.0000	
beta-BHC	U	23.0000	
delta-BHC	U	23.0000	
Endosulfan II	U	44.0000	
4,4'-DDT	U	44.0000	
alpha-Chlordane	U	23.0000	
gamma-Chlordane	U	23.0000	
Aroclor-1242	U	440.0000	
Endrin ketone	U	44.0000	
gamma-BHC (Lindane)	U	23.0000	
Dieldrin	U	44.0000	
Endrin	U	44.0000	
Methoxychlor	U	230.0000	
4,4'-DDD	U	44.0000	
4,4'-DDE	U	44.0000	
Endrin aldehyde	U	44.0000	
Heptachlor	U	23.0000	
Toxaphene	U	2300.0000	
Endosulfan I	U	23.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19SD11 *
****

Sample Collection Date: 4/07/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-012
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/29/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	21.0000	
Endosulfan sulfate	U	41.0000	
Aroclor-1260	U	410.0000	
Aroclor-1254	U	410.0000	
Aroclor-1221	U	840.0000	
Aroclor-1232	U	410.0000	
Aroclor-1248	U	410.0000	
Aroclor-1016	U	410.0000	
Aldrin	U	21.0000	
alpha-BHC	U	21.0000	
beta-BHC	U	21.0000	
delta-BHC	U	21.0000	
Endosulfan II	U	41.0000	
4,4'-DDT	U	41.0000	
alpha-Chlordane	U	21.0000	
gamma-Chlordane	U	21.0000	
Aroclor-1242	U	410.0000	
Endrin ketone	U	41.0000	
gamma-BHC (Lindane)	U	21.0000	
Dieldrin	U	41.0000	
Endrin	U	41.0000	
Methoxychlor	U	210.0000	
4,4'-DDD	U	41.0000	
4,4'-DDE	U	41.0000	
Endrin aldehyde	U	41.0000	
Heptachlor	U	21.0000	
Toxaphene	U	2100.0000	
Endosulfan I	U	21.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19SD2 *
****

Sample Collection Date: 4/07/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-013
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/29/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	23.0000	
Endosulfan sulfate	U	44.0000	
Aroclor-1260	U	440.0000	
Aroclor-1254	U	440.0000	
Aroclor-1221	U	900.0000	
Aroclor-1232	U	440.0000	
Aroclor-1248	U	440.0000	
Aroclor-1016	U	440.0000	
Aldrin	U	23.0000	
alpha-BHC	U	23.0000	
beta-BHC	U	23.0000	
delta-BHC	U	23.0000	
Endosulfan II	U	44.0000	
4,4'-DDT	U	44.0000	
alpha-Chlordane	U	23.0000	
gamma-Chlordane	U	23.0000	
Aroclor-1242	U	440.0000	
Endrin ketone	U	44.0000	
gamma-BHC (Lindane)	U	23.0000	
Dieldrin	U	44.0000	
Endrin	U	44.0000	
Methoxychlor	U	230.0000	
4,4'-DDD	U	44.0000	
4,4'-DDE	U	44.0000	
Endrin aldehyde	U	44.0000	
Heptachlor	U	23.0000	
Toxaphene	U	2300.0000	
Endosulfan I	U	23.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19SS1 *
****

Sample Collection Date: 4/07/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-010
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/29/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	18.0000	
Endosulfan sulfate	U	36.0000	
Aroclor-1260	U	360.0000	
Aroclor-1254	U	360.0000	
Aroclor-1221	U	720.0000	
Aroclor-1232	U	360.0000	
Aroclor-1248	U	360.0000	
Aroclor-1016	U	360.0000	
Aldrin	U	18.0000	
alpha-BHC	U	18.0000	
beta-BHC	U	18.0000	
delta-BHC	U	18.0000	
Endosulfan II	U	36.0000	
4,4'-DDT	U	36.0000	
alpha-Chlordane	U	18.0000	
gamma-Chlordane	U	18.0000	
Aroclor-1242	U	360.0000	
Endrin ketone	U	36.0000	
gamma-BHC (Lindane)	U	18.0000	
Dieldrin	U	36.0000	
Endrin	U	36.0000	
Methoxychlor	U	180.0000	
4,4'-DDD	U	36.0000	
4,4'-DDE		56.0000	
Endrin aldehyde	U	36.0000	
Heptachlor	U	18.0000	
Toxaphene	U	1800.0000	
Endosulfan I	U	18.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB1 (0-4) *
****

Sample Collection Date: 3/23/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35490-009
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	4.0000	
Aroclor-1260	U	40.0000	
Aroclor-1254	U	40.0000	
Aroclor-1221	U	80.0000	
Aroclor-1232	U	40.0000	
Aroclor-1248	U	40.0000	
Aroclor-1016	U	40.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	4.0000	
4,4'-DDT	U	4.0000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	40.0000	
Endrin ketone	U	4.0000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	4.0000	
Endrin	U	4.0000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	4.0000	
4,4'-DDE	U	4.0000	
Endrin aldehyde	U	4.0000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB1 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35490-010
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.9000	
Aroclor-1260	U	39.0000	
Aroclor-1254	U	39.0000	
Aroclor-1221	U	79.0000	
Aroclor-1232	U	39.0000	
Aroclor-1248	U	39.0000	
Aroclor-1016	U	39.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.9000	
4,4'-DDT	U	3.9000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	39.0000	
Endrin ketone	U	3.9000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.9000	
Endrin	U	3.9000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.9000	
4,4'-DDE	U	3.9000	
Endrin aldehyde	U	3.9000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB2 (0-2) *
****

Sample Collection Date: 3/22/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35490-011
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.7000	
Endosulfan sulfate	U	3.4000	
Aroclor-1260	U	34.0000	
Aroclor-1254	U	34.0000	
Aroclor-1221	U	69.0000	
Aroclor-1232	U	34.0000	
Aroclor-1248	U	34.0000	
Aroclor-1016	U	34.0000	
Aldrin	U	1.7000	
alpha-BHC	U	1.7000	
beta-BHC	U	1.7000	
delta-BHC	U	1.7000	
Endosulfan II	U	3.4000	
4,4'-DDT	U	3.4000	
alpha-Chlordane	U	1.7000	
gamma-Chlordane	U	1.7000	
Aroclor-1242	U	34.0000	
Endrin ketone	U	3.4000	
gamma-BHC (Lindane)	U	1.7000	
Dieldrin	U	3.4000	
Endrin	U	3.4000	
Methoxychlor	U	17.0000	
4,4'-DDD	U	3.4000	
4,4'-DDE	U	3.4000	
Endrin aldehyde	U	3.4000	
Heptachlor	U	1.7000	
Toxaphene	U	170.0000	
Endosulfan I	U	1.7000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB2 (6-8) *
****

Sample Collection Date: 3/22/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35490-012
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260		130.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	73.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB3 (10-12) *
****

Sample Collection Date: 3/24/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-013
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	76.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB3 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-014
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/10/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260	U	36.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	74.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB4 (0-2) *
****

Sample Collection Date: 3/24/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-016
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/10/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260		55.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	72.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT	U	3.5000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19TB4 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-015
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/10/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260		120.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	74.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW1 (0.25-2.25) *
****

Sample Collection Date: 4/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35954-005
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/11/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	4.1000	
Endosulfan sulfate	U	7.9000	
Aroclor-1260	U	79.0000	
Aroclor-1254	U	79.0000	
Aroclor-1221	U	160.0000	
Aroclor-1232	U	79.0000	
Aroclor-1248	U	79.0000	
Aroclor-1016	U	79.0000	
Aldrin	U	4.1000	
alpha-BHC	U	4.1000	
beta-BHC	U	4.1000	
delta-BHC	U	4.1000	
Endosulfan II	U	7.9000	
4,4'-DDT	PEC	480.0000	
alpha-Chlordane		5.0000	
gamma-Chlordane	U	4.1000	
Aroclor-1242	U	79.0000	
Endrin ketone	U	7.9000	
gamma-BHC (Lindane)	U	4.1000	
Dieldrin	U	7.9000	
Endrin	U	7.9000	
Methoxychlor	U	41.0000	
4,4'-DDD	P	10.0000	
4,4'-DDE	PEC	360.0000	
Endrin aldehyde	U	7.9000	
Heptachlor	U	4.1000	
Toxaphene	U	410.0000	
Endosulfan I	U	4.1000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW1 (0.25-2.25)DL *
****

Sample Collection Date: 4/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35954-005D
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/11/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	41.0000	
Endosulfan sulfate	U	79.0000	
Aroclor-1260	U	790.0000	
Aroclor-1254	U	790.0000	
Aroclor-1221	U	1600.0000	
Aroclor-1232	U	790.0000	
Aroclor-1248	U	790.0000	
Aroclor-1016	U	790.0000	
Aldrin	U	41.0000	
alpha-BHC	U	41.0000	
beta-BHC	U	41.0000	
delta-BHC	U	41.0000	
Endosulfan II	U	79.0000	
4,4'-DDT	DC	520.0000	
alpha-Chlordane	U	41.0000	
gamma-Chlordane	U	41.0000	
Aroclor-1242	U	790.0000	
Endrin ketone	U	79.0000	
gamma-BHC (Lindane)	U	41.0000	
Dieldrin	U	79.0000	
Endrin	U	79.0000	
Methoxychlor	U	410.0000	
4,4'-DDD	U	79.0000	
4,4'-DDE	DC	350.0000	
Endrin aldehyde	U	79.0000	
Heptachlor	U	41.0000	
Toxaphene	U	4100.0000	
Endosulfan I	U	41.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW11 (0.25-2.25) *
****

Sample Collection Date: 4/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35954-006
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/11/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	4.2000	
Endosulfan sulfate	U	8.1000	
Aroclor-1260	U	81.0000	
Aroclor-1254	U	81.0000	
Aroclor-1221	U	160.0000	
Aroclor-1232	U	81.0000	
Aroclor-1248	U	81.0000	
Aroclor-1016	U	81.0000	
Aldrin	U	4.2000	
alpha-BHC	U	4.2000	
beta-BHC	U	4.2000	
delta-BHC	U	4.2000	
Endosulfan II	U	8.1000	
4,4'-DDT	PEC	570.0000	
alpha-Chlordane		5.9000	
gamma-Chlordane	U	4.2000	
Aroclor-1242	U	81.0000	
Endrin ketone	U	8.1000	
gamma-BHC (Lindane)	U	4.2000	
Dieldrin	U	8.1000	
Endrin	U	8.1000	
Methoxychlor	U	42.0000	
4,4'-DDD	P	12.0000	
4,4'-DDE	PEC	420.0000	
Endrin aldehyde	U	8.1000	
Heptachlor	U	4.2000	
Toxaphene	U	420.0000	
Endosulfan I	U	4.2000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW11 (0.25-2.25)DL *
****

Sample Collection Date: 4/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35954-006D
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/11/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	42.0000	
Endosulfan sulfate	U	81.0000	
Aroclor-1260	U	810.0000	
Aroclor-1254	U	810.0000	
Aroclor-1221	U	1600.0000	
Aroclor-1232	U	810.0000	
Aroclor-1248	U	810.0000	
Aroclor-1016	U	810.0000	
Aldrin	U	42.0000	
alpha-BHC	U	42.0000	
beta-BHC	U	42.0000	
delta-BHC	U	42.0000	
Endosulfan II	U	81.0000	
4,4'-DDT	D	640.0000	
alpha-Chlordane	U	42.0000	
gamma-Chlordane	U	42.0000	
Aroclor-1242	U	810.0000	
Endrin ketone	U	81.0000	
gamma-BHC (Lindane)	U	42.0000	
Dieldrin	U	81.0000	
Endrin	U	81.0000	
Methoxychlor	U	420.0000	
4,4'-DDD	U	81.0000	
4,4'-DDE	D	430.0000	
Endrin aldehyde	U	81.0000	
Heptachlor	U	42.0000	
Toxaphene	U	4200.0000	
Endosulfan I	U	42.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW12 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-003
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	3530.0000	
Antimony	UN	3.2000	
Arsenic	B	.8100	
Barium	B	23.3000	
Beryllium	B	.1200	
Boron	U	3.8000	
Cadmium	U	.5600	
Calcium		1200.0000	
Chromium	*	6.9000	
Cobalt	B	3.0000	
Copper	*	18.0000	
Cyanide	U	.1700	
Iron	*	5140.0000	
Lead	S	5.6000	
Magnesium	*	1580.0000	
Manganese		105.0000	
Mercury	U	.1100	
Nickel	B	3.1000	
Potassium	B	928.0000	
Selenium	U	.1700	
Silver	U	.5600	
Sodium	B	150.0000	
Thallium	UW	.1000	
Vanadium	B	8.8000	
Zinc	*	15.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW2 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-002
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	4300.0000	
Antimony	UN	2.3000	
Arsenic	BS	1.5000	
Barium	B	29.6000	
Beryllium	B	.1800	
Boron	U	2.7000	
Cadmium	U	.4000	
Calcium		918.0000	
Chromium	*	8.4000	
Cobalt	B	4.0000	
Copper	*	14.9000	
Cyanide	B	.2400	
Iron	*	5950.0000	
Lead	S	6.6000	
Magnesium	*	1970.0000	
Manganese		112.0000	
Mercury	U	.0400	
Nickel		7.6000	
Potassium		1260.0000	
Selenium	U	.1800	
Silver	U	.4000	
Sodium	B	179.0000	
Thallium	U	.1100	
Vanadium		10.9000	
Zinc	*	22.8000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19WW2 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-001
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	5120.0000	
Antimony	UN	2.8000	
Arsenic	B	1.1000	
Barium	B	29.2000	
Beryllium	B	.1700	
Boron	U	3.3000	
Cadmium	U	.4900	
Calcium		1770.0000	
Chromium	*	10.5000	
Cobalt	B	4.7000	
Copper	*	17.6000	
Cyanide	U	.1600	
Iron	*	7580.0000	
Lead	S	6.4000	
Magnesium	*	2590.0000	
Manganese		121.0000	
Mercury	U	.0500	
Nickel	B	7.2000	
Potassium		1070.0000	
Selenium	U	.1700	
Silver	U	.4900	
Sodium	B	313.0000	
Thallium	UW	.1000	
Vanadium		14.6000	
Zinc	*	22.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW3 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-009
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	4980.0000	
Antimony	UW	2.8000	
Arsenic	B	1.0000	
Barium	B	35.4000	
Beryllium	B	.2100	
Boron	B	19.7000	
Cadmium	U	.4900	
Calcium	B	849.0000	
Chromium	*	12.4000	
Cobalt	B	4.7000	
Copper	*	18.4000	
Cyanide	U	.1700	
Iron	*	10400.0000	
Lead	S	13.3000	
Magnesium	*	2860.0000	
Manganese		94.1000	
Mercury	U	.3300	
Nickel		9.4000	
Potassium		1240.0000	
Selenium	U	.1900	
Silver	U	.4900	
Sodium	B	296.0000	
Thallium	UW	.1100	
Vanadium		15.6000	
Zinc	*	32.2000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW3 (4-6) *
****

Sample Collection Date: 3/25/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-008
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	3190.0000	
Antimony	UN	2.8000	
Arsenic	B	.3400	
Barium	B	26.4000	
Beryllium	B	.2100	
Boron	U	3.3000	
Cadmium	U	.4900	
Calcium		1000.0000	
Chromium	*	6.9000	
Cobalt	B	3.1000	
Copper	*	43.8000	
Cyanide	U	.1600	
Iron	*	4580.0000	
Lead		14.6000	
Magnesium	*	1100.0000	
Manganese		48.2000	
Mercury	U	.0800	
Nickel		8.1000	
Potassium	B	544.0000	
Selenium	U	.2000	
Silver	U	.4900	
Sodium	B	116.0000	
Thallium	U	.1200	
Vanadium	B	7.9000	
Zinc	*	43.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 (0-4) *
****

Sample Collection Date: 3/23/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35490-001
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	4770.0000	
Antimony	UN	2.8000	
Arsenic	B	1.3000	
Barium	B	23.7000	
Beryllium	B	.1900	
Boron	U	3.3000	
Cadmium	U	.4900	
Calcium	B	781.0000	
Chromium	*	6.7000	
Cobalt	B	3.5000	
Copper	*	7.7000	
Cyanide	U	.1600	
Iron	*	6150.0000	
Lead		12.5000	
Magnesium	*	1680.0000	
Manganese		96.5000	
Mercury	U	.0600	
Nickel	B	4.6000	
Potassium		1090.0000	
Selenium	U	.1600	
Silver	U	.4900	
Sodium	B	94.6000	
Thallium	UW	.1000	
Vanadium		11.0000	
Zinc	*	21.7000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35490-002
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	3210.0000	
Antimony	UN	2.7000	
Arsenic	BW	1.7000	
Barium	B	17.4000	
Beryllium	B	.1200	
Boron	U	3.2000	
Cadmium	U	.4700	
Calcium	B	521.0000	
Chromium	*	5.5000	
Cobalt	B	2.1000	
Copper	*	6.9000	
Cyanide	U	.1900	
Iron	*	4270.0000	
Lead	S	4.4000	
Magnesium	*	1350.0000	
Manganese		57.0000	
Mercury	U	.0500	
Nickel	B	3.0000	
Potassium		1010.0000	
Selenium	U	.2000	
Silver	U	.4700	
Sodium	B	50.7000	
Thallium	UW	.1200	
Vanadium	B	7.7000	
Zinc	*	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD1 *
****

Sample Collection Date: 4/07/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-002
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		2740.0000	
Antimony	N*	9270.0000	
Arsenic	N*	3.0000	
Barium	B	28.8000	
Beryllium	B	.1800	
Boron	U	2.1000	
Cadmium	N*	12.4000	
Calcium	B	915.0000	
Chromium		20.8000	
Cobalt	B	4.2000	
Copper	*	74.0000	
Cyanide	B	.5500	
Iron		8570.0000	
Lead	*	85600.0000	
Magnesium		1720.0000	
Manganese		72.8000	
Mercury	U	.0500	
Nickel	B	8.9000	
Potassium	B	1110.0000	
Selenium	UN	.1900	
Silver	N*	14.4000	
Sodium	BE	134.0000	
Thallium	BN	.1400	
Vanadium		13.1000	
Zinc		107.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD11 *
****

Sample Collection Date: 4/07/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-003
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		2140.0000	
Antimony	N*	1680.0000	
Arsenic	N*	4.5000	
Barium	B	24.7000	
Beryllium	B	.1900	
Boron	B	1.9000	
Cadmium	N*	3.0000	
Calcium	B	900.0000	
Chromium		20.6000	
Cobalt	B	2.2000	
Copper	*	101.0000	
Cyanide	B	.4100	
Iron		5840.0000	
Lead	*	62700.0000	
Magnesium		1230.0000	
Manganese		58.9000	
Mercury	B	.0400	
Nickel	B	6.5000	
Potassium	B	666.0000	
Selenium	UN	.1600	
Silver	N*	2.6000	
Sodium	BE	114.0000	
Thallium	UN	.1200	
Vanadium		9.8000	
Zinc		113.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19SD2 *
****

Sample Collection Date: 4/07/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-004
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		2610.0000	
Antimony	UN*	3.3000	
Arsenic	BN*	2.1000	
Barium	B	22.5000	
Beryllium	B	.2300	
Boron	U	2.4000	
Cadmium	UN*	.4800	
Calcium		1930.0000	
Chromium		25.1000	
Cobalt	B	2.7000	
Copper	*	342.0000	
Cyanide		1.1000	
Iron		6330.0000	
Lead	*	185.0000	
Magnesium	B	1120.0000	
Manganese		69.9000	
Mercury	B	.1100	
Nickel		11.0000	
Potassium	B	560.0000	
Selenium	UNW	.2000	
Silver	UN*	.7800	
Sodium	BE	622.0000	
Thallium	UN	.1500	
Vanadium	B	8.7000	
Zinc		168.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19SS1 *
****

Sample Collection Date: 4/07/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-001
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		4290.0000	
Antimony	UN*	2.5000	
Arsenic	BN*	1.5000	
Barium	B	24.9000	
Beryllium	B	.2700	
Boron	U	1.8000	
Cadmium	UN*	.3600	
Calcium	B	760.0000	
Chromium		8.5000	
Cobalt	B	3.1000	
Copper	*	19.7000	
Cyanide	U	.1500	
Iron		6520.0000	
Lead	*	48.4000	
Magnesium		1630.0000	
Manganese		84.9000	
Mercury	U	.0200	
Nickel		8.1000	
Potassium		1060.0000	
Selenium	UN	.1500	
Silver	UN*	.5900	
Sodium	BE	60.9000	
Thallium	BNW	.1800	
Vanadium		12.1000	
Zinc		38.7000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB1 (0-4) *
****

Sample Collection Date: 3/23/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35490-003
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	3360.0000	
Antimony	UN	2.6000	
Arsenic	BW	.5200	
Barium	B	23.4000	
Beryllium	B	.1600	
Boron	U	3.0000	
Cadmium	U	.4400	
Calcium		1560.0000	
Chromium	*	7.7000	
Cobalt	B	2.6000	
Copper	*	9.4000	
Cyanide	U	.1600	
Iron	*	5820.0000	
Lead		13.7000	
Magnesium	*	1570.0000	
Manganese		90.2000	
Mercury	U	.0400	
Nickel	B	4.0000	
Potassium		1360.0000	
Selenium	U	.1900	
Silver	U	.4400	
Sodium	B	63.2000	
Thallium	UW	.1100	
Vanadium		8.9000	
Zinc	*	26.5000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB1 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35490-004
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	1880.0000	
Antimony	UN	2.8000	
Arsenic	BW	.3900	
Barium	B	13.6000	
Beryllium	U	.0800	
Boron	U	3.3000	
Cadmium	U	.4800	
Calcium	B	706.0000	
Chromium	*	2.5000	
Cobalt	B	.9800	
Copper	B*	2.7000	
Cyanide	U	.1800	
Iron	*	3450.0000	
Lead	S	1.3000	
Magnesium	B*	796.0000	
Manganese		48.4000	
Mercury	U	.0700	
Nickel	U	2.0000	
Potassium	B	765.0000	
Selenium	U	.2200	
Silver	U	.4800	
Sodium	B	59.7000	
Thallium	U	.1300	
Vanadium	B	4.3000	
Zinc	*	10.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB2 (0-2) *
****

Sample Collection Date: 3/22/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35490-005
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	1940.0000	
Antimony	UW	2.7000	
Arsenic	B	1.0000	
Barium	B	33.1000	
Beryllium	B	.0900	
Boron	U	3.2000	
Cadmium	U	.4700	
Calcium	B	881.0000	
Chromium	*	5.0000	
Cobalt	B	1.9000	
Copper	*	5.5000	
Cyanide	U	.1600	
Iron	*	4290.0000	
Lead	S	6.1000	
Magnesium	B*	882.0000	
Manganese		120.0000	
Mercury	U	.0600	
Nickel	U	2.0000	
Potassium	B	655.0000	
Selenium	U	.1800	
Silver	U	.4700	
Sodium	B	73.8000	
Thallium	UW	.1100	
Vanadium	B	5.9000	
Zinc	*	14.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB2 (6-8) *
****

Sample Collection Date: 3/22/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35490-006
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	5250.0000	
Antimony	UN	2.3000	
Arsenic		2.2000	
Barium		34.4000	
Beryllium	B	.2000	
Boron	U	2.7000	
Cadmium	U	.3900	
Calcium	B	673.0000	
Chromium	*	9.2000	
Cobalt	B	4.3000	
Copper	*	8.0000	
Cyanide	U	.1500	
Iron	*	8620.0000	
Lead	S	2.7000	
Magnesium	*	2160.0000	
Manganese		101.0000	
Mercury	U	.0700	
Nickel	B	6.1000	
Potassium		1910.0000	
Selenium	U	.1900	
Silver	U	.3900	
Sodium	B	125.0000	
Thallium	UW	.1100	
Vanadium		14.3000	
Zinc	*	20.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB3 (10-12) *
****

Sample Collection Date: 3/24/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-004
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	5500.0000	
Antimony	UN	2.9000	
Arsenic		2.4000	
Barium		40.7000	
Beryllium	B	.1200	
Boron	U	3.5000	
Cadmium	U	.5100	
Calcium	B	936.0000	
Chromium	*	11.6000	
Cobalt	B	4.0000	
Copper	*	12.7000	
Cyanide	B	.1700	
Iron	*	7010.0000	
Lead	S	1.9000	
Magnesium	*	2550.0000	
Manganese		144.0000	
Mercury	U	.0900	
Nickel	B	7.5000	
Potassium		1670.0000	
Selenium	U	.1700	
Silver	U	.5100	
Sodium	B	529.0000	
Thallium	UW	.1000	
Vanadium		13.6000	
Zinc	*	17.2000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB3 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-005
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	6930.0000	J
Antimony	UN	2.7000	UJ
Arsenic	B	.4600	J
Barium		53.6000	J
Beryllium	B	.2400	U
Boron	U	3.2000	UJ
Cadmium	U	.4600	UJ
Calcium	B	842.0000	J
Chromium	*	15.9000	J
Cobalt	B	4.8000	J
Copper	*	5.6000	J
Cyanide	U	.1500	UJ
Iron	*	10400.0000	J
Lead	S	1.7000	J
Magnesium	*	3160.0000	J
Manganese		148.0000	J
Mercury	U	.1100	U
Nickel	B	6.4000	J
Potassium		3100.0000	J
Selenium	U	.2000	UJ
Silver	U	.4600	UJ
Sodium	B	318.0000	J
Thallium	BW	.1300	UJ
Vanadium		18.3000	J
Zinc	*	22.9000	J

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (0-2) *
****

Sample Collection Date: 3/24/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-007
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data	
Aluminum	*	4300.0000		J
Antimony	UN	2.9000		U
Arsenic	B	.5200		J
Barium	B	33.1000		J
Beryllium	B	.2900		U
Boron	U	3.4000		UJ
Cadmium	U	.5000		UJ
Calcium	B	753.0000		J
Chromium	*	7.1000		J
Cobalt	B	3.4000		J
Copper	*	18.1000		J
Cyanide	U	.1700		UJ
Iron	*	5890.0000		J
Lead		10.4000	10.4000	U
Lead	S	13.0000		J
Magnesium	*	1670.0000		J
Manganese		150.0000		J
Mercury	U	.1200		UJ
Nickel	B	5.7000		J
Potassium	B	993.0000		J
Selenium	U	.1900		UJ
Silver	U	.5000		UJ
Sodium	B	277.0000		J
Thallium	U	.1100		UJ
Vanadium	B	9.2000		J
Zinc	*	36.3000		J

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (2-4) *
****

Sample Collection Date: 3/24/93 Method: 3020,7421/2 Units: MG/KG Laboratory ID: 35520-041
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL	Validation Data
Lead	31.5000	31.5000 U

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-006
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	4610.0000	
Antimony	UN	2.7000	
Arsenic	B	.7400	
Barium	B	36.0000	
Beryllium	B	.2000	
Boron	U	3.2000	
Cadmium	U	.4700	
Calcium	B	770.0000	
Chromium	*	10.8000	
Cobalt	B	4.9000	
Copper	*	14.7000	
Cyanide	U	.1900	
Iron	*	6800.0000	
Lead		12.1000	12.1000 U
Lead		12.3000	
Magnesium	*	2160.0000	
Manganese		209.0000	
Mercury	U	.0600	
Nickel	B	5.9000	
Potassium		1450.0000	
Selenium	U	.2100	
Silver	U	.4700	
Sodium	B	235.0000	
Thallium	UW	.1200	
Vanadium		11.9000	
Zinc	*	29.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW1 (0.25-2.25) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 SOW To Units: MG/KG Laboratory ID: 4061.7
Lab Receipt Date: 5/06/93
Sample Analysis Date:

Analyte		Lab Result or DL	Validation Data
ALUMINUM		12200.0000	
ANTIMONY	U	6.5000	
ARSENIC		3.5000	
BARIUM		44.7000	
BERYLLIUM	B	.9100	
BORON	U	109.0000	
CADMIUM	U	.6400	
CALCIUM	B	896.0000	
CHROMIUM		23.4000	
COBALT	B	3.9000	
COPPER		10.4000	
CYANIDE	U	1.1000	
IRON		11300.0000	
LEAD		15.6000	
MAGNESIUM		1490.0000	
MANGANESE		300.0000	
MERCURY		.1000	
NICKEL	B	7.0000	
POTASSIUM	B	239.0000	
SELENIUM	B	1.1000	
SILVER	U	.8700	
SODIUM	B	119.0000	
THALLIUM	U	.2300	
VANADIUM		19.7000	
ZINC		32.4000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW11 (0.25-2.25) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 SOW To Units: MG/KG Laboratory ID: 4062.5
Lab Receipt Date: 5/06/93
Sample Analysis Date:

Analyte		Lab Result or DL	Validation Date
ALUMINUM		13600.0000	
ANTIMONY	U	5.7000	
ARSENIC		3.0000	
BARIUM		47.8000	
BERYLLIUM	B	.8300	
BORON	U	95.4000	
CADMIUM	U	.3800	
CALCIUM	B	455.0000	
CHROMIUM		18.4000	
COBALT	B	4.3000	
COPPER		9.5000	
CYANIDE	U	1.2000	
IRON		13100.0000	
LEAD		15.5000	
MAGNESIUM		1510.0000	
MANGANESE		281.0000	
MERCURY		.0900	
NICKEL	B	7.3000	
POTASSIUM	B	256.0000	
SELENIUM	B	.6700	
SILVER	U	.7600	
SODIUM	B	113.0000	
THALLIUM	U	.2100	
VANADIUM		22.9000	
ZINC		39.9000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW12 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 6010/2 Units: UG/L Laboratory ID: 35519-002
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/08/93

Analyte		Lab Result or DL	Validation Data
Silver	N	19.4000	
Arsenic	U	23.4000	
Barium		371.0000	
Cadmium	U	2.5000	
Chromium		32.4000	
Mercury	U	.2000	
Lead		60.0000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW2 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 6010/2 Units: UG/L Laboratory ID: 35519-001
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/08/93

Analyte		Lab Result or DL	Validation Data
Silver	UN	2.5000	
Arsenic	U	23.4000	
Barium		333.0000	
Cadmium	U	2.5000	
Chromium		14.2000	
Mercury	U	.2000	
Lead		419.0000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW3 (4-6) *
****

Sample Collection Date: 3/25/93 Method: 6010/2 Units: UG/L Laboratory ID: 35519-005
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/08/93

Analyte		Lab Result or DL	Validation Data
Silver	N	10.8000	
Arsenic	U	23.4000	
Barium		275.0000	
Cadmium	U	2.5000	
Chromium	U	3.9000	
Mercury	U	.2000	
Lead		56.2000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 6010/2 Units: UG/L Laboratory ID: 35495-004
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/08/93

Analyte		Lab Result or DL	Validation Data
Silver	UN	2.5000	
Arsenic	U	23.4000	
Barium		277.0000	
Cadmium	U	2.5000	
Chromium	B	8.4000	
Mercury	U	.2000	
Lead		114.0000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19SS1 *
****

Sample Collection Date: 4/07/93 Method: 6010/2 Units: UG/L Laboratory ID: 35674-001
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		557.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		173.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB1 (6-8) *
****

Sample Collection Date: 3/23/93 Method: 6010/2 Units: UG/L Laboratory ID: 35495-005
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/08/93

Analyte	Lab Result or DL		Validation Data
Silver	UN	2.5000	
Arsenic	U	23.4000	
Barium		217.0000	
Cadmium	U	2.5000	
Chromium	U	3.9000	
Mercury	U	.2000	
Lead		12.4000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB2 (6-8) *
****

Sample Collection Date: 3/22/93 Method: 6010/2 Units: UG/L Laboratory ID: 35495-006
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/08/93

Analyte		Lab Result or DL	Validation Data
Silver	BN	9.8000	
Arsenic	U	23.4000	
Barium		265.0000	
Cadmium	U	2.5000	
Chromium	B	6.0000	
Mercury	U	.2000	
Lead		12.7000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB3 (10-12) *
****

Sample Collection Date: 3/24/93 Method: 6010/2 Units: UG/L Laboratory ID: 35519-003
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/08/93

Analyte		Lab Result or DL	Validation Data
Silver	UN	2.5000	
Arsenic	U	23.4000	
Barium		417.0000	
Cadmium	U	2.5000	
Chromium		10.4000	
Mercury	U	.2000	
Lead		39.7000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19TB4 (4-6) *
****

Sample Collection Date: 3/24/93 Method: 6010/2 Units: UG/L Laboratory ID: 35519-004
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/08/93

Analyte		Lab Result or DL	Validation Data
Silver	UN	2.5000	
Arsenic	U	23.4000	
Barium		304.0000	
Cadmium	U	2.5000	
Chromium	B	5.4000	
Mercury	U	.2000	
Lead		43.4000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****

* SAMPLE ID: 19MW1 (0.25-2.25) *

****

Sample Collection Date: 4/30/93 Method: ILM02.1 Units: UG/L Laboratory ID: 4056.0

Lab Receipt Date: 5/07/93

Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
SILVER	U	4.0000	
ARSENIC	U	20.0000	
BARIUM		305.0000	
CADMIUM	B	2.8000	
CHROMIUM	U	4.0000	
MERCURY	U	.1800	
LEAD	U	28.0000	
SELENIUM	U	75.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW11 (0.25-2.25) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 Units: UG/L Laboratory ID: 4057.9
Lab Receipt Date: 5/07/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
SILVER	U	4.0000	
ARSENIC	U	20.0000	
BARIUM		260.0000	
CADMIUM	U	2.0000	
CHROMIUM	U	4.0000	
MERCURY	U	.1800	
LEAD	U	28.0000	
SELENIUM	U	75.0000	

GROUNDWATER

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW2 *
****

Sample Collection Date: 4/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-034
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	1.0000		
1,1,2,2-Tetrachloroethane	U	1.0000		
1,1,2-Trichloroethane	U	1.0000		
1,1-Dichloroethane	U	1.0000		
1,1-Dichloroethene	U	1.0000		
1,2-Dichloroethane	U	1.0000		
1,2-Dichloroethene_(total)	U	1.0000		
1,2-Dichloropropane	U	1.0000		
2-Butanone	U	5.0000		
2-Hexanone	U	5.0000		
4-Methyl-2-pentanone	U	5.0000		
Acetone	U	5.0000		UJ
Benzene	U	1.0000		
Bromodichloromethane	U	1.0000		
Bromoform	U	1.0000		
Bromomethane	U	2.0000		
Carbon Disulfide	U	1.0000		
Carbon Tetrachloride	U	1.0000		
Chlorobenzene	U	1.0000		
Chloroethane	U	2.0000		
Chloroform	U	1.0000		
Chloromethane	U	2.0000		
Dibromochloromethane	U	1.0000		
Ethylbenzene	U	1.0000		
Methylene_Chloride		2.0000	2.0000	U
Styrene	U	1.0000		
Tetrachloroethene	U	1.0000		
Toluene	U	1.0000		
Trichloroethene	U	1.0000		
Vinyl Chloride	U	2.0000		
Xylene (total)	U	1.0000		
cis-1,3-Dichloropropene	U	1.0000		
trans-1,3-Dichloropropene	U	1.0000		

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW3 *
****

Sample Collection Date: 4/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-033
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte		Lab Result or DL	Validation Data	
1,1,1-Trichloroethane	U	1.0000		
1,1,2,2-Tetrachloroethane	U	1.0000		
1,1,2-Trichloroethane	U	1.0000		
1,1-Dichloroethane	U	1.0000		
1,1-Dichloroethene	U	1.0000		
1,2-Dichloroethane	U	1.0000		
1,2-Dichloroethene_(total)	U	1.0000		
1,2-Dichloropropane	U	1.0000		
2-Butanone	U	5.0000		
2-Hexanone	U	5.0000		
4-Methyl-2-pentanone	U	5.0000		
Acetone	U	5.0000		UJ
Benzene	U	1.0000		
Bromodichloromethane	U	1.0000		
Bromoform	U	1.0000		
Bromomethane	U	2.0000		
Carbon Disulfide	U	1.0000		
Carbon Tetrachloride	U	1.0000		
Chlorobenzene	U	1.0000		
Chloroethane	U	2.0000		
Chloroform	U	1.0000		
Chloromethane	U	2.0000		
Dibromochloromethane	U	1.0000		
Ethylbenzene	J	.8000	1.0000	U
Methylene_Chloride	U	1.0000		UJ
Styrene	U	1.0000		
Tetrachloroethene	U	1.0000		
Toluene	U	1.0000		
Trichloroethene	U	1.0000		
Vinyl Chloride	U	2.0000		
Xylene (total)		5.0000	5.0000	U
cis-1,3-Dichloropropene	U	1.0000		
trans-1,3-Dichloropropene	U	1.0000		

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 *
****

Sample Collection Date: 4/27/93 Method: 8260/2 Units: UG/L Laboratory ID: 35912-034
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene		4.0000	
Methylene_Chloride	U	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	J	.8000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)		13.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW2 *
****

Sample Collection Date: 4/29/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4051.0
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	UJ
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	R
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	UJ
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	UJ
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10	UJ	Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

00004

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW3 *
****

Sample Collection Date: 4/29/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4050.1
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	26	UJ
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene		37		2-Methylphenol	U	11	
2-Nitroaniline	U	26		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	26	R
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	UJ
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	J	3		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	UJ
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	J	2		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	J	4		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11	UJ	Naphthalene		15	
Nitrobenzene	U	11		Pentachlorophenol	U	26	
Phenanthrene	J	1		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 *
****

Sample Collection Date: 4/27/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4048.0
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene		75		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	J	2		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	J	2		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	J	3		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene		73	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	J	2		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW2 *
****

Sample Collection Date: 4/29/93 Method: ILM02.1 SOW To Units: UG/L Laboratory ID: 4051.0
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	143.0000	U
ANTIMONY	U	30.0000	
ARSENIC	B	2.5000	U
BARIUM	B	43.7000	U
BERYLLIUM	U	1.0000	
BORON	B	243.0000	U
CADMIUM	B	2.2000	U
CALCIUM	*	22700.0000	J
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	B*	30.9000	U
LEAD	B	1.3000	U
MAGNESIUM	B*	3360.0000	J
MANGANESE	B*	6.2000	U
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	B*	3840.0000	J
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM	*	63400.0000	J
THALLIUM	UW	1.0000	
VANADIUM	U	5.0000	
ZINC	U	3.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW3 *
****

Sample Collection Date: 4/29/93 Method: ILM02.1 SOW To Units: UG/L Laboratory ID: 4050.1
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	153.0000	U
ANTIMONY	U	30.0000	
ARSENIC	B	4.3000	U
BARIUM	B	72.8000	U
BERYLLIUM	U	1.0000	
BORON	B	247.0000	U
CADMIUM	U	2.0000	
CALCIUM	*	33300.0000	J
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	*	10700.0000	J
LEAD		4.4000	U
MAGNESIUM	B*	4410.0000	J
MANGANESE	*	912.0000	J
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	B*	4540.0000	J
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM	*	57400.0000	J
THALLIUM	UW	1.0000	
VANADIUM	U	5.0000	
ZINC	B	4.4000	U

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 *
****

Sample Collection Date: 4/27/93 Method: ILM02.1 SOW To Units: UG/L Laboratory ID: 4048.0
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
ALUMINUM		238.0000	U
ANTIMONY	U	30.0000	UJ
ARSENIC	W	30.2000	U
BARIUM	B	66.1000	U
BERYLLIUM	U	1.0000	UJ
BORON	B	190.0000	U
CADMIUM	U	2.0000	UJ
CALCIUM	*	72800.0000	J
CHROMIUM	U	4.0000	UJ
COBALT	B	11.5000	J
COPPER	U	3.0000	UJ
CYANIDE	U	10.0000	UJ
IRON	*	31900.0000	J
LEAD	B	1.7000	U
MAGNESIUM	B*	4090.0000	J
MANGANESE	*	4140.0000	J
MERCURY	U	.1800	UJ
NICKEL	U	9.0000	UJ
POTASSIUM	*	6480.0000	J
SELENIUM	U	1.0000	UJ
SILVER	U	4.0000	UJ
SODIUM	*	21900.0000	J
THALLIUM	BW	1.3000	U
VANADIUM	U	5.0000	UJ
ZINC	B	9.6000	U

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW2 *
****

Sample Collection Date: 4/29/93 Units: UG/L Laboratory ID: 4051.0F
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	136.0000	
ANTIMONY	U	30.0000	
ARSENIC	U	2.0000	
BARIUM	B	43.7000	
BERYLLIUM	U	1.0000	
BORON	BE	162.0000	
CADMIUM	U	2.0000	
CALCIUM		23900.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON	B	42.5000	
LEAD	B	1.4000	
MAGNESIUM	B	3410.0000	
MANGANESE	B	7.6000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	B	4030.0000	
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM		66700.0000	
THALLIUM	U	1.0000	
VANADIUM	U	5.0000	
ZINC	B	3.3000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19GW3 *
****

Sample Collection Date: 4/29/93 Units: UG/L Laboratory ID: 4050.1F
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	172.0000	
ANTIMONY	U	30.0000	
ARSENIC	U	2.0000	
BARIUM	B	72.8000	
BERYLLIUM	U	1.0000	
BORON	BE	184.0000	
CADMIUM	U	2.0000	
CALCIUM		36400.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON		11600.0000	
LEAD	B	2.2000	
MAGNESIUM	B	4850.0000	
MANGANESE		1000.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	B	4980.0000	
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM		63100.0000	
THALLIUM	U	1.0000	
VANADIUM	U	5.0000	
ZINC	B	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 19MW4 *
****

Sample Collection Date: 4/27/93 Units: UG/L Laboratory ID: 4048.0F
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	153.0000	
ANTIMONY	U	30.0000	
ARSENIC		34.3000	
BARIUM	B	58.2000	
BERYLLIUM	U	1.0000	
BORON	BE	206.0000	
CADMIUM	U	2.0000	
CALCIUM		68300.0000	
CHROMIUM	U	4.0000	
COBALT	B	10.5000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON		31100.0000	
LEAD	U	1.0000	
MAGNESIUM	B	4010.0000	
MANGANESE		4090.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM		6440.0000	
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM		21600.0000	
THALLIUM	UW	1.0000	
VANADIUM	U	5.0000	
ZINC	B	4.8000	

NAVAL SUBMARINE BASE - NEW LONDON

PIER 33

CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19GW2 *
****

Sample Collection Date: 4/29/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35955-007
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19GW3 *
****

Sample Collection Date: 4/29/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35955-006
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBON

****
* SAMPLE ID: 19MW4 *
****

Sample Collection Date: 4/27/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35918-006
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/03/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19GW2 *
****

Sample Collection Date: 4/29/93 Method: 608/1 Units: UG/L Laboratory ID: 35952-027
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0570	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.3000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0570	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0570	
Heptachlor epoxide	U	.0570	
Methoxychlor	U	.5700	
Toxaphene	U	5.7000	
alpha-BHC	U	.0570	
alpha-Chlordane	U	.0570	
beta-BHC	U	.0570	
delta-BHC	U	.0570	
gamma-BHC (Lindane)	U	.0570	
gamma-Chlordane	U	.0570	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19GW3 *
****

Sample Collection Date: 4/29/93 Method: 608/1 Units: UG/L Laboratory ID: 35952-026
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0560	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0560	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0560	
Heptachlor epoxide	U	.0560	
Methoxychlor	U	.5600	
Toxaphene	U	5.6000	
alpha-BHC	U	.0560	
alpha-Chlordane	U	.0560	
beta-BHC	U	.0560	
delta-BHC	U	.0560	
gamma-BHC (Lindane)	U	.0560	
gamma-Chlordane	U	.0560	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 19MW4 *
****

Sample Collection Date: 4/27/93 Method: 608/1 Units: UG/L Laboratory ID: 35912-028
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0560	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0560	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0560	
Heptachlor epoxide	U	.0560	
Methoxychlor	U	.5600	
Toxaphene	U	5.6000	
alpha-BHC	U	.0560	
alpha-Chlordane	U	.0560	
beta-BHC	U	.0560	
delta-BHC	U	.0560	
gamma-BHC (Lindane)	U	.0560	
gamma-Chlordane	U	.0560	

BERTH 16/FORMER INCINERATOR

SOILS

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-019
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		14.0000	14.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	5.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-020
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	12.0000		
1,1,2,2-Tetrachloroethane	U	12.0000		
1,1,2-Trichloroethane	U	12.0000		
1,1-Dichloroethane	U	12.0000		
1,1-Dichloroethene	U	12.0000		
1,2-Dichloroethane	U	12.0000		
1,2-Dichloroethene_(total)	U	12.0000		
1,2-Dichloropropane	U	12.0000		
2-Butanone	U	12.0000		
2-Hexanone	U	12.0000		
4-Methyl-2-pentanone	U	12.0000		
Acetone	J	9.0000	12.0000	U
Benzene	U	12.0000		
Bromodichloromethane	U	12.0000		
Bromoform	U	12.0000		
Bromomethane	U	12.0000		
Carbon Disulfide	U	12.0000		
Carbon Tetrachloride	U	12.0000		
Chlorobenzene	U	12.0000		
Chloroethane	U	12.0000		
Chloroform	U	12.0000		
Chloromethane	U	12.0000		
Dibromochloromethane	U	12.0000		
Ethylbenzene	U	12.0000		
Methylene_Chloride	BJ	6.0000	12.0000	U
Styrene	U	12.0000		
Tetrachloroethene	U	12.0000		
Toluene	U	12.0000		
Trichloroethene	U	12.0000		
Vinyl Chloride	U	12.0000		
Xylene (total)	U	12.0000		
cis-1,3-Dichloropropene	U	12.0000		
trans-1,3-Dichloropropene	U	12.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 (2-4) *
****

Sample Collection Date: 4/01/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-017
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		12.0000	12.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	6.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 (8-10) *
****

Sample Collection Date: 4/01/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-018
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		19.0000	19.0000 U
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	6.0000	11.0000 U
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-021
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		18.0000	18.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	8.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-022
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		17.0000	17.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	8.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW5 (0-2) *
****

Sample Collection Date: 3/26/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35523-011
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		32.0000	32.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	7.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW5 (6-8) *
****

Sample Collection Date: 3/26/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35523-012
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	12.0000		
1,1,2,2-Tetrachloroethane	U	12.0000		
1,1,2-Trichloroethane	U	12.0000		
1,1-Dichloroethane	U	12.0000		
1,1-Dichloroethene	U	12.0000		
1,2-Dichloroethane	U	12.0000		
1,2-Dichloroethene_(total)	U	12.0000		
1,2-Dichloropropane	U	12.0000		
2-Butanone	U	12.0000		
2-Hexanone	U	12.0000		
4-Methyl-2-pentanone	U	12.0000		
Acetone	B	35.0000	35.0000	U
Benzene	U	12.0000		
Bromodichloromethane	U	12.0000		
Bromoform	U	12.0000		
Bromomethane	U	12.0000		
Carbon Disulfide	J	7.0000		
Carbon Tetrachloride	U	12.0000		
Chlorobenzene	U	12.0000		
Chloroethane	U	12.0000		
Chloroform	U	12.0000		
Chloromethane	U	12.0000		
Dibromochloromethane	U	12.0000		
Ethylbenzene	U	12.0000		
Methylene_Chloride	B	13.0000	13.0000	U
Styrene	U	12.0000		
Tetrachloroethene	U	12.0000		
Toluene	U	12.0000		
Trichloroethene	U	12.0000		
Vinyl Chloride	U	12.0000		
Xylene (total)	U	12.0000		
cis-1,3-Dichloropropene	U	12.0000		
trans-1,3-Dichloropropene	U	12.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 (12-14) *
****

Sample Collection Date: 3/26/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35523-009
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone	B	20.0000	20.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	B	11.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 (2-4) *
****

Sample Collection Date: 3/26/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35523-010
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	12.0000		
1,1,2,2-Tetrachloroethane	U	12.0000		
1,1,2-Trichloroethane	U	12.0000		
1,1-Dichloroethane	U	12.0000		
1,1-Dichloroethene	U	12.0000		
1,2-Dichloroethane	U	12.0000		
1,2-Dichloroethene_(total)	U	12.0000		
1,2-Dichloropropane	U	12.0000		
2-Butanone	U	12.0000		
2-Hexanone	U	12.0000		
4-Methyl-2-pentanone	U	12.0000		
Acetone		12.0000	12.0000	U
Benzene	U	12.0000		
Bromodichloromethane	U	12.0000		
Bromoform	U	12.0000		
Bromomethane	U	12.0000		
Carbon Disulfide	U	12.0000		
Carbon Tetrachloride	U	12.0000		
Chlorobenzene	U	12.0000		
Chloroethane	U	12.0000		
Chloroform	U	12.0000		
Chloromethane	U	12.0000		
Dibromochloromethane	U	12.0000		
Ethylbenzene	U	12.0000		
Methylene_Chloride	BJ	9.0000	12.0000	U
Styrene	U	12.0000		
Tetrachloroethene	U	12.0000		
Toluene	U	12.0000		
Trichloroethene	U	12.0000		
Vinyl Chloride	U	12.0000		
Xylene (total)	U	12.0000		
cis-1,3-Dichloropropene	U	12.0000		
trans-1,3-Dichloropropene	U	12.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW7 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-023
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		26.0000	26.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	8.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW7 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-024
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	12.0000		
1,1,2,2-Tetrachloroethane	U	12.0000		
1,1,2-Trichloroethane	U	12.0000		
1,1-Dichloroethane	U	12.0000		
1,1-Dichloroethene	U	12.0000		
1,2-Dichloroethane	U	12.0000		
1,2-Dichloroethene_(total)	U	12.0000		
1,2-Dichloropropane	U	12.0000		
2-Butanone	U	12.0000		
2-Hexanone	U	12.0000		
4-Methyl-2-pentanone	U	12.0000		
Acetone		20.0000	20.0000	U
Benzene	U	12.0000		
Bromodichloromethane	U	12.0000		
Bromoform	U	12.0000		
Bromomethane	U	12.0000		
Carbon Disulfide	U	12.0000		
Carbon Tetrachloride	U	12.0000		
Chlorobenzene	U	12.0000		
Chloroethane	U	12.0000		
Chloroform	U	12.0000		
Chloromethane	U	12.0000		
Dibromochloromethane	U	12.0000		
Ethylbenzene	U	12.0000		
Methylene_Chloride	BJ	8.0000	12.0000	U
Styrene	U	12.0000		
Tetrachloroethene	U	12.0000		
Toluene	U	12.0000		
Trichloroethene	U	12.0000		
Vinyl Chloride	U	12.0000		
Xylene (total)	U	12.0000		
cis-1,3-Dichloropropene	U	12.0000		
trans-1,3-Dichloropropene	U	12.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20SD1 *
****

Sample Collection Date: 4/07/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-023
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/12/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
2-Hexanone	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Acetone		86.0000	
Benzene	U	13.0000	
Bromodichloromethane	U	13.0000	
Bromoform	U	13.0000	
Bromomethane	U	13.0000	
Carbon Disulfide	J	10.0000	
Carbon Tetrachloride	U	13.0000	
Chlorobenzene	U	13.0000	
Chloroethane	U	13.0000	
Chloroform	U	13.0000	
Chloromethane	U	13.0000	
Dibromochloromethane	U	13.0000	
Ethylbenzene	U	13.0000	
Methylene_Chloride	JB	11.0000	
Styrene	U	13.0000	
Tetrachloroethene	U	13.0000	
Toluene	U	13.0000	
Trichloroethene	U	13.0000	
Vinyl Chloride	U	13.0000	
Xylene (total)	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20SD2 *
****

Sample Collection Date: 4/07/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-024
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/12/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
2-Hexanone	U	13.0000	
4-Methyl-2-pentanone	J	6.0000	
Acetone		120.0000	
Benzene	U	13.0000	
Bromodichloromethane	U	13.0000	
Bromoform	U	13.0000	
Bromomethane	U	13.0000	
Carbon Disulfide	U	13.0000	
Carbon Tetrachloride	U	13.0000	
Chlorobenzene	U	13.0000	
Chloroethane	U	13.0000	
Chloroform	U	13.0000	
Chloromethane	U	13.0000	
Dibromochloromethane	U	13.0000	
Ethylbenzene	U	13.0000	
Methylene_Chloride	B	15.0000	
Styrene	U	13.0000	
Tetrachloroethene	U	13.0000	
Toluene	U	13.0000	
Trichloroethene	U	13.0000	
Vinyl Chloride	U	13.0000	
Xylene (total)	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB1 (2-4) *
****

Sample Collection Date: 4/02/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35603-008
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/08/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	U	11.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	JB	6.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB1 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35603-007
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/08/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	U	11.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	JB	7.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB11 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35603-009
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/09/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		38.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	JB	9.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: LOTB17 (48-52IN) *
****

Sample Collection Date: 4/06/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-027
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		58.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	B	12.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	J	3.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-024
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		17.0000	17.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	5.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB2 (2-4) *
****

Sample Collection Date: 3/31/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-023
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	10.0000		
1,1,2,2-Tetrachloroethane	U	10.0000		
1,1,2-Trichloroethane	U	10.0000		
1,1-Dichloroethane	U	10.0000		
1,1-Dichloroethene	U	10.0000		
1,2-Dichloroethane	U	10.0000		
1,2-Dichloroethene_(total)	U	10.0000		
1,2-Dichloropropane	U	10.0000		
2-Butanone	U	10.0000		
2-Hexanone	U	10.0000		
4-Methyl-2-pentanone	U	10.0000		
Acetone		13.0000	13.0000	U
Benzene	U	10.0000		
Bromodichloromethane	U	10.0000		
Bromoform	U	10.0000		
Bromomethane	U	10.0000		
Carbon Disulfide	U	10.0000		
Carbon Tetrachloride	U	10.0000		
Chlorobenzene	U	10.0000		
Chloroethane	U	10.0000		
Chloroform	U	10.0000		
Chloromethane	U	10.0000		
Dibromochloromethane	U	10.0000		
Ethylbenzene	U	10.0000		
Methylene_Chloride	BJ	5.0000	10.0000	U
Styrene	U	10.0000		
Tetrachloroethene	U	10.0000		
Toluene	U	10.0000		
Trichloroethene	U	10.0000		
Vinyl Chloride	U	10.0000		
Xylene (total)	U	10.0000		
cis-1,3-Dichloropropene	U	10.0000		
trans-1,3-Dichloropropene	U	10.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB3 (10-12) *
****

Sample Collection Date: 3/29/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-020
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropene	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		20.0000	20.0000 U
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	4.0000	11.0000 U
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB3 (2-4) *
****

Sample Collection Date: 3/29/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-019
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	11.0000		
1,1,2,2-Tetrachloroethane	U	11.0000		
1,1,2-Trichloroethane	U	11.0000		
1,1-Dichloroethane	U	11.0000		
1,1-Dichloroethene	U	11.0000		
1,2-Dichloroethane	U	11.0000		
1,2-Dichloroethene_(total)	U	11.0000		
1,2-Dichloropropane	U	11.0000		
2-Butanone	U	11.0000		
2-Hexanone	U	11.0000		
4-Methyl-2-pentanone	U	11.0000		
Acetone		19.0000	19.0000	U
Benzene	U	11.0000		
Bromodichloromethane	U	11.0000		
Bromoform	U	11.0000		
Bromomethane	U	11.0000		
Carbon Disulfide	U	11.0000		
Carbon Tetrachloride	U	11.0000		
Chlorobenzene	U	11.0000		
Chloroethane	U	11.0000		
Chloroform	U	11.0000		
Chloromethane	U	11.0000		
Dibromochloromethane	U	11.0000		
Ethylbenzene	U	11.0000		
Methylene_Chloride	BJ	5.0000	11.0000	U
Styrene	U	11.0000		
Tetrachloroethene	U	11.0000		
Toluene	U	11.0000		
Trichloroethene	U	11.0000		
Vinyl Chloride	U	11.0000		
Xylene (total)	U	11.0000		
cis-1,3-Dichloropropene	U	11.0000		
trans-1,3-Dichloropropene	U	11.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB4 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-021
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	J	9.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	5.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB4 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35593-022
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	14.0000	
1,1,2,2-Tetrachloroethane	U	14.0000	
1,1,2-Trichloroethane	U	14.0000	
1,1-Dichloroethane	U	14.0000	
1,1-Dichloroethene	U	14.0000	
1,2-Dichloroethane	U	14.0000	
1,2-Dichloroethene_(total)	U	14.0000	
1,2-Dichloropropane	U	14.0000	
2-Butanone	U	14.0000	
2-Hexanone	U	14.0000	
4-Methyl-2-pentanone	U	14.0000	
Acetone		45.0000	
Benzene	U	14.0000	
Bromodichloromethane	U	14.0000	
Bromoform	U	14.0000	
Bromomethane	U	14.0000	
Carbon Disulfide	U	14.0000	
Carbon Tetrachloride	U	14.0000	
Chlorobenzene	U	14.0000	
Chloroethane	U	14.0000	
Chloroform	U	14.0000	
Chloromethane	U	14.0000	
Dibromochloromethane	U	14.0000	
Ethylbenzene	U	14.0000	
Methylene_Chloride	BJ	7.0000	
Styrene	U	14.0000	
Tetrachloroethene	U	14.0000	
Toluene	U	14.0000	
Trichloroethene	U	14.0000	
Vinyl Chloride	U	14.0000	
Xylene (total)	U	14.0000	
cis-1,3-Dichloropropene	U	14.0000	
trans-1,3-Dichloropropene	U	14.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB5 (0-2) *
****

Sample Collection Date: 3/29/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-017
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	10.0000	
1,1,2,2-Tetrachloroethane	U	10.0000	
1,1,2-Trichloroethane	U	10.0000	
1,1-Dichloroethane	U	10.0000	
1,1-Dichloroethene	U	10.0000	
1,2-Dichloroethane	U	10.0000	
1,2-Dichloroethene_(total)	U	10.0000	
1,2-Dichloropropane	U	10.0000	
2-Butanone	U	10.0000	
2-Hexanone	U	10.0000	
4-Methyl-2-pentanone	U	10.0000	
Acetone		23.0000	
Benzene	U	10.0000	
Bromodichloromethane	U	10.0000	
Bromoform	U	10.0000	
Bromomethane	U	10.0000	
Carbon Disulfide	U	10.0000	
Carbon Tetrachloride	U	10.0000	
Chlorobenzene	U	10.0000	
Chloroethane	U	10.0000	
Chloroform	U	10.0000	
Chloromethane	U	10.0000	
Dibromochloromethane	U	10.0000	
Ethylbenzene	U	10.0000	
Methylene_Chloride	BJ	5.0000	
Styrene	U	10.0000	
Tetrachloroethene	U	10.0000	
Toluene	U	10.0000	
Trichloroethene	U	10.0000	
Vinyl Chloride	U	10.0000	
Xylene (total)	U	10.0000	
cis-1,3-Dichloropropene	U	10.0000	
trans-1,3-Dichloropropene	U	10.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20T65 (4-6) *
****

Sample Collection Date: 3/29/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35557-018
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroether	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropene	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone		25.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	5.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB6 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-032
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	10.0000	
1,1,2,2-Tetrachloroethane	U	10.0000	
1,1,2-Trichloroethane	U	10.0000	
1,1-Dichloroethane	U	10.0000	
1,1-Dichloroethene	U	10.0000	
1,2-Dichloroethane	U	10.0000	
1,2-Dichloroethene_(total)	U	10.0000	
1,2-Dichloropropene	U	10.0000	
2-Butanone	U	10.0000	
2-Hexanone	U	10.0000	
4-Methyl-2-pentanone	U	10.0000	
Acetone		11.0000	
Benzene	U	10.0000	
Bromodichloromethane	U	10.0000	
Bromoform	U	10.0000	
Bromomethane	U	10.0000	
Carbon Disulfide	U	10.0000	
Carbon Tetrachloride	U	10.0000	
Chlorobenzene	U	10.0000	
Chloroethane	U	10.0000	
Chloroform	U	10.0000	
Chloromethane	U	10.0000	
Dibromochloromethane	U	10.0000	
Ethylbenzene	U	10.0000	
Methylene_Chloride	BJ	6.0000	
Styrene	U	10.0000	
Tetrachloroethene	U	10.0000	
Toluene	U	10.0000	
Trichloroethene	U	10.0000	
Vinyl Chloride	U	10.0000	
Xylene (total)	U	10.0000	
cis-1,3-Dichloropropene	U	10.0000	
trans-1,3-Dichloropropene	U	10.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB6 (8-10) *
****

Sample Collection Date: 3/25/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35520-033
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone		20.0000	
2-Hexanone	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Acetone	B	97.0000	
Benzene	U	13.0000	
Bromodichloromethane	U	13.0000	
Bromoform	U	13.0000	
Bromomethane	U	13.0000	
Carbon Disulfide	J	6.0000	
Carbon Tetrachloride	U	13.0000	
Chlorobenzene	U	13.0000	
Chloroethane	U	13.0000	
Chloroform	U	13.0000	
Chloromethane	U	13.0000	
Dibromochloromethane	U	13.0000	
Ethylbenzene	U	13.0000	
Methylene_Chloride	BJ	11.0000	
Styrene	U	13.0000	
Tetrachloroethene	U	13.0000	
Toluene	U	13.0000	
Trichloroethene	U	13.0000	
Vinyl Chloride	U	13.0000	
Xylene (total)	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB7 (32-42IN) *
****

Sample Collection Date: 4/06/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-025
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	10.0000	
1,1,2,2-Tetrachloroethane	U	10.0000	
1,1,2-Trichloroethane	U	10.0000	
1,1-Dichloroethane	U	10.0000	
1,1-Dichloroethene	U	10.0000	
1,2-Dichloroethane	U	10.0000	
1,2-Dichloroethene_(total)	U	10.0000	
1,2-Dichloropropane	U	10.0000	
2-Butanone	U	10.0000	
2-Hexanone	U	10.0000	
4-Methyl-2-pentanone	U	10.0000	
Acetone		51.0000	
Benzene	U	10.0000	
Bromodichloromethane	U	10.0000	
Bromoform	U	10.0000	
Bromomethane	U	10.0000	
Carbon Disulfide	U	10.0000	
Carbon Tetrachloride	U	10.0000	
Chlorobenzene	U	10.0000	
Chloroethane	U	10.0000	
Chloroform	U	10.0000	
Chloromethane	U	10.0000	
Dibromochloromethane	U	10.0000	
Ethylbenzene	U	10.0000	
Methylene_Chloride	BJ	10.0000	
Styrene	U	10.0000	
Tetrachloroethene	U	10.0000	
Toluene	U	10.0000	
Trichloroethene	U	10.0000	
Vinyl Chloride	U	10.0000	
Xylene (total)	U	10.0000	
cis-1,3-Dichloropropene	U	10.0000	
trans-1,3-Dichloropropene	U	10.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB7 (48-52IN) *
****

Sample Collection Date: 4/06/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35673-026
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	U	11.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	9.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35954-011
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	BJ	7.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	9.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW11 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35954-012
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
2-Hexanone	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Acetone	BJ	7.0000	
Benzene	U	11.0000	
Bromodichloromethane	U	11.0000	
Bromoform	U	11.0000	
Bromomethane	U	11.0000	
Carbon Disulfide	U	11.0000	
Carbon Tetrachloride	U	11.0000	
Chlorobenzene	U	11.0000	
Chloroethane	U	11.0000	
Chloroform	U	11.0000	
Chloromethane	U	11.0000	
Dibromochloromethane	U	11.0000	
Ethylbenzene	U	11.0000	
Methylene_Chloride	BJ	9.0000	
Styrene	U	11.0000	
Tetrachloroethene	U	11.0000	
Toluene	U	11.0000	
Trichloroethene	U	11.0000	
Vinyl Chloride	U	11.0000	
Xylene (total)	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-011
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	340		1,2-Dichlorobenzene	U	340	
1,3-Dichlorobenzene	U	340		1,4-Dichlorobenzene	U	340	
2,2'-oxybis(1-Chloropropane)	U	340	UJ	2,4,5-Trichlorophenol	U	830	
2,4,6-Trichlorophenol	U	340		2,4-Dichlorophenol	U	340	
2,4-Dimethylphenol	U	340		2,4-Dinitrophenol	U	830	UJ
2,4-Dinitrotoluene	U	340		2,6-Dinitrotoluene	U	340	
2-Chloronaphthalene	U	340		2-Chlorophenol	U	340	
2-Methylnaphthalene	U	340		2-Methylphenol	U	340	
2-Nitroaniline	U	830		2-Nitrophenol	U	340	
3,3'-Dichlorobenzidine	U	340		3-Nitroaniline	U	830	
4,6-Dinitro-2-methylphenol	U	830	UJ	4-Bromophenyl-phenylether	U	340	
4-Chloro-3-methylphenol	U	340		4-Chloroaniline	U	340	
4-Chlorophenyl-phenylether	U	340		4-Methylphenol	U	340	
4-Nitroaniline	U	830		4-Nitrophenol	U	830	UJ
Acenaphthene	U	340		Acenaphthylene	U	340	
Anthracene	U	340		Benzo(a)anthracene		350	
Benzo(a)pyrene		380	J	Benzo(b)fluoranthene		430	J
Benzo(g,h,i)perylene	U	340	UJ	Benzo(k)fluoranthene	J	330	J
Butylbenzylphthalate	U	340		Carbazole	U	340	
Chrysene		350		Di-n-butylphthalate	U	340	
Di-n-octylphthalate	U	340	UJ	Dibenz(a,h)anthracene	U	340	UJ
Dibenzofuran	U	340		Diethylphthalate	U	340	
Dimethylphthalate	U	340		Fluoranthene		670	
Fluorene	U	340		Hexachlorobenzene	U	340	
Hexachlorobutadiene	U	340		Hexachlorocyclopentadiene	U	340	UJ
Hexachloroethane	U	340		Indeno(1,2,3-cd)pyrene	U	340	UJ
Isophorone	U	340		N-Nitroso-di-n-propylamine	U	340	
N-Nitrosodiphenylamine (1)	U	340		Naphthalene	U	340	
Nitrobenzene	U	340		Pentachlorophenol	U	830	
Phenanthrene	J	220		Phenol	U	340	
Pyrene		650		bis(2-Chloroethoxy)methane	U	340	
bis(2-Chloroethyl)ether	U	340		bis(2-Ethylhexyl)phthalate	U	340	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-012
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	400		1,2-Dichlorobenzene	U	400	
1,3-Dichlorobenzene	U	400		1,4-Dichlorobenzene	U	400	
2,2'-oxybis(1-Chloropropane)	U	400	UJ	2,4,5-Trichlorophenol	U	960	
2,4,6-Trichlorophenol	U	400		2,4-Dichlorophenol	U	400	
2,4-Dimethylphenol	U	400		2,4-Dinitrophenol	U	960	UJ
2,4-Dinitrotoluene	U	400		2,6-Dinitrotoluene	U	400	
2-Chloronaphthalene	U	400		2-Chlorophenol	U	400	
2-Methylnaphthalene	U	400		2-Methylphenol	U	400	
2-Nitroaniline	U	960		2-Nitrophenol	U	400	
3,3'-Dichlorobenzidine	U	400		3-Nitroaniline	U	960	
4,6-Dinitro-2-methylphenol	U	960	UJ	4-Bromophenyl-phenylether	U	400	
4-Chloro-3-methylphenol	U	400		4-Chloroaniline	U	400	
4-Chlorophenyl-phenylether	U	400		4-Methylphenol	U	400	
4-Nitroaniline	U	960		4-Nitrophenol	U	960	UJ
Acenaphthene	U	400		Acenaphthylene	U	400	
Anthracene	U	400		Benzo(a)anthracene	U	400	
Benzo(a)pyrene	U	400		Benzo(b)fluoranthene	U	400	
Benzo(g,h,i)perylene	U	400		Benzo(k)fluoranthene	U	400	
Butylbenzylphthalate	U	400		Carbazole	U	400	
Chrysene	U	400		Di-n-butylphthalate	U	400	
Di-n-octylphthalate	U	400		Dibenz(a,h)anthracene	U	400	
Dibenzofuran	U	400		Diethylphthalate	U	400	
Dimethylphthalate	U	400		Fluoranthene	U	400	
Fluorene	U	400		Hexachlorobenzene	U	400	
Hexachlorobutadiene	U	400		Hexachlorocyclopentadiene	U	400	UJ
Hexachloroethane	U	400		Indeno(1,2,3-cd)pyrene	U	400	
Isophorone	U	400		N-Nitroso-di-n-propylamine	U	400	
N-Nitrosodiphenylamine (1)	U	400		Naphthalene	U	400	
Nitrobenzene	U	400		Pentachlorophenol	U	960	
Phenanthrene	U	400		Phenol	U	400	
Pyrene	U	400		bis(2-Chloroethoxy)methane	U	400	
bis(2-Chloroethyl)ether	U	400		bis(2-Ethylhexyl)phthalate	U	400	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 (2-4) *
****

Sample Collection Date: 4/01/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-009
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/09/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11000		1,2-Dichlorobenzene	U	11000	
1,3-Dichlorobenzene	U	11000		1,4-Dichlorobenzene	U	11000	
2,2'-oxybis(1-Chloropropane)	U	11000	UJ	2,4,5-Trichlorophenol	U	27000	
2,4,6-Trichlorophenol	U	11000		2,4-Dichlorophenol	U	11000	
2,4-Dimethylphenol	U	11000		2,4-Dinitrophenol	U	27000	
2,4-Dinitrotoluene	U	11000		2,6-Dinitrotoluene	U	11000	
2-Chloronaphthalene	U	11000		2-Chlorophenol	U	11000	
2-Methylnaphthalene	U	11000		2-Methylphenol	U	11000	
2-Nitroaniline	U	27000		2-Nitrophenol	U	11000	
3,3'-Dichlorobenzidine	U	11000		3-Nitroaniline	U	27000	
4,6-Dinitro-2-methylphenol	U	27000		4-Bromophenyl-phenylether	U	11000	
4-Chloro-3-methylphenol	U	11000		4-Chloroaniline	U	11000	
4-Chlorophenyl-phenylether	U	11000		4-Methylphenol	U	11000	
4-Nitroaniline	U	27000		4-Nitrophenol	U	27000	
Acenaphthene	U	11000		Acenaphthylene	U	11000	
Anthracene	U	11000		Benzo(a)anthracene	U	11000	
Benzo(a)pyrene	U	11000		Benzo(b)fluoranthene	J	9500	
Benzo(g,h,i)perylene	U	11000		Benzo(k)fluoranthene	U	11000	
Butylbenzylphthalate	U	11000		Carbazole	U	11000	
Chrysene	U	11000		Di-n-butylphthalate	U	11000	
Di-n-octylphthalate	U	11000		Dibenz(a,h)anthracene	U	11000	
Dibenzofuran	U	11000		Diethylphthalate	U	11000	
Dimethylphthalate	U	11000		Fluoranthene		15000	
Fluorene	U	11000		Hexachlorobenzene	U	11000	
Hexachlorobutadiene	U	11000		Hexachlorocyclopentadiene	U	11000	
Hexachloroethane	U	11000		Indeno(1,2,3-cd)pyrene	U	11000	
Isophorone	U	11000		N-Nitroso-di-n-propylamine	U	11000	
N-Nitrosodiphenylamine (1)	U	11000		Naphthalene	U	11000	
Nitrobenzene	U	11000		Pentachlorophenol	U	27000	
Phenanthrene		13000		Phenol	U	11000	
Pyrene	J	9400	J	bis(2-Chloroethoxy)methane	U	11000	
bis(2-Chloroethyl)ether	U	11000		bis(2-Ethylhexyl)phthalate	U	11000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 (8-10) *
****

Sample Collection Date: 4/01/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-010
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/08/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	1500		1,2-Dichlorobenzene	U	1500	
1,3-Dichlorobenzene	U	1500		1,4-Dichlorobenzene	U	1500	
2,2'-oxybis(1-Chloropropane)	U	1500	UJ	2,4,5-Trichlorophenol	U	3600	
2,4,6-Trichlorophenol	U	1500		2,4-Dichlorophenol	U	1500	
2,4-Dimethylphenol	U	1500		2,4-Dinitrophenol	U	3600	UJ
2,4-Dinitrotoluene	U	1500		2,6-Dinitrotoluene	U	1500	
2-Chloronaphthalene	U	1500		2-Chlorophenol	U	1500	
2-Methylnaphthalene	U	1500		2-Methylphenol	U	1500	
2-Nitroaniline	U	3600		2-Nitrophenol	U	1500	
3,3'-Dichlorobenzidine	U	1500		3-Nitroaniline	U	3600	
4,6-Dinitro-2-methylphenol	U	3600	UJ	4-Bromophenyl-phenylether	U	1500	
4-Chloro-3-methylphenol	U	1500		4-Chloroaniline	U	1500	
4-Chlorophenyl-phenylether	U	1500		4-Methylphenol	U	1500	
4-Nitroaniline	U	3600		4-Nitrophenol	U	3600	UJ
Acenaphthene	J	1100	J	Acenaphthylene	U	1500	
Anthracene	U	1500		Benzo(a)anthracene	U	1500	
Benzo(a)pyrene	U	1500	UJ	Benzo(b)fluoranthene	U	1500	UJ
Benzo(g,h,i)perylene	U	1500	UJ	Benzo(k)fluoranthene	U	1500	UJ
Butylbenzylphthalate	U	1500		Carbazole	U	1500	
Chrysene	U	1500		Di-n-butylphthalate	U	1500	
Di-n-octylphthalate	U	1500	UJ	Dibenz(a,h)anthracene	U	1500	UJ
Dibenzofuran	U	1500		Diethylphthalate	U	1500	
Dimethylphthalate	U	1500		Fluoranthene		2100	J
Fluorene	J	1200	J	Hexachlorobenzene	U	1500	
Hexachlorobutadiene	U	1500		Hexachlorocyclopentadiene	U	1500	UJ
Hexachloroethane	U	1500		Indeno(1,2,3-cd)pyrene	U	1500	UJ
Isophorone	U	1500		N-Nitroso-di-n-propylamine	U	1500	
N-Nitrosodiphenylamine (1)	U	1500		Naphthalene	U	1500	
Nitrobenzene	U	1500		Pentachlorophenol	U	3600	
Phenanthrene	U	1500		Phenol	U	1500	
Pyrene	J	1200		bis(2-Chloroethoxy)methane	U	1500	
bis(2-Chloroethyl)ether	U	1500		bis(2-Ethylhexyl)phthalate	U	1500	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-013
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	360		1,2-Dichlorobenzene	U	360	
1,3-Dichlorobenzene	U	360		1,4-Dichlorobenzene	U	360	
2,2'-oxybis(1-Chloropropane)	U	360	UJ	2,4,5-Trichlorophenol	U	860	
2,4,6-Trichlorophenol	U	360		2,4-Dichlorophenol	U	360	
2,4-Dimethylphenol	U	360		2,4-Dinitrophenol	U	860	
2,4-Dinitrotoluene	U	360		2,6-Dinitrotoluene	U	360	
2-Chloronaphthalene	U	360		2-Chlorophenol	U	360	
2-Methylnaphthalene	U	360		2-Methylphenol	U	360	
2-Nitroaniline	U	860		2-Nitrophenol	U	360	
3,3'-Dichlorobenzidine	U	360		3-Nitroaniline	U	860	
4,6-Dinitro-2-methylphenol	U	860	UJ	4-Bromophenyl-phenylether	U	360	
4-Chloro-3-methylphenol	U	360		4-Chloroaniline	U	360	
4-Chlorophenyl-phenylether	U	360		4-Methylphenol	U	360	
4-Nitroaniline	U	860		4-Nitrophenol	U	860	UJ
Acenaphthene	U	360		Acenaphthylene	U	360	
Anthracene	U	360		Benzo(a)anthracene	U	360	
Benzo(a)pyrene	U	360	UJ	Benzo(b)fluoranthene	U	360	UJ
Benzo(g,h,i)perylene	U	360	UJ	Benzo(k)fluoranthene	U	360	UJ
Butylbenzylphthalate	U	360		Carbazole	U	360	
Chrysene	U	360		Di-n-butylphthalate	U	360	
Di-n-octylphthalate	U	360		Dibenz(a,h)anthracene	U	360	UJ
Dibenzofuran	U	360	UJ	Diethylphthalate	U	360	
Dimethylphthalate	U	360		Fluoranthene	J	200	J
Fluorene	U	360		Hexachlorobenzene	U	360	
Hexachlorobutadiene	U	360		Hexachlorocyclopentadiene	U	360	UJ
Hexachloroethane	U	360		Indeno(1,2,3-cd)pyrene	U	360	UJ
Isophorone	U	360		N-Nitroso-di-n-propylamine	U	360	
N-Nitrosodiphenylamine (1)	U	360		Naphthalene	U	360	
Nitrobenzene	U	360		Pentachlorophenol	U	860	
Phenanthrene	U	360		Phenol	U	360	
Pyrene	U	360		bis(2-Chloroethoxy)methane	U	360	
bis(2-Chloroethyl)ether	U	360		bis(2-Ethylhexyl)phthalate	U	360	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-014
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	380	UJ	1,2-Dichlorobenzene	U	380	UJ
1,3-Dichlorobenzene	U	380	UJ	1,4-Dichlorobenzene	U	380	UJ
2,2'-oxybis(1-Chloropropane)	U	380	UJ	2,4,5-Trichlorophenol	U	910	
2,4,6-Trichlorophenol	U	380		2,4-Dichlorophenol	U	380	UJ
2,4-Dimethylphenol	U	380	UJ	2,4-Dinitrophenol	U	910	UJ
2,4-Dinitrotoluene	U	380		2,6-Dinitrotoluene	U	380	
2-Chloronaphthalene	U	380		2-Chlorophenol	U	380	UJ
2-Methylnaphthalene	U	380	UJ	2-Methylphenol	U	380	UJ
2-Nitroaniline	U	910		2-Nitrophenol	U	380	UJ
3,3'-Dichlorobenzidine	U	380		3-Nitroaniline	U	910	
4,6-Dinitro-2-methylphenol	U	910	UJ	4-Bromophenyl-phenylether	U	380	
4-Chloro-3-methylphenol	U	380	UJ	4-Chloroaniline	U	380	UJ
4-Chlorophenyl-phenylether	U	380		4-Methylphenol	U	380	UJ
4-Nitroaniline	U	910		4-Nitrophenol	U	910	UJ
Acenaphthene	U	380		Acenaphthylene	U	380	
Anthracene	U	380		Benzo(a)anthracene	U	380	
Benzo(a)pyrene	U	380		Benzo(b)fluoranthene	U	380	
Benzo(g,h,i)perylene	U	380		Benzo(k)fluoranthene	U	380	
Butylbenzylphthalate	U	380		Carbazole	U	380	
Chrysene	U	380		Di-n-butylphthalate	U	380	
Di-n-octylphthalate	U	380		Dibenz(a,h)anthracene	U	380	
Dibenzofuran	U	380		Diethylphthalate	U	380	
Dimethylphthalate	U	380		Fluoranthene	U	380	
Fluorene	U	380		Hexachlorobenzene	U	380	
Hexachlorobutadiene	U	380	UJ	Hexachlorocyclopentadiene	U	380	UJ
Hexachloroethane	U	380	UJ	Indeno(1,2,3-cd)pyrene	U	380	
Isophorone	U	380	UJ	N-Nitroso-di-n-propylamine	U	380	UJ
N-Nitrosodiphenylamine (1)	U	380		Naphthalene	U	380	UJ
Nitrobenzene	U	380	UJ	Pentachlorophenol	U	910	
Phenanthrene	U	380		Phenol	U	380	UJ
Pyrene	U	380		bis(2-Chloroethoxy)methane	U	380	UJ
bis(2-Chloroethyl)ether	U	380	UJ	bis(2-Ethylhexyl)phthalate	U	380	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW5 (0-2) *
****

Sample Collection Date: 3/26/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35523-007
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/09/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	350		1,2-Dichlorobenzene	U	350	
1,3-Dichlorobenzene	U	350		1,4-Dichlorobenzene	U	350	
2,2'-oxybis(1-Chloropropane)	U	350	UJ	2,4,5-Trichlorophenol	U	860	
2,4,6-Trichlorophenol	U	350		2,4-Dichlorophenol	U	350	
2,4-Dimethylphenol	U	350		2,4-Dinitrophenol	U	860	
2,4-Dinitrotoluene	U	350		2,6-Dinitrotoluene	U	350	
2-Chloronaphthalene	U	350		2-Chlorophenol	U	350	
2-Methylnaphthalene	U	350		2-Methylphenol	U	350	
2-Nitroaniline	U	860		2-Nitrophenol	U	350	
3,3'-Dichlorobenzidine	U	350		3-Nitroaniline	U	860	
4,6-Dinitro-2-methylphenol	U	860		4-Bromophenyl-phenylether	U	350	
4-Chloro-3-methylphenol	U	350		4-Chloroaniline	U	350	
4-Chlorophenyl-phenylether	U	350		4-Methylphenol	U	350	
4-Nitroaniline	U	860		4-Nitrophenol	U	860	
Acenaphthene	U	350		Acenaphthylene	U	350	
Anthracene	U	350		Benzo(a)anthracene		570	J
Benzo(a)pyrene		700		Benzo(b)fluoranthene		1400	
Benzo(g,h,i)perylene		560		Benzo(k)fluoranthene	U	350	
Butylbenzylphthalate	U	350		Carbazole	U	350	
Chrysene		690		Di-n-butylphthalate	U	350	
Di-n-octylphthalate	U	350		Dibenz(a,h)anthracene	J	190	R
Dibenzofuran	U	350		Diethylphthalate	U	350	
Dimethylphthalate	U	350		Fluoranthene		910	
Fluorene	U	350		Hexachlorobenzene	U	350	
Hexachlorobutadiene	U	350		Hexachlorocyclopentadiene	U	350	
Hexachloroethane	U	350		Indeno(1,2,3-cd)pyrene		450	
Isophorone	U	350		N-Nitroso-di-n-propylamine	U	350	
N-Nitrosodiphenylamine (1)	U	350		Naphthalene	U	350	
Nitrobenzene	U	350		Pentachlorophenol	U	860	
Phenanthrene	J	310		Phenol	U	350	
Pyrene		860	J	bis(2-Chloroethoxy)methane	U	350	
bis(2-Chloroethyl)ether	U	350		bis(2-Ethylhexyl)phthalate	U	350	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW5 (6-8) *
****

Sample Collection Date: 3/26/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35523-008
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/08/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	1500		1,2-Dichlorobenzene	U	1500	
1,3-Dichlorobenzene	U	1500		1,4-Dichlorobenzene	U	1500	
2,2'-oxybis(1-Chloropropane)	U	1500	UJ	2,4,5-Trichlorophenol	U	3700	
2,4,6-Trichlorophenol	U	1500		2,4-Dichlorophenol	U	1500	
2,4-Dimethylphenol	U	1500		2,4-Dinitrophenol	U	3700	UJ
2,4-Dinitrotoluene	U	1500		2,6-Dinitrotoluene	U	1500	
2-Chloronaphthalene	U	1500		2-Chlorophenol	U	1500	
2-Methylnaphthalene	U	1500		2-Methylphenol	U	1500	
2-Nitroaniline	U	3700		2-Nitrophenol	U	1500	
3,3'-Dichlorobenzidine	U	1500		3-Nitroaniline	U	3700	
4,6-Dinitro-2-methylphenol	U	3700	UJ	4-Bromophenyl-phenylether	U	1500	
4-Chloro-3-methylphenol	U	1500		4-Chloroaniline	U	1500	
4-Chlorophenyl-phenylether	U	1500		4-Methylphenol	U	1500	
4-Nitroaniline	U	3700		4-Nitrophenol	U	3700	UJ
Acenaphthene	U	1500		Acenaphthylene	U	1500	
Anthracene	U	1500		Benzo(a)anthracene	U	1500	
Benzo(a)pyrene	U	1500		Benzo(b)fluoranthene	U	1500	
Benzo(g,h,i)perylene	U	1500		Benzo(k)fluoranthene	U	1500	
Butylbenzylphthalate	U	1500		Carbazole	U	1500	
Chrysene	U	1500		Di-n-butylphthalate	U	1500	
Di-n-octylphthalate	U	1500		Dibenz(a,h)anthracene	U	1500	
Dibenzofuran	U	1500		Diethylphthalate	U	1500	
Dimethylphthalate	U	1500		Fluoranthene	J	1200	J
Fluorene	U	1500		Hexachlorobenzene	U	1500	
Hexachlorobutadiene	U	1500		Hexachlorocyclopentadiene	U	1500	UJ
Hexachloroethane	U	1500		Indeno(1,2,3-cd)pyrene	U	1500	
Isophorone	U	1500		N-Nitroso-di-n-propylamine	U	1500	
N-Nitrosodiphenylamine (1)	U	1500		Naphthalene	U	1500	
Nitrobenzene	U	1500		Pentachlorophenol	U	3700	
Phenanthrene	U	1500		Phenol	U	1500	
Pyrene	J	850		bis(2-Chloroethoxy)methane	U	1500	
bis(2-Chloroethyl)ether	U	1500		bis(2-Ethylhexyl)phthalate	U	1500	

00040

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 (12-14) *
****

Sample Collection Date: 3/26/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35523-005
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370	UJ	2,4,5-Trichlorophenol	U	900	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	900	UJ
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	900		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	900	
4,6-Dinitro-2-methylphenol	U	900	UJ	4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	900		4-Nitrophenol	U	900	UJ
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	J	250	
Benzo(a)pyrene	J	260	UJ	Benzo(b)fluoranthene	J	230	UJ
Benzo(g,h,i)perylene	U	370	UJ	Benzo(k)fluoranthene	J	290	UJ
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	J	270		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370	UJ	Dibenz(a,h)anthracene	U	370	UJ
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene		660	J
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	UJ
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	UJ
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	900	
Phenanthrene		400	J	Phenol	U	370	
Pyrene		560		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MWo (2-4) *
****

Sample Collection Date: 3/26/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35523-006
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/09/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11000	UJ	1,2-Dichlorobenzene	U	11000	UJ
1,3-Dichlorobenzene	U	11000	UJ	1,4-Dichlorobenzene	U	11000	UJ
2,2'-oxybis(1-Chloropropane)	U	11000	UJ	2,4,5-Trichlorophenol	U	28000	UJ
2,4,6-Trichlorophenol	U	11000	UJ	2,4-Dichlorophenol	U	11000	UJ
2,4-Dimethylphenol	U	11000	UJ	2,4-Dinitrophenol	U	28000	UJ
2,4-Dinitrotoluene	U	11000	UJ	2,6-Dinitrotoluene	U	11000	UJ
2-Chloronaphthalene	U	11000	UJ	2-Chlorophenol	U	11000	UJ
2-Methylnaphthalene	U	11000	UJ	2-Methylphenol	U	11000	UJ
2-Nitroaniline	U	28000	UJ	2-Nitrophenol	U	11000	UJ
3,3'-Dichlorobenzidine	U	11000	UJ	3-Nitroaniline	U	28000	UJ
4,6-Dinitro-2-methylphenol	U	28000	UJ	4-Bromophenyl-phenylether	U	11000	UJ
4-Chloro-3-methylphenol	U	11000	UJ	4-Chloroaniline	U	11000	UJ
4-Chlorophenyl-phenylether	U	11000	UJ	4-Methylphenol	U	11000	UJ
4-Nitroaniline	U	28000	UJ	4-Nitrophenol	U	28000	UJ
Acenaphthene	U	11000	UJ	Acenaphthylene	U	11000	UJ
Anthracene	U	11000	UJ	Benzo(a)anthracene	J	9500	J
Benzo(a)pyrene		14000	J	Benzo(b)fluoranthene		16000	J
Benzo(g,h,i)perylene	J	7300	J	Benzo(k)fluoranthene	J	9700	J
Butylbenzylphthalate	U	11000	UJ	Carbazole	U	11000	UJ
Chrysene	J	11000	J	Di-n-butylphthalate	U	11000	UJ
Di-n-octylphthalate	U	11000	UJ	Dibenz(a,h)anthracene	U	11000	UJ
Dibenzofuran	U	11000	UJ	Diethylphthalate	U	11000	UJ
Dimethylphthalate	U	11000	UJ	Fluoranthene		19000	J
Fluorene	U	11000	UJ	Hexachlorobenzene	U	11000	UJ
Hexachlorobutadiene	U	11000	UJ	Hexachlorocyclopentadiene	U	11000	UJ
Hexachloroethane	U	11000	UJ	Indeno(1,2,3-cd)pyrene	J	7000	J
Isophorone	U	11000	UJ	N-Nitroso-di-n-propylamine	U	11000	UJ
N-Nitrosodiphenylamine (1)	U	11000	UJ	Naphthalene	U	11000	UJ
Nitrobenzene	U	11000	UJ	Pentachlorophenol	U	28000	UJ
Phenanthrene	J	7600	J	Phenol	U	11000	UJ
Pyrene		14000	J	bis(2-Chloroethoxy)methane	U	11000	UJ
bis(2-Chloroethyl)ether	U	11000	UJ	bis(2-Ethylhexyl)phthalate	U	11000	UJ

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW7 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-015
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	900	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	900	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	900		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	900	
4,6-Dinitro-2-methylphenol	U	900		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	900		4-Nitrophenol	U	900	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	U	370	
Benzo(a)pyrene	U	370		Benzo(b)fluoranthene	U	370	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	U	370	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	U	370	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	UJ
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	900	
Phenanthrene	U	370		Phenol	U	370	
Pyrene	U	370		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW7 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-016
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	900	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	900	UJ
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	900		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	900	
4,6-Dinitro-2-methylphenol	U	900	UJ	4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	UJ
4-Nitroaniline	U	900		4-Nitrophenol	U	900	UJ
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	U	370	
Benzo(a)pyrene	U	370	R	Benzo(b)fluoranthene	U	370	R
Benzo(g,h,i)perylene	U	370	R	Benzo(k)fluoranthene	U	370	R
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370	R	Dibenz(a,h)anthracene	U	370	R
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	U	370	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	UJ
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	R
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	900	
Phenanthrene	U	370		Phenol	U	370	
Pyrene	U	370		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20SD1 *
****

Sample Collection Date: 4/07/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-014
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/20/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	850		1,2-Dichlorobenzene	U	850	
1,3-Dichlorobenzene	U	850		1,4-Dichlorobenzene	U	850	
2,2'-oxybis(1-Chloropropane)	U	850		2,4,5-Trichlorophenol	U	2100	
2,4,6-Trichlorophenol	U	850		2,4-Dichlorophenol	U	850	
2,4-Dimethylphenol	U	850		2,4-Dinitrophenol	U	2100	
2,4-Dinitrotoluene	U	850		2,6-Dinitrotoluene	U	850	
2-Chloronaphthalene	U	850		2-Chlorophenol	U	850	
2-Methylnaphthalene	U	850		2-Methylphenol	U	850	
2-Nitroaniline	U	2100		2-Nitrophenol	U	850	
3,3'-Dichlorobenzidine	U	850		3-Nitroaniline	U	2100	
4,6-Dinitro-2-methylphenol	U	2100		4-Bromophenyl-phenylether	U	850	
4-Chloro-3-methylphenol	U	850		4-Chloroaniline	U	850	
4-Chlorophenyl-phenylether	U	850		4-Methylphenol	U	850	
4-Nitroaniline	U	2100		4-Nitrophenol	U	2100	
Acenaphthene	U	850		Acenaphthylene	U	850	
Anthracene	U	850		Benzo(a)anthracene	U	850	
Benzo(a)pyrene	U	850		Benzo(b)fluoranthene	J	440	
Benzo(g,h,i)perylene	U	850		Benzo(k)fluoranthene	U	850	
Butylbenzylphthalate	J	470		Carbazole	U	850	
Chrysene	U	850		Di-n-butylphthalate	U	850	
Di-n-octylphthalate	U	850		Dibenz(a,h)anthracene	U	850	
Dibenzofuran	U	850		Diethylphthalate	U	850	
Dimethylphthalate	U	850		Fluoranthene	J	520	
Fluorene	U	850		Hexachlorobenzene	U	850	
Hexachlorobutadiene	U	850		Hexachlorocyclopentadiene	U	850	
Hexachloroethane	U	850		Indeno(1,2,3-cd)pyrene	U	850	
Isophorone	U	850		N-Nitroso-di-n-propylamine	U	850	
N-Nitrosodiphenylamine (1)	U	850		Naphthalene	U	850	
Nitrobenzene	U	850		Pentachlorophenol	U	2100	
Phenanthrene	U	850		Phenol	U	850	
Pyrene	J	580		bis(2-Chloroethoxy)methane	U	850	
bis(2-Chloroethyl)ether	U	850		bis(2-Ethylhexyl)phthalate		2300	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20SD2 *
****

Sample Collection Date: 4/07/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-015
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/20/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	440		1,2-Dichlorobenzene	U	440	
1,3-Dichlorobenzene	U	440		1,4-Dichlorobenzene	U	440	
2,2'-oxybis(1-Chloropropane)	U	440		2,4,5-Trichlorophenol	U	1100	
2,4,6-Trichlorophenol	U	440		2,4-Dichlorophenol	U	440	
2,4-Dimethylphenol	U	440		2,4-Dinitrophenol	U	1100	
2,4-Dinitrotoluene	U	440		2,6-Dinitrotoluene	U	440	
2-Chloronaphthalene	U	440		2-Chlorophenol	U	440	
2-Methylnaphthalene	U	440		2-Methylphenol	U	440	
2-Nitroaniline	U	1100		2-Nitrophenol	U	440	
3,3'-Dichlorobenzidine	U	440		3-Nitroaniline	U	1100	
4,6-Dinitro-2-methylphenol	U	1100		4-Bromophenyl-phenylether	U	440	
4-Chloro-3-methylphenol	U	440		4-Chloroaniline	U	440	
4-Chlorophenyl-phenylether	U	440		4-Methylphenol	U	440	
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
Acenaphthene	U	440		Acenaphthylene	U	440	
Anthracene	J	260		Benzo(a)anthracene		530	
Benzo(a)pyrene		550		Benzo(b)fluoranthene		1000	
Benzo(g,h,i)perylene	J	310		Benzo(k)fluoranthene	U	440	
Butylbenzylphthalate		520		Carbazole	U	440	
Chrysene		620		Di-n-butylphthalate	U	440	
Di-n-octylphthalate	U	440		Dibenz(a,h)anthracene	U	440	
Dibenzofuran	U	440		Diethylphthalate	U	440	
Dimethylphthalate	U	440		Fluoranthene		1200	
Fluorene	U	440		Hexachlorobenzene	U	440	
Hexachlorobutadiene	U	440		Hexachlorocyclopentadiene	U	440	
Hexachloroethane	U	440		Indeno(1,2,3-cd)pyrene	J	320	
Isophorone	U	440		N-Nitroso-di-n-propylamine	U	440	
N-Nitrosodiphenylamine (1)	U	440		Naphthalene	U	440	
Nitrobenzene	U	440		Pentachlorophenol	U	1100	
Phenanthrene		1100		Phenol	U	440	
Pyrene		1200		bis(2-Chloroethoxy)methane	U	440	
bis(2-Chloroethyl)ether	U	440		bis(2-Ethylhexyl)phthalate		2400	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB1 (2-4) *
****

Sample Collection Date: 4/02/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35603-005
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/22/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	350		1,2-Dichlorobenzene	U	350	
1,3-Dichlorobenzene	U	350		1,4-Dichlorobenzene	U	350	
2,2'-oxybis(1-Chloropropane)	U	350		2,4,5-Trichlorophenol	U	850	
2,4,6-Trichlorophenol	U	350		2,4-Dichlorophenol	U	350	
2,4-Dimethylphenol	U	350		2,4-Dinitrophenol	U	850	
2,4-Dinitrotoluene	U	350		2,6-Dinitrotoluene	U	350	
2-Chloronaphthalene	U	350		2-Chlorophenol	U	350	
2-Methylnaphthalene	U	350		2-Methylphenol	U	350	
2-Nitroaniline	U	850		2-Nitrophenol	U	350	
3,3'-Dichlorobenzidine	U	350		3-Nitroaniline	U	850	
4,6-Dinitro-2-methylphenol	U	850		4-Bromophenyl-phenylether	U	350	
4-Chloro-3-methylphenol	U	350		4-Chloroaniline	U	350	
4-Chlorophenyl-phenylether	U	350		4-Methylphenol	U	350	
4-Nitroaniline	U	850		4-Nitrophenol	U	850	
Acenaphthene	U	350		Acenaphthylene	U	350	
Anthracene	U	350		Benzo(a)anthracene	J	190	
Benzo(a)pyrene	U	350		Benzo(b)fluoranthene	J	230	
Benzo(g,h,i)perylene	U	350		Benzo(k)fluoranthene	U	350	
Butylbenzylphthalate	U	350		Carbazole	U	350	
Chrysene	J	190		Di-n-butylphthalate	U	350	
Di-n-octylphthalate	U	350		Dibenz(a,h)anthracene	U	350	
Dibenzofuran	U	350		Diethylphthalate	U	350	
Dimethylphthalate	U	350		Fluoranthene	J	340	
Fluorene	U	350		Hexachlorobenzene	U	350	
Hexachlorobutadiene	U	350		Hexachlorocyclopentadiene	U	350	
Hexachloroethane	U	350		Indeno(1,2,3-cd)pyrene	U	350	
Isophorone	U	350		N-Nitroso-di-n-propylamine	U	350	
N-Nitrosodiphenylamine (1)	U	350		Naphthalene	U	350	
Nitrobenzene	U	350		Pentachlorophenol	U	850	
Phenanthrene	U	350		Phenol	U	350	
Pyrene	J	290		bis(2-Chloroethoxy)methane	U	350	
bis(2-Chloroethyl)ether	U	350		bis(2-Ethylhexyl)phthalate	U	350	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB1 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35603-004
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/22/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	390		1,2-Dichlorobenzene	U	390	
1,3-Dichlorobenzene	U	390		1,4-Dichlorobenzene	U	390	
2,2'-oxybis(1-Chloropropane)	U	390		2,4,5-Trichlorophenol	U	940	
2,4,6-Trichlorophenol	U	390		2,4-Dichlorophenol	U	390	
2,4-Dimethylphenol	U	390		2,4-Dinitrophenol	U	940	
2,4-Dinitrotoluene	U	390		2,6-Dinitrotoluene	U	390	
2-Chloronaphthalene	U	390		2-Chlorophenol	U	390	
2-Methylnaphthalene	U	390		2-Methylphenol	U	390	
2-Nitroaniline	U	940		2-Nitrophenol	U	390	
3,3'-Dichlorobenzidine	U	390		3-Nitroaniline	U	940	
4,6-Dinitro-2-methylphenol	U	940		4-Bromophenyl-phenylether	U	390	
4-Chloro-3-methylphenol	U	390		4-Chloroaniline	U	390	
4-Chlorophenyl-phenylether	U	390		4-Methylphenol	U	390	
4-Nitroaniline	U	940		4-Nitrophenol	U	940	
Acenaphthene	U	390		Acenaphthylene	U	390	
Anthracene	U	390		Benzo(a)anthracene	U	390	
Benzo(a)pyrene	U	390		Benzo(b)fluoranthene	U	390	
Benzo(g,h,i)perylene	U	390		Benzo(k)fluoranthene	U	390	
Butylbenzylphthalate	U	390		Carbazole	U	390	
Chrysene	U	390		Di-n-butylphthalate	U	390	
Di-n-octylphthalate	U	390		Dibenz(a,h)anthracene	U	390	
Dibenzofuran	U	390		Diethylphthalate	U	390	
Dimethylphthalate	U	390		Fluoranthene	U	390	
Fluorene	U	390		Hexachlorobenzene	U	390	
Hexachlorobutadiene	U	390		Hexachlorocyclopentadiene	U	390	
Hexachloroethane	U	390		Indeno(1,2,3-cd)pyrene	U	390	
Isophorone	U	390		N-Nitroso-di-n-propylamine	U	390	
N-Nitrosodiphenylamine (1)	U	390		Naphthalene	U	390	
Nitrobenzene	U	390		Pentachlorophenol	U	940	
Phenanthrene	U	390		Phenol	U	390	
Pyrene	U	390		bis(2-Chloroethoxy)methane	U	390	
bis(2-Chloroethyl)ether	U	390		bis(2-Ethylhexyl)phthalate	U	390	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB11 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35603-006
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/22/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Date
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	890	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	890	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	890		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	890	
4,6-Dinitro-2-methylphenol	U	890		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	890		4-Nitrophenol	U	890	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	U	370	
Benzo(a)pyrene	U	370		Benzo(b)fluoranthene	U	370	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	U	370	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	U	370		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	U	370		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	U	370	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	890	
Phenanthrene	U	370		Phenol	U	370	
Pyrene	U	370		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	U	370	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB17 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-018
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/22/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	710		1,2-Dichlorobenzene	U	710	
1,3-Dichlorobenzene	U	710		1,4-Dichlorobenzene	U	710	
2,2'-oxybis(1-Chloropropane)	U	710		2,4,5-Trichlorophenol	U	1700	
2,4,6-Trichlorophenol	U	710		2,4-Dichlorophenol	U	710	
2,4-Dimethylphenol	U	710		2,4-Dinitrophenol	U	1700	
2,4-Dinitrotoluene	U	710		2,6-Dinitrotoluene	U	710	
2-Chloronaphthalene	U	710		2-Chlorophenol	U	710	
2-Methylnaphthalene	U	710		2-Methylphenol	U	710	
2-Nitroaniline	U	1700		2-Nitrophenol	U	710	
3,3'-Dichlorobenzidine	U	710		3-Nitroaniline	U	1700	
4,6-Dinitro-2-methylphenol	U	1700		4-Bromophenyl-phenylether	U	710	
4-Chloro-3-methylphenol	U	710		4-Chloroaniline	U	710	
4-Chlorophenyl-phenylether	U	710		4-Methylphenol	U	710	
4-Nitroaniline	U	1700		4-Nitrophenol	U	1700	
Acenaphthene		1400		Acenaphthylene	U	710	
Anthracene	J	660		Benzo(a)anthracene	J	560	
Benzo(a)pyrene	U	710		Benzo(b)fluoranthene	J	490	
Benzo(g,h,i)perylene	U	710		Benzo(k)fluoranthene	U	710	
Butylbenzylphthalate	U	710		Carbazole	U	710	
Chrysene	J	510		Di-n-butylphthalate	U	710	
Di-n-octylphthalate	U	710		Dibenz(a,h)anthracene	U	710	
Dibenzofuran		770		Diethylphthalate	U	710	
Dimethylphthalate	U	710		Fluoranthene		2900	
Fluorene		1600		Hexachlorobenzene	U	710	
Hexachlorobutadiene	U	710		Hexachlorocyclopentadiene	U	710	
Hexachloroethane	U	710		Indeno(1,2,3-cd)pyrene	U	710	
Isophorone	U	710		N-Nitroso-di-n-propylamine	U	710	
N-Nitrosodiphenylamine (1)	U	710		Naphthalene	U	710	
Nitrobenzene	U	710		Pentachlorophenol	U	1700	
Phenanthrene		3600		Phenol	U	710	
Pyrene		1900		bis(2-Chloroethoxy)methane	U	710	
bis(2-Chloroethyl)ether	U	710		bis(2-Ethylhexyl)phthalate	U	710	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-016
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	360		1,2-Dichlorobenzene	U	360	
1,3-Dichlorobenzene	U	360		1,4-Dichlorobenzene	U	360	
2,2'-oxybis(1-Chloropropane)	U	360	UJ	2,4,5-Trichlorophenol	U	880	
2,4,6-Trichlorophenol	U	360		2,4-Dichlorophenol	U	360	
2,4-Dimethylphenol	U	360		2,4-Dinitrophenol	U	880	UJ
2,4-Dinitrotoluene	U	360		2,6-Dinitrotoluene	U	360	
2-Chloronaphthalene	U	360		2-Chlorophenol	U	360	
2-Methylnaphthalene	U	360		2-Methylphenol	U	360	
2-Nitroaniline	U	880		2-Nitrophenol	U	360	
3,3'-Dichlorobenzidine	U	360		3-Nitroaniline	U	880	
4,6-Dinitro-2-methylphenol	U	880	UJ	4-Bromophenyl-phenylether	U	360	
4-Chloro-3-methylphenol	U	360		4-Chloroaniline	U	360	
4-Chlorophenyl-phenylether	U	360		4-Methylphenol	U	360	
4-Nitroaniline	U	880		4-Nitrophenol	U	880	UJ
Acenaphthene	U	360		Acenaphthylene	U	360	
Anthracene	U	360		Benzo(a)anthracene	U	360	
Benzo(a)pyrene	U	360		Benzo(b)fluoranthene	U	360	
Benzo(g,h,i)perylene	U	360		Benzo(k)fluoranthene	U	360	
Butylbenzylphthalate	U	360		Carbazole	U	360	
Chrysene	U	360		Di-n-butylphthalate	U	360	
Di-n-octylphthalate	U	360		Dibenz(a,h)anthracene	U	360	
Dibenzofuran	U	360		Diethylphthalate	U	360	
Dimethylphthalate	U	360		Fluoranthene	U	360	
Fluorene	U	360		Hexachlorobenzene	U	360	
Hexachlorobutadiene	U	360		Hexachlorocyclopentadiene	U	360	UJ
Hexachloroethane	U	360		Indeno(1,2,3-cd)pyrene	U	360	
Isophorone	U	360		N-Nitroso-di-n-propylamine	U	360	
N-Nitrosodiphenylamine (1)	U	360		Naphthalene	U	360	
Nitrobenzene	U	360		Pentachlorophenol	U	880	
Phenanthrene	U	360		Phenol	U	360	
Pyrene	U	360		bis(2-Chloroethoxy)methane	U	360	
bis(2-Chloroethyl)ether	U	360		bis(2-Ethylhexyl)phthalate	U	360	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB2 (2-4) *
****

Sample Collection Date: 3/31/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-015
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	360		1,2-Dichlorobenzene	U	360	
1,3-Dichlorobenzene	U	360		1,4-Dichlorobenzene	U	360	
2,2'-oxybis(1-Chloropropane)	U	360	UJ	2,4,5-Trichlorophenol	U	860	
2,4,6-Trichlorophenol	U	360		2,4-Dichlorophenol	U	360	
2,4-Dimethylphenol	U	360		2,4-Dinitrophenol	U	860	UJ
2,4-Dinitrotoluene	U	360		2,6-Dinitrotoluene	U	360	
2-Chloronaphthalene	U	360		2-Chlorophenol	U	360	
2-Methylnaphthalene	U	360		2-Methylphenol	U	360	
2-Nitroaniline	U	860		2-Nitrophenol	U	360	
3,3'-Dichlorobenzidine	U	360		3-Nitroaniline	U	860	
4,6-Dinitro-2-methylphenol	U	860	UJ	4-Bromophenyl-phenylether	U	360	
4-Chloro-3-methylphenol	U	360		4-Chloroaniline	U	360	
4-Chlorophenyl-phenylether	U	360		4-Methylphenol	U	360	
4-Nitroaniline	U	860		4-Nitrophenol	U	860	UJ
Acenaphthene	U	360		Acenaphthylene	U	360	
Anthracene	U	360		Benzo(a)anthracene	U	360	
Benzo(a)pyrene	U	360		Benzo(b)fluoranthene	U	360	
Benzo(g,h,i)perylene	U	360		Benzo(k)fluoranthene	U	360	
Butylbenzylphthalate	U	360		Carbazole	U	360	
Chrysene	U	360		Di-n-butylphthalate	U	360	
Di-n-octylphthalate	U	360		Dibenz(a,h)anthracene	U	360	
Dibenzofuran	U	360		Diethylphthalate	U	360	
Dimethylphthalate	U	360		Fluoranthene	U	360	
Fluorene	U	360		Hexachlorobenzene	U	360	
Hexachlorobutadiene	U	360		Hexachlorocyclopentadiene	U	360	UJ
Hexachloroethane	U	360		Indeno(1,2,3-cd)pyrene	U	360	
Isophorone	U	360		N-Nitroso-di-n-propylamine	U	360	
N-Nitrosodiphenylamine (1)	U	360		Naphthalene	U	360	
Nitrobenzene	U	360		Pentachlorophenol	U	860	
Phenanthrene	U	360		Phenol	U	360	
Pyrene	U	360		bis(2-Chloroethoxy)methane	U	360	
bis(2-Chloroethyl)ether	U	360		bis(2-Ethylhexyl)phthalate	U	360	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB3 (10-12) *
****

Sample Collection Date: 3/29/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-012
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	360		1,2-Dichlorobenzene	U	360	
1,3-Dichlorobenzene	U	360		1,4-Dichlorobenzene	U	360	
2,2'-oxybis(1-Chloropropane)	U	360		2,4,5-Trichlorophenol	U	880	
2,4,6-Trichlorophenol	U	360		2,4-Dichlorophenol	U	360	
2,4-Dimethylphenol	U	360		2,4-Dinitrophenol	U	880	
2,4-Dinitrotoluene	U	360		2,6-Dinitrotoluene	U	360	
2-Chloronaphthalene	U	360		2-Chlorophenol	U	360	
2-Methylnaphthalene	U	360		2-Methylphenol	U	360	
2-Nitroaniline	U	880		2-Nitrophenol	U	360	
3,3'-Dichlorobenzidine	U	360		3-Nitroaniline	U	880	
4,6-Dinitro-2-methylphenol	U	880		4-Bromophenyl-phenylether	U	360	
4-Chloro-3-methylphenol	U	360		4-Chloroaniline	U	360	
4-Chlorophenyl-phenylether	U	360		4-Methylphenol	U	360	
4-Nitroaniline	U	880		4-Nitrophenol	U	880	
Acenaphthene	U	360		Acenaphthylene	U	360	
Anthracene	U	360		Benzo(a)anthracene	U	360	
Benzo(a)pyrene	U	360		Benzo(b)fluoranthene	U	360	
Benzo(g,h,i)perylene	U	360		Benzo(k)fluoranthene	U	360	
Butylbenzylphthalate	U	360		Carbazole	U	360	
Chrysene	U	360		Di-n-butylphthalate	U	360	
Di-n-octylphthalate	U	360		Dibenz(a,h)anthracene	U	360	
Dibenzofuran	U	360		Diethylphthalate	U	360	
Dimethylphthalate	U	360		Fluoranthene	J	290	J
Fluorene	U	360		Hexachlorobenzene	U	360	
Hexachlorobutadiene	U	360		Hexachlorocyclopentadiene	U	360	UJ
Hexachloroethane	U	360		Indeno(1,2,3-cd)pyrene	U	360	
Isophorone	U	360		N-Nitroso-di-n-propylamine	U	360	
N-Nitrosodiphenylamine (1)	U	360		Naphthalene	U	360	
Nitrobenzene	U	360		Pentachlorophenol	U	880	
Phenanthrene	U	360		Phenol	U	360	
Pyrene	J	230		bis(2-Chloroethoxy)methane	U	360	
bis(2-Chloroethyl)ether	U	360		bis(2-Ethylhexyl)phthalate	U	360	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB3 (2-4) *
****

Sample Collection Date: 3/29/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-011
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	350		1,2-Dichlorobenzene	U	350	
1,3-Dichlorobenzene	U	350		1,4-Dichlorobenzene	U	350	
2,2'-oxybis(1-Chloropropane)	U	350		2,4,5-Trichlorophenol	U	850	
2,4,6-Trichlorophenol	U	350		2,4-Dichlorophenol	U	350	
2,4-Dimethylphenol	U	350		2,4-Dinitrophenol	U	850	
2,4-Dinitrotoluene	U	350		2,6-Dinitrotoluene	U	350	
2-Chloronaphthalene	U	350		2-Chlorophenol	U	350	
2-Methylnaphthalene	U	350		2-Methylphenol	U	350	
2-Nitroaniline	U	850		2-Nitrophenol	U	350	
3,3'-Dichlorobenzidine	U	350		3-Nitroaniline	U	850	
4,6-Dinitro-2-methylphenol	U	850		4-Bromophenyl-phenylether	U	350	
4-Chloro-3-methylphenol	U	350		4-Chloroaniline	U	350	
4-Chlorophenyl-phenylether	U	350		4-Methylphenol	U	350	
4-Nitroaniline	U	850		4-Nitrophenol	U	850	
Acenaphthene	U	350		Acenaphthylene	U	350	
Anthracene	U	350		Benzo(a)anthracene	J	260	
Benzo(a)pyrene	J	210		Benzo(b)fluoranthene	J	240	
Benzo(g,h,i)perylene	U	350		Benzo(k)fluoranthene	J	230	
Butylbenzylphthalate	U	350		Carbazole	U	350	
Chrysene	J	250		Di-n-butylphthalate	U	350	
Di-n-octylphthalate	U	350		Dibenz(a,h)anthracene	U	350	
Dibenzofuran	U	350		Diethylphthalate	U	350	
Dimethylphthalate	U	350		Fluoranthene		400	J
Fluorene	U	350		Hexachlorobenzene	U	350	
Hexachlorobutadiene	U	350		Hexachlorocyclopentadiene	U	350	UJ
Hexachloroethane	U	350		Indeno(1,2,3-cd)pyrene	U	350	
Isophorone	U	350		N-Nitroso-di-n-propylamine	U	350	
N-Nitrosodiphenylamine (1)	U	350		Naphthalene	U	350	
Nitrobenzene	U	350		Pentachlorophenol	U	850	
Phenanthrene	J	190		Phenol	U	350	
Pyrene		410		bis(2-Chloroethoxy)methane	U	350	
bis(2-Chloroethyl)ether	U	350		bis(2-Ethylhexyl)phthalate	U	350	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB4 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-013
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	390		1,2-Dichlorobenzene	U	390	
1,3-Dichlorobenzene	U	390		1,4-Dichlorobenzene	U	390	
2,2'-oxybis(1-Chloropropane)	U	390		2,4,5-Trichlorophenol	U	940	
2,4,6-Trichlorophenol	U	390		2,4-Dichlorophenol	U	390	
2,4-Dimethylphenol	U	390		2,4-Dinitrophenol	U	940	
2,4-Dinitrotoluene	U	390		2,6-Dinitrotoluene	U	390	
2-Chloronaphthalene	U	390		2-Chlorophenol	U	390	
2-Methylnaphthalene	U	390		2-Methylphenol	U	390	
2-Nitroaniline	U	940		2-Nitrophenol	U	390	
3,3'-Dichlorobenzidine	U	390		3-Nitroaniline	U	940	
4,6-Dinitro-2-methylphenol	U	940		4-Bromophenyl-phenylether	U	390	
4-Chloro-3-methylphenol	U	390		4-Chloroaniline	U	390	
4-Chlorophenyl-phenylether	U	390		4-Methylphenol	U	390	
4-Nitroaniline	U	940		4-Nitrophenol	U	940	
Acenaphthene	U	390		Acenaphthylene	U	390	
Anthracene	U	390		Benzo(a)anthracene	U	390	
Benzo(a)pyrene	U	390		Benzo(b)fluoranthene	U	390	
Benzo(g,h,i)perylene	U	390		Benzo(k)fluoranthene	U	390	
Butylbenzylphthalate	U	390		Carbazole	U	390	
Chrysene	U	390		Di-n-butylphthalate	U	390	
Di-n-octylphthalate	U	390		Dibenz(a,h)anthracene	U	390	
Dibenzofuran	U	390		Diethylphthalate	U	390	
Dimethylphthalate	U	390		Fluoranthene	U	390	
Fluorene	U	390		Hexachlorobenzene	U	390	
Hexachlorobutadiene	U	390		Hexachlorocyclopentadiene	U	390	
Hexachloroethane	U	390		Indeno(1,2,3-cd)pyrene	U	390	
Isophorone	U	390		N-Nitroso-di-n-propylamine	U	390	
N-Nitrosodiphenylamine (1)	U	390		Naphthalene	U	390	
Nitrobenzene	U	390		Pentachlorophenol	U	940	
Phenanthrene	U	390		Phenol	U	390	
Pyrene	U	390		bis(2-Chloroethoxy)methane	U	390	
bis(2-Chloroethyl)ether	U	390		bis(2-Ethylhexyl)phthalate	U	390	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB4 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35593-014
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/08/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	1800		1,2-Dichlorobenzene	U	1800	
1,3-Dichlorobenzene	U	1800		1,4-Dichlorobenzene	U	1800	
2,2'-oxybis(1-Chloropropane)	U	1800		2,4,5-Trichlorophenol	U	4300	
2,4,6-Trichlorophenol	U	1800		2,4-Dichlorophenol	U	1800	
2,4-Dimethylphenol	U	1800		2,4-Dinitrophenol	U	4300	
2,4-Dinitrotoluene	U	1800		2,6-Dinitrotoluene	U	1800	
2-Chloronaphthalene	U	1800		2-Chlorophenol	U	1800	
2-Methylnaphthalene	U	1800		2-Methylphenol	U	1800	
2-Nitroaniline	U	4300		2-Nitrophenol	U	1800	
3,3'-Dichlorobenzidine	U	1800		3-Nitroaniline	U	4300	
4,6-Dinitro-2-methylphenol	U	4300		4-Bromophenyl-phenylether	U	1800	
4-Chloro-3-methylphenol	U	1800		4-Chloroaniline	U	1800	
4-Chlorophenyl-phenylether	U	1800		4-Methylphenol	U	1800	
4-Nitroaniline	U	4300		4-Nitrophenol	U	4300	
Acenaphthene	U	1800		Acenaphthylene	U	1800	
Anthracene	U	1800		Benzo(a)anthracene	U	1800	
Benzo(a)pyrene	U	1800		Benzo(b)fluoranthene	U	1800	
Benzo(g,h,i)perylene	U	1800		Benzo(k)fluoranthene	U	1800	
Butylbenzylphthalate	U	1800		Carbazole	U	1800	
Chrysene	U	1800		Di-n-butylphthalate	U	1800	
Di-n-octylphthalate	U	1800		Dibenz(a,h)anthracene	U	1800	
Dibenzofuran	U	1800		Diethylphthalate	U	1800	
Dimethylphthalate	U	1800		Fluoranthene	J	1300	
Fluorene	U	1800		Hexachlorobenzene	U	1800	
Hexachlorobutadiene	U	1800		Hexachlorocyclopentadiene	U	1800	
Hexachloroethane	U	1800		Indeno(1,2,3-cd)pyrene	U	1800	
Isophorone	U	1800		N-Nitroso-di-n-propylamine	U	1800	
N-Nitrosodiphenylamine (1)	U	1800		Naphthalene	U	1800	
Nitrobenzene	U	1800		Pentachlorophenol	U	4300	
Phenanthrene	U	1800		Phenol	U	1800	
Pyrene	J	1200		bis(2-Chloroethoxy)methane	U	1800	
bis(2-Chloroethyl)ether	U	1800		bis(2-Ethylhexyl)phthalate	U	1800	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB5 (0-2) *
****

Sample Collection Date: 3/29/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-009
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	340		1,2-Dichlorobenzene	U	340	
1,3-Dichlorobenzene	U	340		1,4-Dichlorobenzene	U	340	
2,2'-oxybis(1-Chloropropane)	U	340		2,4,5-Trichlorophenol	U	820	
2,4,6-Trichlorophenol	U	340		2,4-Dichlorophenol	U	340	
2,4-Dimethylphenol	U	340		2,4-Dinitrophenol	U	820	
2,4-Dinitrotoluene	U	340		2,6-Dinitrotoluene	U	340	
2-Chloronaphthalene	U	340		2-Chlorophenol	U	340	
2-Methylnaphthalene	U	340		2-Methylphenol	U	340	
2-Nitroaniline	U	820		2-Nitrophenol	U	340	
3,3'-Dichlorobenzidine	U	340		3-Nitroaniline	U	820	
4,6-Dinitro-2-methylphenol	U	820		4-Bromophenyl-phenylether	U	340	
4-Chloro-3-methylphenol	U	340		4-Chloroaniline	U	340	
4-Chlorophenyl-phenylether	U	340		4-Methylphenol	U	340	
4-Nitroaniline	U	820		4-Nitrophenol	U	820	
Acenaphthene	U	340		Acenaphthylene	U	340	
Anthracene	J	260		Benzo(a)anthracene		610	
Benzo(a)pyrene		720		Benzo(b)fluoranthene		720	
Benzo(g,h,i)perylene	J	320		Benzo(k)fluoranthene		770	
Butylbenzylphthalate	U	340		Carbazole	U	340	
Chrysene		630		Di-n-butylphthalate	U	340	
Di-n-octylphthalate	U	340		Dibenz(a,h)anthracene	U	340	
Dibenzofuran	U	340		Diethylphthalate	U	340	
Dimethylphthalate	U	340		Fluoranthene		1100	
Fluorene	U	340		Hexachlorobenzene	U	340	
Hexachlorobutadiene	U	340		Hexachlorocyclopentadiene	U	340	
Hexachloroethane	U	340		Indeno(1,2,3-cd)pyrene	J	330	
Isophorone	U	340		N-Nitroso-di-n-propylamine	U	340	
N-Nitrosodiphenylamine (1)	U	340		Naphthalene	U	340	
Nitrobenzene	U	340		Pentachlorophenol	U	820	
Phenanthrene		790		Phenol	U	340	
Pyrene		1200		bis(2-Chloroethoxy)methane	U	340	
bis(2-Chloroethyl)ether	U	340		bis(2-Ethylhexyl)phthalate	U	340	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOU

****
* SAMPLE ID: 20TB5 (4-6) *
****

Sample Collection Date: 3/29/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35557-010
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	360		1,2-Dichlorobenzene	U	360	
1,3-Dichlorobenzene	U	360		1,4-Dichlorobenzene	U	360	
2,2'-oxybis(1-Chloropropane)	U	360		2,4,5-Trichlorophenol	U	860	
2,4,6-Trichlorophenol	U	360		2,4-Dichlorophenol	U	360	
2,4-Dimethylphenol	U	360		2,4-Dinitrophenol	U	860	
2,4-Dinitrotoluene	U	360		2,6-Dinitrotoluene	U	360	
2-Chloronaphthalene	U	360		2-Chlorophenol	U	360	
2-Methylnaphthalene	U	360		2-Methylphenol	U	360	
2-Nitroaniline	U	860		2-Nitrophenol	U	360	
3,3'-Dichlorobenzidine	U	360		3-Nitroaniline	U	860	
4,6-Dinitro-2-methylphenol	U	860		4-Bromophenyl-phenylether	U	360	
4-Chloro-3-methylphenol	U	360		4-Chloroaniline	U	360	
4-Chlorophenyl-phenylether	U	360		4-Methylphenol	U	360	
4-Nitroaniline	U	860		4-Nitrophenol	U	860	
Acenaphthene	U	360		Acenaphthylene	U	360	
Anthracene	U	360		Benzo(a)anthracene	J	310	
Benzo(a)pyrene	J	260		Benzo(b)fluoranthene	J	320	
Benzo(g,h,i)perylene	U	360		Benzo(k)fluoranthene	J	220	
Butylbenzylphthalate	U	360		Carbazole	U	360	
Chrysene	J	350		Di-n-butylphthalate	U	360	
Di-n-octylphthalate	U	360		Dibenz(a,h)anthracene	U	360	
Dibenzofuran	U	360		Diethylphthalate	U	360	
Dimethylphthalate	U	360		Fluoranthene		540	
Fluorene	U	360		Hexachlorobenzene	U	360	
Hexachlorobutadiene	U	360		Hexachlorocyclopentadiene	U	360	
Hexachloroethane	U	360		Indeno(1,2,3-cd)pyrene	U	360	
Isophorone	U	360		N-Nitroso-di-n-propylamine	U	360	
N-Nitrosodiphenylamine (1)	U	360		Naphthalene	U	360	
Nitrobenzene	U	360		Pentachlorophenol	U	860	
Phenanthrene	J	340		Phenol	U	360	
Pyrene		590		bis(2-Chloroethoxy)methane	U	360	
bis(2-Chloroethyl)ether	U	360		bis(2-Ethylhexyl)phthalate	U	360	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB6 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-030
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	340		1,2-Dichlorobenzene	U	340	
1,3-Dichlorobenzene	U	340		1,4-Dichlorobenzene	U	340	
2,2'-oxybis(1-Chloropropane)	U	340		2,4,5-Trichlorophenol	U	830	
2,4,6-Trichlorophenol	U	340		2,4-Dichlorophenol	U	340	
2,4-Dimethylphenol	U	340		2,4-Dinitrophenol	U	830	
2,4-Dinitrotoluene	U	340		2,6-Dinitrotoluene	U	340	
2-Chloronaphthalene	U	340		2-Chlorophenol	U	340	
2-Methylnaphthalene	U	340		2-Methylphenol	U	340	
2-Nitroaniline	U	830		2-Nitrophenol	U	340	
3,3'-Dichlorobenzidine	U	340		3-Nitroaniline	U	830	
4,6-Dinitro-2-methylphenol	U	830		4-Bromophenyl-phenylether	U	340	
4-Chloro-3-methylphenol	U	340		4-Chloroaniline	U	340	
4-Chlorophenyl-phenylether	U	340		4-Methylphenol	U	340	
4-Nitroaniline	U	830		4-Nitrophenol	U	830	
Acenaphthene	U	340		Acenaphthylene	U	340	
Anthracene	U	340		Benzo(a)anthracene	J	300	
Benzo(a)pyrene	J	280		Benzo(b)fluoranthene		350	
Benzo(g,h,i)perylene	U	340		Benzo(k)fluoranthene	U	340	
Butylbenzylphthalate	U	340		Carbazole	U	340	
Chrysene	J	290		Di-n-butylphthalate	U	340	
Di-n-octylphthalate	U	340		Dibenz(a,h)anthracene	U	340	
Dibenzofuran	U	340		Diethylphthalate	U	340	
Dimethylphthalate	U	340		Fluoranthene		480	
Fluorene	U	340		Hexachlorobenzene	U	340	
Hexachlorobutadiene	U	340		Hexachlorocyclopentadiene	U	340	
Hexachloroethane	U	340		Indeno(1,2,3-cd)pyrene	U	340	
Isophorone	U	340		N-Nitroso-di-n-propylamine	U	340	
N-Nitrosodiphenylamine (1)	U	340		Naphthalene	U	340	
Nitrobenzene	U	340		Pentachlorophenol	U	830	
Phenanthrene	U	340		Phenol	U	340	
Pyrene		490		bis(2-Chloroethoxy)methane	U	340	
bis(2-Chloroethyl)ether	U	340		bis(2-Ethylhexyl)phthalate	U	340	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB6 (8-10) *
****

Sample Collection Date: 3/25/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35520-031
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	430		1,2-Dichlorobenzene	U	430	
1,3-Dichlorobenzene	U	430		1,4-Dichlorobenzene	U	430	
2,2'-oxybis(1-Chloropropane)	U	430		2,4,5-Trichlorophenol	U	1000	
2,4,6-Trichlorophenol	U	430		2,4-Dichlorophenol	U	430	
2,4-Dimethylphenol	U	430		2,4-Dinitrophenol	U	1000	
2,4-Dinitrotoluene	U	430		2,6-Dinitrotoluene	U	430	
2-Chloronaphthalene	U	430		2-Chlorophenol	U	430	
2-Methylnaphthalene	U	430		2-Methylphenol	U	430	
2-Nitroaniline	U	1000		2-Nitrophenol	U	430	
3,3'-Dichlorobenzidine	U	430		3-Nitroaniline	U	1000	
4,6-Dinitro-2-methylphenol	U	1000		4-Bromophenyl-phenylether	U	430	
4-Chloro-3-methylphenol	U	430		4-Chloroaniline	U	430	
4-Chlorophenyl-phenylether	U	430		4-Methylphenol	U	430	
4-Nitroaniline	U	1000		4-Nitrophenol	U	1000	
Acenaphthene		610		Acenaphthylene	U	430	
Anthracene	J	230		Benzo(a)anthracene	J	340	
Benzo(a)pyrene	U	430		Benzo(b)fluoranthene	U	430	
Benzo(g,h,i)perylene	U	430		Benzo(k)fluoranthene	U	430	
Butylbenzylphthalate	U	430		Carbazole	U	430	
Chrysene	J	330		Di-n-butylphthalate	U	430	
Di-n-octylphthalate	U	430		Dibenz(a,h)anthracene	U	430	
Dibenzofuran	U	430		Diethylphthalate	U	430	
Dimethylphthalate	U	430		Fluoranthene		590	
Fluorene	J	390		Hexachlorobenzene	U	430	
Hexachlorobutadiene	U	430		Hexachlorocyclopentadiene	U	430	
Hexachloroethane	U	430		Indeno(1,2,3-cd)pyrene	U	430	
Isophorone	U	430		N-Nitroso-di-n-propylamine	U	430	
N-Nitrosodiphenylamine (1)	U	430		Naphthalene	U	430	
Nitrobenzene	U	430		Pentachlorophenol	U	1000	
Phenanthrene		760		Phenol	U	430	
Pyrene		720		bis(2-Chloroethoxy)methane	U	430	
bis(2-Chloroethyl)ether	U	430		bis(2-Ethylhexyl)phthalate	U	430	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB7 (32-42IN) *
****

Sample Collection Date: 4/06/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-016
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/20/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	340		1,2-Dichlorobenzene	U	340	
1,3-Dichlorobenzene	U	340		1,4-Dichlorobenzene	U	340	
2,2'-oxybis(1-Chloropropane)	U	340		2,4,5-Trichlorophenol	U	840	
2,4,6-Trichlorophenol	U	340		2,4-Dichlorophenol	U	340	
2,4-Dimethylphenol	U	340		2,4-Dinitrophenol	U	840	
2,4-Dinitrotoluene	U	340		2,6-Dinitrotoluene	U	340	
2-Chloronaphthalene	U	340		2-Chlorophenol	U	340	
2-Methylnaphthalene	U	340		2-Methylphenol	U	340	
2-Nitroaniline	U	840		2-Nitrophenol	U	340	
3,3'-Dichlorobenzidine	U	340		3-Nitroaniline	U	840	
4,6-Dinitro-2-methylphenol	U	840		4-Bromophenyl-phenylether	U	340	
4-Chloro-3-methylphenol	U	340		4-Chloroaniline	U	340	
4-Chlorophenyl-phenylether	U	340		4-Methylphenol	U	340	
4-Nitroaniline	U	840		4-Nitrophenol	U	840	
Acenaphthene	U	340		Acenaphthylene	U	340	
Anthracene	U	340		Benzo(a)anthracene	U	340	
Benzo(a)pyrene	U	340		Benzo(b)fluoranthene	J	240	
Benzo(g,h,i)perylene	U	340		Benzo(k)fluoranthene	U	340	
Butylbenzylphthalate	U	340		Carbazole	U	340	
Chrysene	U	340		Di-n-butylphthalate	J	320	
Di-n-octylphthalate	U	340		Dibenz(a,h)anthracene	U	340	
Dibenzofuran	U	340		Diethylphthalate	U	340	
Dimethylphthalate	U	340		Fluoranthene	J	220	
Fluorene	U	340		Hexachlorobenzene	U	340	
Hexachlorobutadiene	U	340		Hexachlorocyclopentadiene	U	340	
Hexachloroethane	U	340		Indeno(1,2,3-cd)pyrene	U	340	
Isophorone	U	340		N-Nitroso-di-n-propylamine	U	340	
N-Nitrosodiphenylamine (1)	U	340		Naphthalene	U	340	
Nitrobenzene	U	340		Pentachlorophenol	U	840	
Phenanthrene	U	340		Phenol	U	340	
Pyrene	J	180		bis(2-Chloroethoxy)methane	U	340	
bis(2-Chloroethyl)ether	U	340		bis(2-Ethylhexyl)phthalate	U	340	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB7 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35673-017
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/20/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	340		1,2-Dichlorobenzene	U	340	
1,3-Dichlorobenzene	U	340		1,4-Dichlorobenzene	U	340	
2,2'-oxybis(1-Chloropropane)	U	340		2,4,5-Trichlorophenol	U	830	
2,4,6-Trichlorophenol	U	340		2,4-Dichlorophenol	U	340	
2,4-Dimethylphenol	U	340		2,4-Dinitrophenol	U	830	
2,4-Dinitrotoluene	U	340		2,6-Dinitrotoluene	U	340	
2-Chloronaphthalene	U	340		2-Chlorophenol	U	340	
2-Methylnaphthalene	U	340		2-Methylphenol	U	340	
2-Nitroaniline	U	830		2-Nitrophenol	U	340	
3,3'-Dichlorobenzidine	U	340		3-Nitroaniline	U	830	
4,6-Dinitro-2-methylphenol	U	830		4-Bromophenyl-phenylether	U	340	
4-Chloro-3-methylphenol	U	340		4-Chloroaniline	U	340	
4-Chlorophenyl-phenylether	U	340		4-Methylphenol	U	340	
4-Nitroaniline	U	830		4-Nitrophenol	U	830	
Acenaphthene		850		Acenaphthylene	U	340	
Anthracene		810		Benzo(a)anthracene		570	
Benzo(a)pyrene		370		Benzo(b)fluoranthene		720	
Benzo(g,h,i)perylene	U	340		Benzo(k)fluoranthene	U	340	
Butylbenzylphthalate	U	340		Carbazole	J	180	
Chrysene		640		Di-n-butylphthalate	U	340	
Di-n-octylphthalate	U	340		Dibenz(a,h)anthracene	U	340	
Dibenzofuran		490		Diethylphthalate	U	340	
Dimethylphthalate	U	340		Fluoranthene		2500	
Fluorene		940		Hexachlorobenzene	U	340	
Hexachlorobutadiene	U	340		Hexachlorocyclopentadiene	U	340	
Hexachloroethane	U	340		Indeno(1,2,3-cd)pyrene	U	340	
Isophorone	U	340		N-Nitroso-di-n-propylamine	U	340	
N-Nitrosodiphenylamine (1)	U	340		Naphthalene	U	340	
Nitrobenzene	U	340		Pentachlorophenol	U	830	
Phenanthrene		2800		Phenol	U	340	
Pyrene		1500		bis(2-Chloroethoxy)methane	U	340	
bis(2-Chloroethyl)ether	U	340		bis(2-Ethylhexyl)phthalate	U	340	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: OLM01.8 SOW Units: UG/KG Laboratory ID: 4063.5
Lab Receipt Date: 5/06/93
Sample Analysis Date: 5/27/93

Analyte	Lab Result or DL	Validation Data	Analyte	Lab Result or DL	Validation Data
1,2,4-Trichlorobenzene	U		1,2-Dichlorobenzene	U	
1,3-Dichlorobenzene	U		1,4-Dichlorobenzene	U	
2,2'-oxybis(1-Chloropropane)	U		2,4,5-Trichlorophenol	U	
2,4,6-Trichlorophenol	U		2,4-Dichlorophenol	U	
2,4-Dimethylphenol	U		2,4-Dinitrophenol	U	
2,4-Dinitrotoluene	U		2,6-Dinitrotoluene	U	
2-Chloronaphthalene	U		2-Chlorophenol	U	
2-Methylnaphthalene	U		2-Methylphenol	U	
2-Nitroaniline	U		2-Nitrophenol	U	
3,3'-Dichlorobenzidine	U		3-Nitroaniline	U	
4,6-Dinitro-2-methylphenol	U		4-Bromophenyl-phenylether	U	
4-Chloro-3-methylphenol	U		4-Chloroaniline	U	
4-Chlorophenyl-phenylether	U		4-Methylphenol	U	
4-Nitroaniline	U		4-Nitrophenol	U	
Acenaphthene	U		Acenaphthylene	U	
Anthracene	U		Benzo(a)anthracene	J	32
Benzo(a)pyrene	J	35	Benzo(b)fluoranthene	J	46
Benzo(g,h,i)perylene	U		Benzo(k)fluoranthene	J	30
Butylbenzylphthalate	U		Carbazole	U	
Chrysene	J	55	Di-n-butylphthalate	U	
Di-n-octylphthalate	J	41	Dibenz(a,h)anthracene	U	
Dibenzofuran	U		Diethylphthalate	U	
Dimethylphthalate	U		Fluoranthene	J	76
Fluorene	U		Hexachlorobenzene	U	
Hexachlorobutadiene	U		Hexachlorocyclopentadiene	U	
Hexachloroethane	U		Indeno(1,2,3-cd)pyrene	U	
Isophorone	U		N-Nitroso-di-n-propylamine	U	
N-Nitrosodiphenylamine (1)	U		Naphthalene	U	
Nitrobenzene	U		Pentachlorophenol	U	
Phenanthrene	J	60	Phenol	U	
Pyrene	J	78	bis(2-Chloroethoxy)methane	U	
bis(2-Chloroethyl)ether	U		bis(2-Ethylhexyl)phthalate	J	93
1,2,4-Trichlorobenzene	U		1,2-Dichlorobenzene	U	
1,3-Dichlorobenzene	U		1,4-Dichlorobenzene	U	
2,2'-oxybis(1-Chloropropane)	U		2,4,5-Trichlorophenol	U	
2,4,6-Trichlorophenol	U		2,4-Dichlorophenol	U	
2,4-Dimethylphenol	U		2,4-Dinitrophenol	U	
2,4-Dinitrotoluene	U		2,6-Dinitrotoluene	U	
2-Chloronaphthalene	U		2-Chlorophenol	U	
2-Methylnaphthalene	U		2-Methylphenol	U	
2-Nitroaniline	U		2-Nitrophenol	U	
3,3'-Dichlorobenzidine	U		3-Nitroaniline	U	
4,6-Dinitro-2-methylphenol	U		4-Bromophenyl-phenylether	U	
4-Chloro-3-methylphenol	U		4-Chloroaniline	U	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW11 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: OLM01.8 SOW Units: UG/KG Laboratory ID: 4064.1
Lab Receipt Date: 5/06/93
Sample Analysis Date: 5/27/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Chlorophenyl-phenylether	U			4-Methylphenol	U		
4-Nitroaniline	U			4-Nitrophenol	U		
Acenaphthene	U			Acenaphthylene	U		
Anthracene	J	2		Benzo(a)anthracene	J	23	
Benzo(a)pyrene	J	33		Benzo(b)fluoranthene	J	36	
Benzo(g,h,i)perylene	U			Benzo(k)fluoranthene	J	23	
Butylbenzylphthalate	U			Carbazole	U		
Chrysene	J	49		Di-n-butylphthalate	U		
Di-n-octylphthalate	U			Dibenz(a,h)anthracene	U		
Dibenzofuran	U			Diethylphthalate	U		
Dimethylphthalate	U			Fluoranthene	J	66	
Fluorene	U			Hexachlorobenzene	U		
Hexachlorobutadiene	U			Hexachlorocyclopentadiene	U		
Hexachloroethane	U			Indeno(1,2,3-cd)pyrene	U		
Isophorone	U			N-Nitroso-di-n-propylamine	U		
N-Nitrosodiphenylamine (1)	U			Naphthalene	U		
Nitrobenzene	U			Pentachlorophenol	U		
Phenanthrene	J	42		Phenol	U		
Pyrene	J	59		bis(2-Chloroethoxy)methane	U		
bis(2-Chloroethyl)ether	U			bis(2-Ethylhexyl)phthalate	J	32	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: OLM01.8 SOW Units: UG/KG Laboratory ID: 4063.5
Lab Receipt Date: 5/06/93
Sample Analysis Date: 5/27/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	370		1,2-Dichlorobenzene	U	370	
1,3-Dichlorobenzene	U	370		1,4-Dichlorobenzene	U	370	
2,2'-oxybis(1-Chloropropane)	U	370		2,4,5-Trichlorophenol	U	930	
2,4,6-Trichlorophenol	U	370		2,4-Dichlorophenol	U	370	
2,4-Dimethylphenol	U	370		2,4-Dinitrophenol	U	930	
2,4-Dinitrotoluene	U	370		2,6-Dinitrotoluene	U	370	
2-Chloronaphthalene	U	370		2-Chlorophenol	U	370	
2-Methylnaphthalene	U	370		2-Methylphenol	U	370	
2-Nitroaniline	U	930		2-Nitrophenol	U	370	
3,3'-Dichlorobenzidine	U	370		3-Nitroaniline	U	930	
4,6-Dinitro-2-methylphenol	U	930		4-Bromophenyl-phenylether	U	370	
4-Chloro-3-methylphenol	U	370		4-Chloroaniline	U	370	
4-Chlorophenyl-phenylether	U	370		4-Methylphenol	U	370	
4-Nitroaniline	U	930		4-Nitrophenol	U	930	
Acenaphthene	U	370		Acenaphthylene	U	370	
Anthracene	U	370		Benzo(a)anthracene	J	32	
Benzo(a)pyrene	J	35		Benzo(b)fluoranthene	J	46	
Benzo(g,h,i)perylene	U	370		Benzo(k)fluoranthene	J	30	
Butylbenzylphthalate	U	370		Carbazole	U	370	
Chrysene	J	55		Di-n-butylphthalate	U	370	
Di-n-octylphthalate	J	41		Dibenz(a,h)anthracene	U	370	
Dibenzofuran	U	370		Diethylphthalate	U	370	
Dimethylphthalate	U	370		Fluoranthene	J	76	
Fluorene	U	370		Hexachlorobenzene	U	370	
Hexachlorobutadiene	U	370		Hexachlorocyclopentadiene	U	370	
Hexachloroethane	U	370		Indeno(1,2,3-cd)pyrene	U	370	
Isophorone	U	370		N-Nitroso-di-n-propylamine	U	370	
N-Nitrosodiphenylamine (1)	U	370		Naphthalene	U	370	
Nitrobenzene	U	370		Pentachlorophenol	U	930	
Phenanthrene	J	60		Phenol	U	370	
Pyrene	J	78		bis(2-Chloroethoxy)methane	U	370	
bis(2-Chloroethyl)ether	U	370		bis(2-Ethylhexyl)phthalate	J	93	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW11 (0.5-1 *
****

Sample Collection Date: 4/30/93 Method: OLM01.8 SOW Units: UG/KG Laboratory ID: 4064.1
Lab Receipt Date: 5/06/93
Sample Analysis Date: 5/27/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	390		1,2-Dichlorobenzene	U	390	
1,3-Dichlorobenzene	U	390		1,4-Dichlorobenzene	U	390	
2,2'-oxybis(1-Chloropropane)	U	390		2,4,5-Trichlorophenol	U	960	
2,4,6-Trichlorophenol	U	390		2,4-Dichlorophenol	U	390	
2,4-Dimethylphenol	U	390		2,4-Dinitrophenol	U	960	
2,4-Dinitrotoluene	U	390		2,6-Dinitrotoluene	U	390	
2-Chloronaphthalene	U	390		2-Chlorophenol	U	390	
2-Methylnaphthalene	U	390		2-Methylphenol	U	390	
2-Nitroaniline	U	960		2-Nitrophenol	U	390	
3,3'-Dichlorobenzidine	U	390		3-Nitroaniline	U	960	
4,6-Dinitro-2-methylphenol	U	960		4-Bromophenyl-phenylether	U	390	
4-Chloro-3-methylphenol	U	390		4-Chloroaniline	U	390	
4-Chlorophenyl-phenylether	U	390		4-Methylphenol	U	390	
4-Nitroaniline	U	960		4-Nitrophenol	U	960	
Acenaphthene	U	390		Acenaphthylene	U	390	
Anthracene	J	2		Benzo(a)anthracene	J	23	
Benzo(a)pyrene	J	33		Benzo(b)fluoranthene	J	36	
Benzo(g,h,i)perylene	U	390		Benzo(k)fluoranthene	J	23	
Butylbenzylphthalate	U	390		Carbazole	U	390	
Chrysene	J	49		Di-n-butylphthalate	U	390	
Di-n-octylphthalate	U	390		Dibenz(a,h)anthracene	U	390	
Dibenzofuran	U	390		Diethylphthalate	U	390	
Dimethylphthalate	U	390		Fluoranthene	J	66	
Fluorene	U	390		Hexachlorobenzene	U	390	
Hexachlorobutadiene	U	390		Hexachlorocyclopentadiene	U	390	
Hexachloroethane	U	390		Indeno(1,2,3-cd)pyrene	U	390	
Isophorone	U	390		N-Nitroso-di-n-propylamine	U	390	
N-Nitrosodiphenylamine (1)	U	390		Naphthalene	U	390	
Nitrobenzene	U	390		Pentachlorophenol	U	960	
Phenanthrene	J	42		Phenol	U	390	
Pyrene	J	59		bis(2-Chloroethoxy)metnane	U	390	
bis(2-Chloroethyl)ether	U	390		bis(2-Ethylhexyl)phthalate	J	32	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35597-006
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	72.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW3 (8-10) *
****

Sample Collection Date: 4/01/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35597-005
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	970.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW4 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35558-007
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	200.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW5 (6-8) *
****

Sample Collection Date: 3/26/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35524-004
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	720.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW6 (12-14) *
****

Sample Collection Date: 3/26/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35524-003
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	150.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW7 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35558-008
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	2500.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20SD1 *
****

Sample Collection Date: 4/07/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35674-008
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	1300.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20SD2 *
****

Sample Collection Date: 4/07/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35674-009
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	1100.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB1 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35604-001
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	68.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB11 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35604-002
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	69.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB17 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35674-011
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	190.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35597-008
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	66.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB3 (10-12) *
****

Sample Collection Date: 3/29/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35558-006
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	65.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB4 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35597-007
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	1500.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB5 (4-6) *
****

Sample Collection Date: 3/29/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35558-005
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/10/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	170.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB6 (8-10) *
****

Sample Collection Date: 3/25/93 Method: 418.1 mod, 5038,D,E/ Units: ug/g Laboratory ID: 35519-014
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	220.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20TB7 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35674-010
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL	Validation Data
Petroleum Hydrocarbons by IR	86.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35955-014
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	70.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW11 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: 418.1 mod, 503B,D,E/ Units: ug/g Laboratory ID: 35955-015
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	70.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW2 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-011
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/15/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260	U	35.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	70.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT	U	3.5000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-012
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/15/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.9000	
Aroclor-1260	U	39.0000	
Aroclor-1254	U	39.0000	
Aroclor-1221	U	79.0000	
Aroclor-1232	U	39.0000	
Aroclor-1248	U	39.0000	
Aroclor-1016	U	39.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.9000	
4,4'-DDT	U	3.9000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	39.0000	
Endrin ketone	U	3.9000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.9000	
Endrin	U	3.9000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.9000	
4,4'-DDE	U	3.9000	
Endrin aldehyde	U	3.9000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW3 (2-4) *
****

Sample Collection Date: 4/01/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-009
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/15/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260	U	35.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	71.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT	U	3.5000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW3 (8-10) *
****

Sample Collection Date: 4/01/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-010
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/15/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW4 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-013
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260	U	35.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	72.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT	U	3.5000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW4 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-014
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW5 (0-2) *
****

Sample Collection Date: 3/26/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35523-007
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260	U	35.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	72.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT	U	3.5000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW5 (6-8) *
****

Sample Collection Date: 3/26/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35523-008
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Date
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.9000	
Aroclor-1260	U	39.0000	
Aroclor-1254	U	39.0000	
Aroclor-1221	U	78.0000	
Aroclor-1232	U	39.0000	
Aroclor-1248	U	39.0000	
Aroclor-1016	U	39.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.9000	
4,4'-DDT	U	3.9000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	39.0000	
Endrin ketone	U	3.9000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.9000	
Endrin	U	3.9000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.9000	
4,4'-DDE	U	3.9000	
Endrin aldehyde	U	3.9000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20NW6 (12-14) *
****

Sample Collection Date: 3/26/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35523-005
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	76.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW6 (2-4) *
****

Sample Collection Date: 3/26/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35523-006
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW7 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-015
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	74.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW7 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-016
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/15/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.8000	
Aroclor-1260	U	38.0000	
Aroclor-1254	U	38.0000	
Aroclor-1221	U	77.0000	
Aroclor-1232	U	38.0000	
Aroclor-1248	U	38.0000	
Aroclor-1016	U	38.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.8000	
4,4'-DDT	U	3.8000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	38.0000	
Endrin ketone	U	3.8000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.8000	
Endrin	U	3.8000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.8000	
4,4'-DDE	U	3.8000	
Endrin aldehyde	U	3.8000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20SD1 *
****

Sample Collection Date: 4/07/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-014
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/30/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	22.0000	
Endosulfan sulfate	U	43.0000	
Aroclor-1260	U	430.0000	
Aroclor-1254	U	430.0000	
Aroclor-1221	U	870.0000	
Aroclor-1232	U	430.0000	
Aroclor-1248	U	430.0000	
Aroclor-1016	U	430.0000	
Aldrin	U	22.0000	
alpha-BHC	U	22.0000	
beta-BHC	U	22.0000	
delta-BHC	U	22.0000	
Endosulfan II	U	43.0000	
4,4'-DDT	U	43.0000	
alpha-Chlordane	U	22.0000	
gamma-Chlordane	U	22.0000	
Aroclor-1242	U	430.0000	
Endrin ketone	U	43.0000	
gamma-BHC (Lindane)	U	22.0000	
Dieldrin	U	43.0000	
Endrin	U	43.0000	
Methoxychlor	U	220.0000	
4,4'-DDD	U	43.0000	
4,4'-DDE	U	43.0000	
Endrin aldehyde	U	43.0000	
Heptachlor	U	22.0000	
Toxaphene	U	2200.0000	
Endosulfan I	U	22.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20SD2 *
****

Sample Collection Date: 4/07/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-015
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	23.0000	
Endosulfan sulfate	U	45.0000	
Aroclor-1260	U	450.0000	
Aroclor-1254	U	450.0000	
Aroclor-1221	U	910.0000	
Aroclor-1232	U	450.0000	
Aroclor-1248	U	450.0000	
Aroclor-1016	U	450.0000	
Aldrin	U	23.0000	
alpha-BHC	U	23.0000	
beta-BHC	U	23.0000	
delta-BHC	U	23.0000	
Endosulfan II	U	45.0000	
4,4'-DDT	U	45.0000	
alpha-Chlordane	U	23.0000	
gamma-Chlordane	U	23.0000	
Aroclor-1242	U	450.0000	
Endrin ketone	U	45.0000	
gamma-BHC (Lindane)	U	23.0000	
Dieldrin	U	45.0000	
Endrin	U	45.0000	
Methoxychlor	U	230.0000	
4,4'-DDD	U	45.0000	
4,4'-DDE	U	45.0000	
Endrin aldehyde	U	45.0000	
Heptachlor	U	23.0000	
Toxaphene	U	2300.0000	
Endosulfan I	U	23.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB1 (2-4) *
****

Sample Collection Date: 4/02/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35603-005
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/29/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260	U	35.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	71.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT	U	3.5000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20T81 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35603-004
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/23/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.9000	
Aroclor-1260	U	39.0000	
Aroclor-1254	U	39.0000	
Aroclor-1221	U	79.0000	
Aroclor-1232	U	39.0000	
Aroclor-1248	U	39.0000	
Aroclor-1016	U	39.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.9000	
4,4'-DDT	U	3.9000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	39.0000	
Endrin ketone	U	3.9000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.9000	
Endrin	U	3.9000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.9000	
4,4'-DDE	U	3.9000	
Endrin aldehyde	U	3.9000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB11 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35603-006
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/29/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB17 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-018
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/30/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	19.0000	
Endosulfan sulfate	U	36.0000	
Aroclor-1260	U	360.0000	
Aroclor-1254	U	360.0000	
Aroclor-1221	U	740.0000	
Aroclor-1232	U	360.0000	
Aroclor-1248	U	360.0000	
Aroclor-1016	U	360.0000	
Aldrin	U	19.0000	
alpha-BHC	U	19.0000	
beta-BHC	U	19.0000	
delta-BHC	U	19.0000	
Endosulfan II	U	36.0000	
4,4'-DDT	P	71.0000	
alpha-Chlordane	U	19.0000	
gamma-Chlordane	U	19.0000	
Aroclor-1242	U	360.0000	
Endrin ketone	U	36.0000	
gamma-BHC (Lindane)	U	19.0000	
Dieldrin	U	36.0000	
Endrin	U	36.0000	
Methoxychlor	U	190.0000	
4,4'-DDD	U	36.0000	
4,4'-DDE	U	36.0000	
Endrin aldehyde	U	36.0000	
Heptachlor	U	19.0000	
Toxaphene	U	1900.0000	
Endosulfan I	U	19.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-016
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/15/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260	U	36.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	74.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB2 (2-4) *
****

Sample Collection Date: 3/31/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-015
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/15/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260	U	36.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	73.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB3 (10-12) *
****

Sample Collection Date: 3/29/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-012
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB3 (2-4) *
****

Sample Collection Date: 3/29/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-011
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260	U	36.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	73.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	18.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB4 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-013
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/15/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.9000	
Aroclor-1260	U	39.0000	
Aroclor-1254	U	39.0000	
Aroclor-1221	U	80.0000	
Aroclor-1232	U	39.0000	
Aroclor-1248	U	39.0000	
Aroclor-1016	U	39.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.9000	
4,4'-DDT	U	3.9000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	39.0000	
Endrin ketone	U	3.9000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.9000	
Endrin	U	3.9000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.9000	
4,4'-DDE	U	3.9000	
Endrin aldehyde	U	3.9000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB4 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35593-014
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/16/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.5000	
Endosulfan sulfate	U	4.8000	
Aroclor-1260	U	48.0000	
Aroclor-1254	U	48.0000	
Aroclor-1221	U	98.0000	
Aroclor-1232	U	48.0000	
Aroclor-1248	U	48.0000	
Aroclor-1016	U	48.0000	
Aldrin	U	2.5000	
alpha-BHC	U	2.5000	
beta-BHC	U	2.5000	
delta-BHC	U	2.5000	
Endosulfan II	U	4.8000	
4,4'-DDT	U	4.8000	
alpha-Chlordane	U	2.5000	
gamma-Chlordane	U	2.5000	
Aroclor-1242	U	48.0000	
Endrin ketone	U	4.8000	
gamma-BHC (Lindane)	U	2.5000	
Dieldrin	U	4.8000	
Endrin	U	4.8000	
Methoxychlor	U	25.0000	
4,4'-DDD	U	4.8000	
4,4'-DDE	U	4.8000	
Endrin aldehyde	U	4.8000	
Heptachlor	U	2.5000	
Toxaphene	U	250.0000	
Endosulfan I	U	2.5000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB5 (0-2) *
****

Sample Collection Date: 3/29/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-009
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.7000	
Endosulfan sulfate	U	3.4000	
Aroclor-1260	U	34.0000	
Aroclor-1254	U	34.0000	
Aroclor-1221	U	69.0000	
Aroclor-1232	U	34.0000	
Aroclor-1248	U	34.0000	
Aroclor-1016	U	34.0000	
Aldrin	U	1.7000	
alpha-BHC	U	1.7000	
beta-BHC	U	1.7000	
delta-BHC	U	1.7000	
Endosulfan II	U	3.4000	
4,4'-DDT	P	14.0000	
alpha-Chlordane	U	1.7000	
gamma-Chlordane	U	1.7000	
Aroclor-1242	U	34.0000	
Endrin ketone	U	3.4000	
gamma-BHC (Lindane)	U	1.7000	
Dieldrin	U	3.4000	
Endrin	U	3.4000	
Methoxychlor	U	17.0000	
4,4'-DDD	U	3.4000	
4,4'-DDE	U	3.4000	
Endrin aldehyde	U	3.4000	
Heptachlor	U	1.7000	
Toxaphene	U	170.0000	
Endosulfan I	U	1.7000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB5 (4-6) *
****

Sample Collection Date: 3/29/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35557-010
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260	U	36.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	73.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB6 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-030
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/11/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	1.8000	
Endosulfan sulfate	U	3.5000	
Aroclor-1260	U	35.0000	
Aroclor-1254	U	35.0000	
Aroclor-1221	U	71.0000	
Aroclor-1232	U	35.0000	
Aroclor-1248	U	35.0000	
Aroclor-1016	U	35.0000	
Aldrin	U	1.8000	
alpha-BHC	U	1.8000	
beta-BHC	U	1.8000	
delta-BHC	U	1.8000	
Endosulfan II	U	3.5000	
4,4'-DDT		17.0000	
alpha-Chlordane	U	1.8000	
gamma-Chlordane	U	1.8000	
Aroclor-1242	U	35.0000	
Endrin ketone	U	3.5000	
gamma-BHC (Lindane)	U	1.8000	
Dieldrin	U	3.5000	
Endrin	U	3.5000	
Methoxychlor	U	18.0000	
4,4'-DDD	P	3.5000	
4,4'-DDE	U	3.5000	
Endrin aldehyde	U	3.5000	
Heptachlor	U	1.8000	
Toxaphene	U	180.0000	
Endosulfan I	U	1.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB6 (8-10) *
****

Sample Collection Date: 3/25/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35520-031
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/11/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.4000	
Aroclor-1260	U	44.0000	
Aroclor-1254	U	44.0000	
Aroclor-1221	U	89.0000	
Aroclor-1232	U	44.0000	
Aroclor-1248	U	44.0000	
Aroclor-1016	U	44.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.4000	
4,4'-DDT	U	4.4000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	44.0000	
Endrin ketone	U	4.4000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.4000	
Endrin	U	4.4000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.4000	
4,4'-DDE	U	4.4000	
Endrin aldehyde	U	4.4000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB7 (32-42IN) *
****

Sample Collection Date: 4/06/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-016
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/30/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	18.0000	
Endosulfan sulfate	U	35.0000	
Aroclor-1260	U	350.0000	
Aroclor-1254	U	350.0000	
Aroclor-1221	U	700.0000	
Aroclor-1232	U	350.0000	
Aroclor-1248	U	350.0000	
Aroclor-1016	U	350.0000	
Aldrin	U	18.0000	
alpha-BHC	U	18.0000	
beta-BHC	U	18.0000	
delta-BHC	U	18.0000	
Endosulfan II	U	35.0000	
4,4'-DDT		43.0000	
alpha-Chlordane	U	18.0000	
gamma-Chlordane	U	18.0000	
Aroclor-1242	U	350.0000	
Endrin ketone	U	35.0000	
gamma-BHC (Lindane)	U	18.0000	
Dieldrin	U	35.0000	
Endrin	U	35.0000	
Methoxychlor	U	180.0000	
4,4'-DDD	U	35.0000	
4,4'-DDE	U	35.0000	
Endrin aldehyde	U	35.0000	
Heptachlor	U	18.0000	
Toxaphene	U	1800.0000	
Endosulfan I	U	18.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20TB7 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35673-017
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/30/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	U	18.0000	
Endosulfan sulfate	U	35.0000	
Aroclor-1260	U	350.0000	
Aroclor-1254	U	350.0000	
Aroclor-1221	U	710.0000	
Aroclor-1232	U	350.0000	
Aroclor-1248	U	350.0000	
Aroclor-1016	U	350.0000	
Aldrin	U	18.0000	
alpha-BHC	U	18.0000	
beta-BHC	U	18.0000	
delta-BHC	U	18.0000	
Endosulfan II	U	35.0000	
4,4'-DDT		61.0000	
alpha-Chlordane	U	18.0000	
gamma-Chlordane	U	18.0000	
Aroclor-1242	U	350.0000	
Endrin ketone	U	35.0000	
gamma-BHC (Lindane)	U	18.0000	
Dieldrin	U	35.0000	
Endrin	U	35.0000	
Methoxychlor	U	180.0000	
4,4'-DDD	U	35.0000	
4,4'-DDE	U	35.0000	
Endrin aldehyde	U	35.0000	
Heptachlor	U	18.0000	
Toxaphene	U	1800.0000	
Endosulfan I	U	18.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35954-007
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/10/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	P	4.0000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT		31.0000	
alpha-Chlordane		12.0000	
gamma-Chlordane		7.5000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE		17.0000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW11 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35954-008
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/10/93

Analyte		Lab Result or DL	Validation Data
Heptachlor epoxide	P	3.9000	
Endosulfan sulfate	U	3.8000	
Aroclor-1260	U	38.0000	
Aroclor-1254	U	38.0000	
Aroclor-1221	U	77.0000	
Aroclor-1232	U	38.0000	
Aroclor-1248	U	38.0000	
Aroclor-1016	U	38.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.8000	
4,4'-DDT		28.0000	
alpha-Chlordane		12.0000	
gamma-Chlordane		7.3000	
Aroclor-1242	U	38.0000	
Endrin ketone	U	3.8000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.8000	
Endrin	U	3.8000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.8000	
4,4'-DDE		15.0000	
Endrin aldehyde	U	3.8000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-003
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		4470.0000	J
Antimony	B	1.8000	U
Arsenic	B	1.0000	J
Barium	B	25.2000	J
Beryllium	B	.2200	U
Boron	U	1.2000	UJ
Cadmium	U	.2500	UJ
Calcium		832.0000	J
Chromium		6.4000	J
Cobalt	B	2.8000	U
Copper		10.0000	J
Cyanide	U	.1600	UJ
Iron		5960.0000	J
Lead		65.1000	J
Magnesium		1400.0000	J
Manganese		100.0000	J
Mercury	U	.0600	UJ
Nickel	B	4.9000	J
Potassium		1120.0000	J
Selenium	U	.1800	UJ
Silver	U	.4100	UJ
Sodium	B	49.5000	U
Thallium	UW	.1100	UJ
Vanadium		10.0000	J
Zinc		23.1000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20NW2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-004
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		4350.0000	J
Antimony	U	2.5000	UJ
Arsenic	B	.7900	J
Barium	B	29.6000	J
Beryllium	B	.1900	U
Boron	B	5.7000	U
Cadmium	U	.3700	UJ
Calcium	B	723.0000	J
Chromium		4.6000	J
Cobalt	B	2.8000	U
Copper	B	3.5000	U
Cyanide	U	.1900	UJ
Iron		6130.0000	J
Lead	S	2.3000	J
Magnesium		1540.0000	J
Manganese		79.2000	J
Mercury	U	.0200	UJ
Nickel	B	5.2000	J
Potassium		1290.0000	J
Selenium	U	.2200	UJ
Silver	U	.5900	UJ
Sodium	B	159.0000	J
Thallium	UW	.1300	UJ
Vanadium		10.7000	J
Zinc		12.8000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 (2-4) *
****

Sample Collection Date: 4/01/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-001
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		4410.0000	J
Antimony	U	2.2000	UJ
Arsenic	B	1.2000	J
Barium	B	27.3000	J
Beryllium	B	.2900	U
Boron	B	3.7000	U
Cadmium	U	.3200	UJ
Calcium		2590.0000	J
Chromium		8.0000	J
Cobalt	B	3.7000	J
Copper		26.6000	J
Cyanide	B	.1800	J
Iron		6980.0000	J
Lead		60.7000	J
Magnesium		1830.0000	J
Manganese		109.0000	J
Mercury	U	.0600	UJ
Nickel		11.5000	J
Potassium		975.0000	J
Selenium	U	.2000	UJ
Silver	U	.5100	UJ
Sodium	B	164.0000	J
Thallium	U	.1200	UJ
Vanadium		14.9000	J
Zinc		68.1000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 (8-10) *
****

Sample Collection Date: 4/01/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-002
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		4620.0000	J
Antimony	U	2.3000	UJ
Arsenic	B	1.1000	J
Barium	B	33.8000	J
Beryllium	B	.3300	J
Boron	B	3.4000	U
Cadmium	U	.3400	UJ
Calcium	B	896.0000	J
Chromium		9.1000	J
Cobalt	B	4.3000	J
Copper		15.6000	J
Cyanide	U	.1900	UJ
Iron		6830.0000	J
Lead		38.3000	J
Magnesium		2060.0000	J
Manganese		79.8000	J
Mercury	B	.0300	U
Nickel		7.5000	J
Potassium		1690.0000	J
Selenium	B	.1800	U
Silver	U	.5400	UJ
Sodium	B	237.0000	J
Thallium	UW	.1000	UJ
Vanadium		15.1000	J
Zinc		41.5000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-005
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		7280.0000	J
Antimony	U	2.3000	UJ
Arsenic	B	.4000	J
Barium		56.8000	J
Beryllium	B	.3100	J
Boron	B	1.8000	U
Cadmium	U	.3300	UJ
Calcium		1490.0000	J
Chromium		11.0000	J
Cobalt	B	5.3000	J
Copper		11.6000	J
Cyanide	U	.1900	UJ
Iron		10400.0000	J
Lead	S	20.4000	J
Magnesium		2560.0000	J
Manganese		149.0000	J
Mercury	U	.0200	UJ
Nickel		7.8000	J
Potassium		1970.0000	J
Selenium	BW	.1900	U
Silver	U	.5400	UJ
Sodium	B	95.2000	J
Thallium	UW	.1200	UJ
Vanadium		20.4000	J
Zinc		22.5000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-006
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3590.0000	J
Antimony	U	2.1000	UJ
Arsenic	B	.3200	J
Barium	B	20.3000	J
Beryllium	B	.1800	U
Boron	U	1.5000	UJ
Cadmium	U	.3100	UJ
Calcium	B	678.0000	J
Chromium		4.1000	U
Cobalt	B	2.2000	U
Copper		4.7000	J
Cyanide	U	.1900	UJ
Iron		5570.0000	J
Lead		12.0000	J
Magnesium		1250.0000	J
Manganese		99.1000	J
Mercury	U	.0200	UJ
Nickel	B	3.7000	J
Potassium		1280.0000	J
Selenium	B	.2200	U
Silver	U	.5000	UJ
Sodium	B	158.0000	J
Thallium	UW	.1100	UJ
Vanadium		9.0000	J
Zinc		13.1000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW5 (0-2) *
****

Sample Collection Date: 3/26/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35523-003
Lab Receipt Date: 3/27/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3860.0000	J
Antimony	B	5.3000	U
Arsenic	BW	.8900	J
Barium	B	30.7000	J
Beryllium	B	.1700	U
Boron	U	1.6000	UJ
Cadmium	U	.3400	UJ
Calcium	B	670.0000	J
Chromium		9.1000	J
Cobalt	B	3.4000	J
Copper		122.0000	J
Cyanide	U	.1700	UJ
Iron		6850.0000	J
Lead		128.0000	J
Magnesium		1520.0000	J
Manganese		113.0000	J
Mercury		.1200	J
Nickel	B	4.8000	J
Potassium		1420.0000	J
Selenium	UW	.2000	UJ
Silver	U	.5400	UJ
Sodium	B	103.0000	J
Thallium	UW	.1200	UJ
Vanadium		10.7000	J
Zinc		146.0000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW5 (6-8) *
****

Sample Collection Date: 3/26/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35523-004
Lab Receipt Date: 3/27/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		6530.0000	J
Antimony		14.3000	J
Arsenic		2.2000	J
Barium		101.0000	J
Beryllium	B	.3000	J
Boron	B	2.0000	U
Cadmium	B	.5000	J
Calcium		2410.0000	J
Chromium		12.8000	J
Cobalt	B	4.7000	J
Copper		123.0000	J
Cyanide	U	.2100	UJ
Iron		10100.0000	J
Lead		1040.0000	J
Magnesium		2120.0000	J
Manganese		97.7000	J
Mercury		.0900	U
Nickel		11.0000	J
Potassium		1210.0000	J
Selenium	BW	.1800	U
Silver	U	.4900	UJ
Sodium	B	107.0000	J
Thallium	U	.1100	UJ
Vanadium		15.2000	J
Zinc		229.0000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 (12-14) *
****

Sample Collection Date: 3/26/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35523-001
Lab Receipt Date: 3/27/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		5050.0000	
Antimony		17.4000	
Arsenic		2.8000	
Barium		127.0000	
Beryllium		1.2000	
Boron	B	4.0000	
Cadmium		1.4000	
Calcium		4660.0000	
Chromium		19.3000	
Cobalt	B	4.4000	
Copper		142.0000	
Cyanide	U	.1900	
Iron		37800.0000	
Lead		1540.0000	
Magnesium		1530.0000	
Manganese		194.0000	
Mercury		.1400	
Nickel		254.0000	
Potassium	B	960.0000	
Selenium	UW	.1700	
Silver	B	.7500	
Sodium		1880.0000	
Thallium	UW	.1000	
Vanadium		213.0000	
Zinc		682.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 (2-4) *
****

Sample Collection Date: 3/26/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35523-002
Lab Receipt Date: 3/27/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		136.0000	J
Antimony		7580.0000	UJ
Arsenic		1.9000	J
Barium		170.0000	J
Beryllium	U	.0500	U
Boron	B	2.3000	UJ
Cadmium		6.8000	UJ
Calcium	B	631.0000	J
Chromium		4.1000	J
Cobalt	B	1.1000	J
Copper		74.9000	J
Cyanide	U	.2100	UJ
Iron		4510.0000	J
Lead		189000.0000	J
Magnesium	B	47.9000	J
Manganese		32.7000	J
Mercury		1.2000	U
Nickel	B	1.8000	J
Potassium	U	53.0000	J
Selenium	UW	1.7000	UJ
Silver		5.4000	UJ
Sodium	B	68.1000	J
Thallium	UW	1.0000	UJ
Vanadium	B	1.9000	J
Zinc		608.0000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW7 (2-4) *
****

Sample Collection Date: 3/30/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-007
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3220.0000	J
Antimony	U	2.3000	UJ
Arsenic	B	.3200	J
Barium	B	25.0000	J
Beryllium	B	.1700	U
Boron	U	1.6000	UJ
Cadmium	U	.3300	UJ
Calcium	B	471.0000	J
Chromium		4.1000	U
Cobalt	B	2.6000	U
Copper	B	3.0000	J
Cyanide	U	.1800	UJ
Iron		5190.0000	J
Lead	S	6.3000	J
Magnesium		1320.0000	J
Manganese		120.0000	J
Mercury	U	.0700	UJ
Nickel	B	2.5000	J
Potassium		1460.0000	J
Selenium	UW	.2000	UJ
Silver	U	.5400	UJ
Sodium	B	123.0000	J
Thallium	UW	.1200	UJ
Vanadium	B	8.2000	J
Zinc		13.6000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW7 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-008
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3880.0000	J
Antimony	U	2.5000	UJ
Arsenic	B	.4900	J
Barium	B	21.5000	J
Beryllium	B	.1900	U
Boron	B	2.7000	U
Cadmium	U	.3700	UJ
Calcium	B	578.0000	J
Chromium		6.1000	J
Cobalt	B	4.0000	J
Copper		6.4000	J
Cyanide	U	.1700	UJ
Iron		6550.0000	J
Lead	S	6.2000	J
Magnesium		1620.0000	J
Manganese		104.0000	J
Mercury	U	.0400	UJ
Nickel	B	4.6000	J
Potassium		1230.0000	J
Selenium	UW	.2200	UJ
Silver	U	.6000	UJ
Sodium	B	164.0000	J
Thallium	UW	.1300	UJ
Vanadium		10.7000	J
Zinc		14.0000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20SD1 *
****

Sample Collection Date: 4/07/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-005
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		1930.0000	
Antimony	UN*	2.4000	
Arsenic	BN*	1.4000	
Barium	B	24.9000	
Beryllium	B	.1500	
Boron	U	1.7000	
Cadmium	UN*	.3500	
Calcium		1790.0000	
Chromium		12.5000	
Cobalt	B	2.1000	
Copper	*	51.6000	
Cyanide	B	.3900	
Iron		6560.0000	
Lead	*	47.5000	
Magnesium		1380.0000	
Manganese		97.8000	
Mercury	U	.0400	
Nickel		21.5000	
Potassium	B	512.0000	
Selenium	UN	.1700	
Silver	UN*	.5700	
Sodium	BE	495.0000	
Thallium	BN	.1800	
Vanadium	B	7.0000	
Zinc		101.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20SD2 *
****

Sample Collection Date: 4/07/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-006
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3380.0000	
Antimony	UN*	2.0000	
Arsenic	BN*	1.2000	
Barium	B	20.7000	
Beryllium	B	.2000	
Boron	B	1.8000	
Cadmium	BN*	.4600	
Calcium		1910.0000	
Chromium		14.1000	
Cobalt	B	3.8000	
Copper	*	107.0000	
Cyanide		1.1000	
Iron		8880.0000	
Lead	*	102.0000	
Magnesium		3040.0000	
Manganese		111.0000	
Mercury	B	.0800	
Nickel		14.4000	
Potassium		895.0000	
Selenium	UN	.2000	
Silver	BN*	1.2000	
Sodium	BE	359.0000	
Thallium	UN	.1500	
Vanadium		10.7000	
Zinc		87.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB1 (2-4) *
****

Sample Collection Date: 4/02/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35603-002
Lab Receipt Date: 4/03/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		5680.0000	
Antimony	UN*	2.3000	
Arsenic	BN*	1.0000	
Barium	B	23.7000	
Beryllium	B	.3000	
Boron	B	1.7000	
Cadmium	UN*	.3300	
Calcium	B	889.0000	
Chromium		7.6000	
Cobalt	B	3.4000	
Copper	*	8.4000	
Cyanide	U	.1700	
Iron		6500.0000	
Lead	*	35.5000	
Magnesium		1630.0000	
Manganese		111.0000	
Mercury	U	.0300	
Nickel	B	3.9000	
Potassium		1120.0000	
Selenium	UN	.1400	
Silver	UN*	.5300	
Sodium	BE	68.4000	
Thallium	BNW	.1800	
Vanadium		12.8000	
Zinc		16.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB1 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35603-001
Lab Receipt Date: 4/03/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		4570.0000	
Antimony	UN*	2.1000	
Arsenic	BN*	1.4000	
Barium	B	29.7000	
Beryllium	B	.1900	
Boron	U	1.5000	
Cadmium	UN*	.3100	
Calcium	B	830.0000	
Chromium		6.4000	
Cobalt	B	3.0000	
Copper	*	4.4000	
Cyanide	U	.1900	
Iron		6320.0000	
Lead	N*+	2.2000	
Magnesium		1710.0000	
Manganese		87.7000	
Mercury	U	.0300	
Nickel	B	3.5000	
Potassium		1600.0000	
Selenium	UN	.1800	
Silver	UN*	.5000	
Sodium	BE	102.0000	
Thallium	BNW	.1800	
Vanadium		10.0000	
Zinc		13.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB11 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35603-003
Lab Receipt Date: 4/03/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data
Aluminum		4530.0000	
Antimony	UN*	2.7000	
Arsenic	BN*	.9600	
Barium	B	29.2000	
Beryllium	B	.1900	
Boron	U	1.9000	
Cadmium	UN*	.4000	
Calcium	B	770.0000	
Chromium		7.4000	
Cobalt	B	3.4000	
Copper	B*	5.1000	
Cyanide	U	.1800	
Iron		6000.0000	
Lead	NS*	6.1000	
Magnesium		1600.0000	
Manganese		80.5000	
Mercury	U	.0400	
Nickel	B	4.4000	
Potassium		1250.0000	
Selenium	UN	.1500	
Silver	UN*	.6400	
Sodium	BE	97.9000	
Thallium	UNW	.1100	
Vanadium	B	9.9000	
Zinc		13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB17 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-009
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		8120.0000	
Antimony	BN*	3.4000	
Arsenic	BN*	.8100	
Barium		95.3000	
Beryllium	B	.4600	
Boron	B	1.4000	
Cadmium	BN*	.4700	
Calcium		3720.0000	
Chromium		16.7000	
Cobalt	B	7.5000	
Copper	*	25.0000	
Cyanide	U	.1600	
Iron		13100.0000	
Lead	*	129.0000	
Magnesium		4280.0000	
Manganese		195.0000	
Mercury		.0500	
Nickel		11.2000	
Potassium		3980.0000	
Selenium	UN	.1700	
Silver	UN*	.4500	
Sodium	BE	154.0000	
Thallium	BNW	.1400	
Vanadium		28.0000	
Zinc		104.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-008
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3430.0000	
Antimony	B	2.4000	
Arsenic	B	.7300	
Barium	B	17.7000	
Beryllium	B	.1400	
Boron	U	1.7000	
Cadmium	U	.3400	
Calcium	B	619.0000	
Chromium		5.7000	
Cobalt	B	2.6000	
Copper		5.4000	
Cyanide	U	.2000	
Iron		4730.0000	
Lead	S	20.7000	
Magnesium		1260.0000	
Manganese		54.0000	
Mercury	U	.0300	
Nickel	B	4.5000	
Potassium		961.0000	
Selenium	U	.1500	
Silver	U	.5500	
Sodium	B	201.0000	
Thallium	UW	.0900	
Vanadium	B	8.2000	
Zinc		11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB2 (2-4) *
****

Sample Collection Date: 3/31/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-007
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		5780.0000	J
Antimony	U	2.1000	UJ
Arsenic	S	2.0000	J
Barium	B	24.1000	J
Beryllium	B	.2300	U
Boron	U	1.5000	UJ
Cadmium	U	.3000	UJ
Calcium	B	661.0000	J
Chromium		6.5000	J
Cobalt	B	3.4000	J
Copper		9.2000	J
Cyanide	U	.1700	UJ
Iron		5770.0000	J
Lead		33.6000	J
Magnesium		1410.0000	J
Manganese		117.0000	J
Mercury	B	.0900	U
Nickel	B	6.1000	J
Potassium	B	593.0000	J
Selenium	U	.1400	UJ
Silver	U	.4900	UJ
Sodium	B	141.0000	J
Thallium	UW	.0800	UJ
Vanadium		11.3000	J
Zinc		26.8000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20T83 (10-12) *
****

Sample Collection Date: 3/29/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-004
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3590.0000	
Antimony	U	2.5000	
Arsenic	B	.5200	
Barium	B	29.0000	
Beryllium	B	.1900	
Boron	U	1.8000	
Cadmium	U	.3700	
Calcium	B	675.0000	
Chromium		4.5000	
Cobalt	B	2.2000	
Copper	B	4.2000	
Cyanide	U	.1600	
Iron		5460.0000	
Lead		16.6000	
Magnesium		1210.0000	
Manganese		72.0000	
Mercury	U	.0200	
Nickel	B	5.0000	
Potassium		1060.0000	
Selenium	UW	.2000	
Silver	U	.5900	
Sodium	B	66.8000	
Thallium	UW	.1200	
Vanadium	B	8.3000	
Zinc		14.2000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB3 (2-4) *
****

Sample Collection Date: 3/29/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-003
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		5390.0000	
Antimony	U	2.2000	
Arsenic	B	.7500	
Barium	B	31.9000	
Beryllium	B	.2600	
Boron	U	1.5000	
Cadmium	U	.3200	
Calcium		908.0000	
Chromium		7.1000	
Cobalt	B	4.3000	
Copper		11.2000	
Cyanide	U	.1800	
Iron		7630.0000	
Lead		66.1000	
Magnesium		2260.0000	
Manganese		129.0000	
Mercury	B	.0300	
Nickel	B	6.4000	
Potassium		1390.0000	
Selenium	UW	.1500	
Silver	U	.5100	
Sodium	B	90.9000	
Thallium	UW	.0900	
Vanadium		13.2000	
Zinc		28.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB4 (0-2) *
****

Sample Collection Date: 3/31/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-005
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		4510.0000	
Antimony	B	7.8000	
Arsenic	B	1.4000	
Barium		364.0000	
Beryllium	B	.2200	
Boron	B	2.9000	
Cadmium	U	.3900	
Calcium		5480.0000	
Chromium		6.6000	
Cobalt	B	3.5000	
Copper		59.4000	
Cyanide	U	.2000	
Iron		6140.0000	
Lead		726.0000	
Magnesium		2060.0000	
Manganese		162.0000	
Mercury	U	.0600	
Nickel	B	5.4000	
Potassium		1240.0000	
Selenium	U	.1800	
Silver	U	.6300	
Sodium	B	162.0000	
Thallium	U	.1100	
Vanadium		11.9000	
Zinc		188.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB4 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35593-006
Lab Receipt Date: 4/02/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		3460.0000	
Antimony		1820.0000	
Arsenic		50.0000	
Barium		550.0000	
Beryllium	B	.3400	
Boron	B	25.1000	
Cadmium		4.0000	
Calcium		35000.0000	
Chromium		44.4000	
Cobalt	B	12.3000	
Copper		9010.0000	
Cyanide	B	.4600	
Iron		186000.0000	
Lead		9770.0000	
Magnesium		7610.0000	
Manganese		956.0000	
Mercury		1.3000	
Nickel		149.0000	
Potassium	B	596.0000	
Selenium	UW	.2600	
Silver		4.1000	
Sodium	B	427.0000	
Thallium	U	1.6000	
Vanadium		38.7000	
Zinc		3440.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB5 (0-2) *
****

Sample Collection Date: 3/29/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-001
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		5040.0000	J
Antimony	B	3.8000	U
Arsenic	B	1.4000	J
Barium		45.3000	J
Beryllium	B	.2600	U
Boron	B	2.6000	U
Cadmium	U	.3200	UJ
Calcium		2220.0000	J
Chromium		11.1000	J
Cobalt	B	3.8000	J
Copper		37.8000	J
Cyanide	U	.1800	UJ
Iron		8060.0000	J
Lead		220.0000	J
Magnesium		2080.0000	J
Manganese		113.0000	J
Mercury		.1100	J
Nickel		9.7000	J
Potassium		1520.0000	J
Selenium	UW	.2000	UJ
Silver	U	.5200	UJ
Sodium	B	95.1000	J
Thallium	UW	.1200	UJ
Vanadium		16.5000	J
Zinc		101.0000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB5 (4-6) *
****

Sample Collection Date: 3/29/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35557-002
Lab Receipt Date: 3/31/93
Sample Analysis Date: 5/03/93

Analyte		Lab Result or DL	Validation Data
Aluminum		7730.0000	J
Antimony	U	2.6000	UJ
Arsenic		3.0000	J
Barium	B	38.0000	J
Beryllium	B	.3500	J
Boron	B	2.0000	U
Cadmium	U	.3900	UJ
Calcium		1140.0000	J
Chromium		10.4000	J
Cobalt	B	4.0000	J
Copper		21.7000	J
Cyanide	U	.1900	UJ
Iron		8480.0000	J
Lead		31.8000	J
Magnesium		1660.0000	J
Manganese		114.0000	J
Mercury		.2500	J
Nickel	B	7.6000	J
Potassium	B	839.0000	J
Selenium	BW	.2100	U
Silver	U	.6200	UJ
Sodium	B	99.9000	J
Thallium	UW	.1100	UJ
Vanadium		16.0000	J
Zinc		53.7000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB6 (0-2) *
****

Sample Collection Date: 3/25/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-028
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	4200.0000	
Antimony	UN	2.7000	
Arsenic	S	1.8000	
Barium		38.4000	
Beryllium	B	.1500	
Boron	U	3.1000	
Cadmium	U	.4600	
Calcium		1520.0000	
Chromium	*	7.8000	
Cobalt	B	2.7000	
Copper	*	71.9000	
Cyanide	U	.1500	
Iron	*	5530.0000	
Lead		476.0000	
Magnesium	*	1550.0000	
Manganese		108.0000	
Mercury		.1000	
Nickel		17.7000	
Potassium		928.0000	
Selenium	U	.1500	
Silver	U	.4600	
Sodium	B	56.3000	
Thallium	UW	.0900	
Vanadium		16.8000	
Zinc	*	114.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB6 (8-10) *
****

Sample Collection Date: 3/25/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35520-029
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	*	4750.0000	
Antimony	UN	3.6000	
Arsenic		2.2000	
Barium	B	29.7000	
Beryllium	B	.1900	
Boron	U	4.3000	
Cadmium	U	.6300	
Calcium	B	1190.0000	
Chromium	*	9.9000	
Cobalt	B	3.1000	
Copper	*	16.1000	
Cyanide	U	.2000	
Iron	*	6610.0000	
Lead		24.4000	
Magnesium	*	1400.0000	
Manganese		58.3000	
Mercury	U	.0500	
Nickel	B	3.8000	
Potassium	B	843.0000	
Selenium	BW	.2200	
Silver	U	.6300	
Sodium	B	82.3000	
Thallium	UW	.1300	
Vanadium	B	9.9000	
Zinc	*	50.4000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB7 (32-42IN) *
****

Sample Collection Date: 4/06/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-007
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		8670.0000	
Antimony	UW*	1.9000	
Arsenic	BW*	.9100	
Barium		97.3000	
Beryllium	B	.5100	
Boron	U	1.4000	
Cadmium	UW*	.2800	
Calcium		3640.0000	
Chromium		21.4000	
Cobalt		9.1000	
Copper	*	27.6000	
Cyanide	U	.1900	
Iron		18900.0000	
Lead	*	47.7000	
Magnesium		5650.0000	
Manganese		317.0000	
Mercury	U	.0300	
Nickel		11.2000	
Potassium		5240.0000	
Selenium	UW	.1500	
Silver	UW*	.4500	
Sodium	BE	92.4000	
Thallium	BNW	.1600	
Vanadium		44.1000	
Zinc		92.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB7 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35673-008
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum		6670.0000	
Antimony	UN*	1.9000	
Arsenic	BN*	1.0000	
Barium		72.2000	
Beryllium	B	.4300	
Boron	U	1.4000	
Cadmium	BN*	.4200	
Calcium		2610.0000	
Chromium		16.1000	
Cobalt	B	6.9000	
Copper	*	27.8000	
Cyanide	U	.1600	
Iron		13900.0000	
Lead	*	59.4000	
Magnesium		3790.0000	
Manganese		208.0000	
Mercury	U	.0300	
Nickel		10.6000	
Potassium		3580.0000	
Selenium	UN	.1600	
Silver	UN*	.4600	
Sodium	BE	100.0000	
Thallium	UNW	.1600	
Vanadium		27.4000	
Zinc		84.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 SOW To Units: MG/KG Laboratory ID: 4063.3
Lab Receipt Date: 5/06/93
Sample Analysis Date:

Analyte		Lab Result or DL	Validation Data
ALUMINUM		10300.0000	
ANTIMONY	U		
ARSENIC		3.0000	
BARIUM		46.3000	
BERYLLIUM	B	.6700	
BORON	U		
CADMIUM	U		
CALCIUM	B	367.0000	
CHROMIUM		12.9000	
COBALT	B	4.5000	
COPPER		8.6000	
CYANIDE	U		
IRON		9730.0000	
LEAD		14.0000	
MAGNESIUM		1390.0000	
MANGANESE		230.0000	
MERCURY	U		
NICKEL		7.5000	
POTASSIUM	B	327.0000	
SELENIUM	B	.6900	
SILVER	U		
SODIUM	B	134.0000	
THALLIUM	U		
VANADIUM		18.1000	
ZINC		29.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW11 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 SOW To Units: MG/KG Laboratory ID: 4064.1
Lab Receipt Date: 5/06/93
Sample Analysis Date:

Analyte		Lab Result or DL	Validation Data
ALUMINUM		12000.0000	
ANTIMONY	U		
ARSENIC		3.1000	
BARIUM		53.3000	
BERYLLIUM	B	.7800	
BORON	U		
CADMIUM	U		
CALCIUM	B	454.0000	
CHROMIUM		13.8000	
COBALT	B	4.7000	
COPPER		7.4000	
CYANIDE	U		
IRON		11800.0000	
LEAD		12.6000	
MAGNESIUM		1700.0000	
MANGANESE		248.0000	
MERCURY	U		
NICKEL		9.1000	
POTASSIUM	B	408.0000	
SELENIUM	B	.7600	
SILVER	U		
SODIUM	B	140.0000	
THALLIUM	U		
VANADIUM		20.7000	
ZINC		35.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 SOW To Units: MG/KG Laboratory ID: 4063.3
Lab Receipt Date: 5/06/93
Sample Analysis Date:

Analyte		Lab Result or DL	Validation Data
ALUMINUM		10300.0000	
ANTIMONY	U	5.5000	
ARSENIC		3.0000	
BARIUM		46.3000	
BERYLLIUM	B	.6700	
BORON	U	91.5000	
CADMIUM	U	.3700	
CALCIUM	B	367.0000	
CHROMIUM		12.9000	
COBALT	B	4.5000	
COPPER		8.6000	
CYANIDE	U	1.0000	
IRON		9730.0000	
LEAD		14.0000	
MAGNESIUM		1390.0000	
MANGANESE		230.0000	
MERCURY	U	.0600	
NICKEL		7.5000	
POTASSIUM	B	327.0000	
SELENIUM	B	.6900	
SILVER	U	.7300	
SODIUM	B	134.0000	
THALLIUM	U	.1900	
VANADIUM		18.1000	
ZINC		29.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW11 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 SOW To Units: MG/KG Laboratory ID: 4064.1
Lab Receipt Date: 5/06/93
Sample Analysis Date:

Analyte		Lab Result or DL	Validation Data
ALUMINUM		12000.0000	
ANTIMONY	U	6.7000	
ARSENIC		3.1000	
BARIUM		53.3000	
BERYLLIUM	B	.7800	
BORON	U	112.0000	
CADMIUM	U	.4500	
CALCIUM	B	454.0000	
CHROMIUM		13.8000	
COBALT	B	4.7000	
COPPER		7.4000	
CYANIDE	U	.9400	
IRON		11800.0000	
LEAD		12.6000	
MAGNESIUM		1700.0000	
MANGANESE		248.0000	
MERCURY	U	.0600	
NICKEL		9.1000	
POTASSIUM	B	408.0000	
SELENIUM	B	.7600	
SILVER	U	.8900	
SODIUM	B	140.0000	
THALLIUM	U	.1900	
VANADIUM		20.7000	
ZINC		35.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20NW2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 6010/2 Units: UG/L Laboratory ID: 35597-002
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	B	173.0000	
Cadmium	U	1.8000	
Chromium	B	4.0000	
Mercury	U	.1000	
Lead		94.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 (8-10) *
****

Sample Collection Date: 4/01/93 Method: 6010/2 Units: UG/L Laboratory ID: 35597-001
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		235.0000	
Cadmium	U	1.8000	
Chromium	B	4.1000	
Mercury	U	.1000	
Lead	S	1810.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 6010/2 Units: UG/L Laboratory ID: 35558-003
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		203.0000	
Cadmium	U	1.8000	
Chromium		11.9000	
Mercury	U	.1000	
Lead		20.8000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW5 (6-8) *
****

Sample Collection Date: 3/26/93 Method: 6010/2 Units: UG/L Laboratory ID: 35524-002
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	B	8.1000	
Arsenic	U	32.1000	
Barium		687.0000	
Cadmium	B	4.5000	
Chromium	B	7.0000	
Mercury	U	.1000	
Lead		45900.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 (12-14) *
****

Sample Collection Date: 3/26/93 Method: 6010/2 Units: UG/L Laboratory ID: 35524-001
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		685.0000	
Cadmium		10.8000	
Chromium		13.3000	
Mercury	U	.1000	
Lead		17400.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW7 (4-6) *
****

Sample Collection Date: 3/30/93 Method: 6010/2 Units: UG/L Laboratory ID: 35558-004
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/27/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		223.0000	
Cadmium	U	1.8000	
Chromium		16.6000	
Mercury	U	.1000	
Lead		6.4000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB1 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 6010/2 Units: UG/L Laboratory ID: 35604-004
Lab Receipt Date: 4/03/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	B	189.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		4.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB11 (6-8) *
****

Sample Collection Date: 4/02/93 Method: 6010/2 Units: UG/L Laboratory ID: 35604-005
Lab Receipt Date: 4/03/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	B	192.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		7.4000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB17 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 6010/2 Units: UG/L Laboratory ID: 35674-003
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		546.0000	
Cadmium	B	3.5000	
Chromium	B	5.2000	
Mercury	U	.1000	
Lead		784.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB2 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 6010/2 Units: UG/L Laboratory ID: 35597-004
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	B	122.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		73.6000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB3 (10-12) *
****

Sample Collection Date: 3/29/93 Method: 6010/2 Units: UG/L Laboratory ID: 35558-002
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		378.0000	
Cadmium	U	1.8000	
Chromium	B	4.1000	
Mercury	U	.1000	
Lead		67.6000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB4 (14-16) *
****

Sample Collection Date: 3/31/93 Method: 6010/2 Units: UG/L Laboratory ID: 35597-003
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic		146.0000	
Barium		4210.0000	
Cadmium		5.2000	
Chromium		46.0000	
Mercury	U	.1000	
Lead	W	65.5000	
Selenium	U	133.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB5 (4-6) *
****

Sample Collection Date: 3/29/93 Method: 6010/2 Units: UG/L Laboratory ID: 35558-001
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		403.0000	
Cadmium	B	2.8000	
Chromium	B	3.2000	
Mercury	U	.1000	
Lead		88.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB6 (8-10) *
****

Sample Collection Date: 3/25/93 Method: 6010/2 Units: UG/L Laboratory ID: 35519-006
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/08/93

Analyte	Lab Result or DL		Validation Data
Silver	UN	2.5000	
Arsenic	U	23.4000	
Barium		282.0000	
Cadmium	U	2.5000	
Chromium	U	3.9000	
Mercury	U	.2000	
Lead		112.0000	
Selenium	U	26.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20TB7 (48-56IN) *
****

Sample Collection Date: 4/06/93 Method: 6010/2 Units: UG/L Laboratory ID: 35674-002
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium		503.0000	
Cadmium	B	4.0000	
Chromium	B	3.3000	
Mercury	U	.1000	
Lead	S	1310.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW1 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 Units: UG/L Laboratory ID: 4058.7
Lab Receipt Date: 5/07/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
SILVER	U	4.0000	
ARSENIC	U	20.0000	
BARIUM		440.0000	
CADMIUM	U	2.0000	
CHROMIUM	U	4.0000	
MERCURY	U	.1800	
LEAD	U	28.0000	
SELENIUM	U	75.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH/16 FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW11 (0.5-2.5) *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 Units: UG/L Laboratory ID: 4059.5
Lab Receipt Date: 5/07/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
SILVER	U	4.0000	
ARSENIC	U	20.0000	
BARIUM		412.0000	
CADMIUM	U	2.0000	
CHROMIUM	U	4.0000	
MERCURY	U	.1800	
LEAD	U	28.0000	
SELENIUM	U	75.0000	

DIOXIN

SUMMARY OF DIOXIN ANALYSIS
BERTH 16/FORMER INCINERATOR

Laboratory ID	Sample ID
35597-9	033193 20TB4 (4-6)
35558-10	032993 20TB5 (0-2)
35519-7	032593 20TB6 (8-10)
35524-6	032693 20MW5 (0-2)
35524-5	032693 20MW6 (2-4)
35558-11	033093 20MW7 (2-4)

RESULTS AND DISCUSSION

A table that summarizes the results found is presented below:

PCDD/PCDF ANALYSES

Analyte	DFBLK1(W) (ppt)	DFBLK2 (S) (ppb)	35597-9 (ppb)	35597-9MS (ppb)
2378-TCDD	ND	ND	ND	2.5
12378-PeCDD	ND	ND	ND	6.6
123478-HxCDD	ND	ND	ND	ND
123678-HxCDD	ND	ND	ND	5.6
123789-HxCDD	ND	ND	ND	ND
1234678-HpCDD	ND	ND	ND	5.3
OCDD	ND	ND	0.4	13.7
2378-TCDF	ND	ND	ND	2.5
12378-PeCDF	ND	ND	ND	6.0
23478-PeCDF	ND	ND	ND	ND
123478-HxCDF	ND	ND	ND	ND
123678-HxCDF	ND	ND	ND	7.2
234678-HxCDF	ND	ND	ND	ND
123789-HxCDF	ND	ND	ND	ND
1234678-HpCDF	ND	ND	ND	5.9
1234789-HpCDF	ND	ND	ND	ND
OCDF	ND	ND	ND	12.5
Total TCDD	EMPC(20.24)	EMPC(2.097)	EMPC(2.28)	2.46
Total PeCDD	EMPC(1.28)	EMPC(0.457)	EMPC(0.62)	6.58
Total HxCDD	ND	ND	0.006	5.62
Total HpCDD	ND	ND	ND	5.30
Total TCDF	ND	EMPC(0.024)	EMPC(0.05)	2.49
Total PeCDF	ND	ND	EMPC(0.08)	6.03
Total HxCDF	ND	EMPC(0.030)	0.005	7.23
Total HpCDF	ND	EMPC(0.193)	ND	5.86

ppt = parts per trillion
ppb = parts per billion
ND = not detected
S = soil
EMPC = estimated maximum possible concentration

PCDD/PCDF ANALYSES

Analyte	35597-9DUP (ppb)	35597-10 (ppb)	35597-11 (ppt)
2378-TCDD	ND	ND	ND
12378-PeCDD	ND	ND	ND
123478-HxCDD	ND	ND	ND
123678-HxCDD	ND	ND	ND
123789-HxCDD	ND	ND	ND
1234678-HpCDD	ND	ND	ND
OCDD	ND	ND	ND
2378-TCDF	ND	ND	ND
12378-PeCDF	ND	ND	ND
23478-PeCDF	ND	ND	ND
123478-HxCDF	ND	ND	ND
123678-HxCDF	ND	ND	ND
234678-HxCDF	ND	ND	ND
123789-HxCDF	ND	ND	ND
1234678-HpCDF	ND	ND	ND
1234789-HpCDF	ND	ND	ND
OCDF	ND	ND	ND
Total TCDD	EMPC(2.062)	EMPC(2.12)	EMPC(24.17)
Total PeCDD	EMPC(1.371)	EMPC(0.77)	EMPC(1.89)
Total HxCDD	ND	ND	ND
Total HpCDD	ND	ND	ND
Total TCDF	EMPC (0.053)	0.01(EMPC 0.09)	ND
Total PeCDF	EMPC (0.112)	EMPC (0.07)	ND
Total HxCDF	EMPC (0.004)	EMPC(0.01)	ND
Total HpCDF	ND	EMPC(0.01)	ND

ppt = parts per trillion
ppb = parts per billion
ND = not detected
S = soil
EMPC = estimated maximum possible concentration

Analytical Methodology

Sample Results

The internal and surrogate standard recoveries obtained from the primary column analysis for all soil and water samples are within the QC advisory limits of 25-150%.

QC Results

The method blanks were found free of PCDD/PCDF contamination, at or above the estimated detection limits. The labeled standard recoveries are within the limits of the method.

The internal and surrogate standard recoveries for the matrix spike are within the QC advisory limit of 40-120% (25-120% for IS-OCDD). The percent recoveries for the target analytes spiked into the matrix sample are within the QC advisory limits of 50-150%. The relative percent difference between sample 35597-9 and its duplicate 35597-9DUP are below the QC advisory limit of 50%.

Labeled Standard Interferences

The use of low-resolution mass spectrometry (LRMS) that is suggested in the protocol accounts for the following observations:

> Certain ^{13}C-labeled standards (used as internal and recovery standards) appear to have lower mass fragments of higher isotopic masses that appear in analyte channels; this can be witnessed in the cases of $^{13}C_{12}$-TCDF internal standard appearing in the TCDD analyte channels, $^{13}C_{12}$-TCDD internal and recovery standards appearing in the TCDF analyte channels, $^{13}C_{12}$-HxCDD internal and recovery standards appearing in the HpCDF analyte channels, and $^{13}C_{12}$-HpCDF internal standard appearing in the HpCDD analyte channels. For most of the above situations, the interfering peaks due to the labeled standards lie outside the retention time window of the analyte. In the case of the TCDF/TCDDs, the interferences lie within the retention time window, thus resulting in high EMPC (estimated maximum possible concentration) values for the analytes.

Statement of Compliance

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Dora Chen

Dora Chen
Operations Manager

4/14/93

Date

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK1

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12122-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: HH02944

Water Sample Prep.: CONT (Sepf/Cont) Date Received:

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.2275
2378-TCDF	304/306		0.00			U	0.0998
12378-PeCDF	340/342		0.00			U	0.1982
12378-PeCDD	356/358		0.00			U	0.2530
23478-PeCDF	340/342		0.00			U	0.2150
123478-HxCDF	374/376		0.00			U	0.1616
123678-HxCDF	374/376		0.00			U	0.1375
123478-HxCDD	390/392		0.00			U	0.3369
123678-HxCDD	390/392		0.00			U	0.3301
123789-HxCDD	390/392		0.00			U	0.3513
234678-HxCDF	374/376		0.00			U	0.1597
123789-HxCDF	374/376		0.00			U	0.1931
1234678-HpCDF	408/410		0.00			U	0.2837
1234678-HpCDD	424/426		0.00			U	0.4766
1234789-HpCDF	408/410		0.00			U	0.3837
OCDD	458/460		0.00			U	1.3295
OCDF	442/444		0.00			U	1.3637

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.52	0.79		0.65-0.89	91.7		25-150
13C-2378-TCDD	332/334	24.30	0.78		0.65-0.89	88.8		25-150
13C-123678-HxCDD	402/404	36.07	1.31		1.05-1.43	72.3		25-150
13C-1234678-HpCDF	420/422	39.28	1.06		0.88-1.20	86.8		25-150
13C-OCDD	470/472	45.52	0.91		0.76-1.01	77.6		25-150
37Cl-2378-TCDD	328/NA	24.30	NA		NA	88.5		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK2

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009210

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0029
2378-TCDF	304/306		0.00			U	0.0030
12378-PeCDF	340/342		0.00			U	0.0025
12378-PeCDD	356/358		0.00			U	0.0051
23478-PeCDF	340/342		0.00			U	0.0031
23478-HxCDF	374/376		0.00			U	0.0022
123678-HxCDF	374/376		0.00			U	0.0019
123478-HxCDD	390/392		0.00			U	0.0105
123678-HxCDD	390/392		0.00			U	0.0080
123789-HxCDD	390/392		0.00			U	0.0097
234678-HxCDF	374/376		0.00			U	0.0023
123789-HxCDF	374/376		0.00			U	0.0029
1234678-HpCDF	408/410		0.00			U	0.0029
1234678-HpCDD	424/426		0.00			U	0.0029
1234789-HpCDF	408/410		0.00			U	0.0043
OCDD	458/460		0.00			U	0.0725
OCDF	442/444		0.00			U	0.0849

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.27	0.78		0.65-0.89	78.2		25-150
13C-2378-TCDD	332/334	24.07	0.77		0.65-0.89	73.2		25-150
13C-123678-HxCDD	402/404	36.08	1.27		1.05-1.43	66.8		25-150
13C-1234678-HpCDF	420/422	39.22	1.04		0.88-1.20	75.3		25-150
13C-OCDD	470/472	45.45	0.89		0.76-1.01	52.8		25-150
37Cl-2378-TCDD	328/NA	24.08	NA		NA	74.9		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35597-9

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1

Sample wt/vol: 10.6 (g/ml) G Lab File ID: E009217

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0040
2378-TCDF	304/306		0.00			U	0.0049
12378-PeCDF	340/342		0.00			U	0.0061
12378-PeCDD	356/358		0.00			U	0.0083
23478-PeCDF	340/342		0.00			U	0.0075
123478-HxCDF	374/376		0.00			U	0.0050
123678-HxCDF	374/376		0.00			U	0.0044
123478-HxCDD	390/392		0.00			U	0.0195
123678-HxCDD	390/392		0.00			U	0.0149
123789-HxCDD	390/392		0.00			U	0.0180
234678-HxCDF	374/376		0.00			U	0.0053
123789-HxCDF	374/376		0.00			U	0.0065
1234678-HpCDF	408/410		0.00			U	0.0061
1234678-HpCDD	424/426		0.00			U	0.0054
1234789-HpCDF	408/410		0.00			U	0.0090
OCDD	458/460	45.47	0.77		0.4	J	
OCDF	442/444		0.00			U	0.0538

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.27	0.79		0.65-0.89	78.8		25-150
13C-2378-TCDD	332/334	24.07	0.78		0.65-0.89	74.4		25-150
13C-123678-HxCDD	402/404	36.08	1.26		1.05-1.43	63.8		25-150
13C-1234678-HpCDF	420/422	39.22	1.05		0.88-1.20	67.5		25-150
13C-OCDD	470/472	45.45	0.90		0.76-1.01	48.0		25-150
37Cl-2378-TCDD	328/NA	24.08	NA		NA	77.1		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35597-9MS

ıb Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1AMS

Sample wt/vol: 10.41 (g/ml) G Lab File ID: E009211

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322	24.10	0.77		2.5		
2378-TCDF	304/306	23.30	0.75		2.5		
12378-PeCDF	340/342	28.55	1.56		6.0		
12378-PeCDD	356/358	30.27	1.55		6.6		
23478-PeCDF	340/342		0.00				0.0059
23478-HxCDF	374/376		0.00				0.0030
123678-HxCDF	374/376	34.95	1.23		7.2		
123478-HxCDD	390/392		0.00				0.0303
123678-HxCDD	390/392	36.12	1.23		5.6		
123789-HxCDD	390/392		0.00				0.0280
234678-HxCDF	374/376		0.00				0.0031
123789-HxCDF	374/376		0.00				0.0039
1234678-HpCDF	408/410	39.25	1.03		5.9		
1234678-HpCDD	424/426	40.67	1.06		5.3		
1234789-HpCDF	408/410		0.00				0.0058
OCDD	458/460	45.48	0.89		13.7		
OCDF	442/444	45.65	0.83		12.5		

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.28	0.78		0.65-0.89	75.3		25-150
13C-2378-TCDD	332/334	24.08	0.77		0.65-0.89	70.4		25-150
13C-123678-HxCDD	402/404	36.10	1.26		1.05-1.43	66.7		25-150
13C-1234678-HpCDF	420/422	39.23	1.06		0.88-1.20	62.5		25-150
13C-OCDD	470/472	45.47	0.88		0.76-1.01	28.9		25-150
37Cl-2378-TCDD	328/NA	24.08	NA		NA	74.8		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35597-9DUP

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1ADUP

Sample wt/vol: 10.6 (g/ml) G Lab File ID: E009226

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 9-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0037
2378-TCDF	304/306		0.81			U	0.0085
12378-PeCDF	340/342		0.00			U	0.0071
12378-PeCDD	356/358		0.00			U	0.0072
23478-PeCDF	340/342		0.00			U	0.0073
123478-HxCDF	374/376		0.00			U	0.0044
123678-HxCDF	374/376		0.00			U	0.0041
123478-HxCDD	390/392		0.00			U	0.0126
123678-HxCDD	390/392		0.00			U	0.0115
123789-HxCDD	390/392		0.00			U	0.0121
234678-HxCDF	374/376		0.00			U	0.0046
123789-HxCDF	374/376		0.00			U	0.0056
1234678-HpCDF	408/410		0.00			U	0.0101
1234678-HpCDD	424/426		0.00			U	0.0058
1234789-HpCDF	408/410		0.00			U	0.0136
OCDD	458/460	45.23	0.93		0.352	J	
OCDF	442/444		0.00			U	0.1581

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.05	0.78		0.65-0.89	84.4		25-150
13C-2378-TCDD	332/334	23.83	0.78		0.65-0.89	84.8		25-150
13C-123678-HxCDD	402/404	35.88	1.25		1.05-1.43	72.6		25-150
13C-1234678-HpCDF	420/422	39.03	1.04		0.88-1.20	67.9		25-150
13C-OCDD	470/472	45.22	0.90		0.76-1.01	39.0		25-150
37Cl-2378-TCDD	328/NA	23.85	NA		NA	99.1		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35597-10

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-2

Sample wt/vol: 10.31 (g/ml) G Lab File ID: E009225

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 9-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00				0.0043
2378-TCDF	304/306	23.08	0.54	*		#	0.0090
12378-PeCDF	340/342		0.00				0.0068
12378-PeCDD	356/358		0.00				0.0067
23478-PeCDF	340/342		0.00				0.0070
23478-HxCDF	374/376		0.00				0.0047
123678-HxCDF	374/376		0.00				0.0044
123478-HxCDD	390/392		0.00				0.0175
123678-HxCDD	390/392		0.00				0.0160
123789-HxCDD	390/392		0.00				0.0169
234678-HxCDF	374/376		0.00				0.0049
123789-HxCDF	374/376		0.00				0.0059
1234678-HpCDF	408/410		0.00				0.0101
1234678-HpCDD	424/426		0.00				0.0055
1234789-HpCDF	408/410		0.00				0.0136
OCDD	458/460	45.23	0.95		0.3	J	
OCDF	442/444		0.00				0.1059

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.05	0.79		0.65-0.89	76.9		25-150
13C-2378-TCDD	332/334	23.83	0.78		0.65-0.89	78.0		25-150
13C-123678-HxCDD	402/404	35.90	1.25		1.05-1.43	67.6		25-150
13C-1234678-HpCDF	420/422	39.05	1.05		0.88-1.20	64.5		25-150
13C-OCDD	470/472	45.22	0.89		0.76-1.01	50.3		25-150
37Cl-2378-TCDD	328/NA	23.85	NA		NA	85.6		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35597-11

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-3

Sample wt/vol: 960 (g/ml) ML Lab File ID: E009205

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.1347
2378-TCDF	304/306		0.00			U	0.0943
12378-PeCDF	340/342		0.00			U	0.1471
12378-PeCDD	356/358		0.00			U	0.1921
23478-PeCDF	340/342		0.00			U	0.1696
123478-HxCDF	374/376		0.00			U	0.1368
123678-HxCDF	374/376		0.00			U	0.1216
123478-HxCDD	390/392		0.00			U	0.3048
123678-HxCDD	390/392		0.00			U	0.2417
123789-HxCDD	390/392		0.00			U	0.2812
234678-HxCDF	374/376		0.00			U	0.1409
123789-HxCDF	374/376		0.00			U	0.1632
1234678-HpCDF	408/410		0.00			U	0.3024
1234678-HpCDD	424/426		0.00			U	0.2523
1234789-HpCDF	408/410		0.00			U	0.4355
OCDD	458/460		0.00			U	1.9348
OCDF	442/444		0.00			U	2.4633

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.40	0.80		0.65-0.89	86.0		25-150
13C-2378-TCDD	332/334	24.20	0.78		0.65-0.89	76.1		25-150
13C-123678-HxCDD	402/404	36.17	1.28		1.05-1.43	70.0		25-150
13C-1234678-HpCDF	420/422	39.30	1.03		0.88-1.20	74.1		25-150
13C-OCDD	470/472	45.55	0.90		0.76-1.01	57.9		25-150
37Cl-2378-TCDD	328/NA	24.22	NA		NA	92.2		25-150

Column to be used to flag values outside QC limits

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO. DFBLK1

ab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12122-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: HH02944

Water Sample Prep.: CONT (Sepf/Cont) Date Received:

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.00	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	0.00	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO. DFBLK2

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009210

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35597-9

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1

Sample wt/vol: 10.6 (g/ml) G Lab File ID: E009217

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.45	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35597-9MS

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1AMS

Sample wt/vol: 10.41 (g/ml) G Lab File ID: E009211

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	2.46	x 1.0	=	2.46
2378-TCDF	2.47	x 0.1	=	0.25
12378-PeCDF	6.01	x 0.05	=	0.30
12378-PeCDD	6.58	x 0.5	=	3.29
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	7.23	x 0.1	=	0.72
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	5.62	x 0.1	=	0.56
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	5.86	x 0.01	=	0.06
1234678-HpCDD	5.30	x 0.01	=	0.05
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	13.73	x 0.001	=	0.01
OCDF	12.48	x 0.001	=	0.01
		Total	=	7.72

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35597-9DUP

ab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1ADUP

Sample wt/vol: 10.6 (g/ml) G Lab File ID: E009226

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 9-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.35	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO. 35597-10

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-2

Sample wt/vol: 10.31 (g/ml) G Lab File ID: E009225

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 9-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.01	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	0.34	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO. 35597-11

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-3

Sample wt/vol: 960 (g/ml) ML Lab File ID: E009205

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.00	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	0.00	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. DFBLK1

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: HH02944

Water Sample Prep.: CONT (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			20.24
Total PeCDD	1			1.28
Total HxCDD	0		U	0.35
Total HpCDD	0		U	0.48
FURANS				
Total TCDF	0		U	0.10
Total PeCDF	0		U	0.22
Total HxCDF	0		U	0.19
Total HpCDF	0		U	0.38

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY DFBLK2

\b Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009210

Water Sample Prep.: (Sepf/Cont) Date Received:

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			2.097
Total PeCDD	1			0.457
Total HxCDD	0		U	0.011
Total HpCDD	0		U	0.003
FURANS				
Total TCDF	1			0.024
Total PeCDF	0		U	0.003
Total HxCDF	1			0.030
Total HpCDF	1			0.193

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35597-9

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1

Sample wt/vol: 10.6 (g/ml) G Lab File ID: E009217

Water Sample Prep.: (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	2			2.28
Total PeCDD	2			0.62
Total HxCDD	1	0.006		
Total HpCDD	0		U	0.01
FURANS				
Total TCDF	6			0.05
Total PeCDF	4			0.08
Total HxCDF	1	0.005		
Total HpCDF	0		U	0.01

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. 35597-9MS

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1AMS

Sample wt/vol: 10.41 (g/ml) G Lab File ID: E009211

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 8-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	2	2.46		4.49
Total PeCDD	2	6.58		7.12
Total HxCDD	1	5.62		
Total HpCDD	1	5.30		
FURANS				
Total TCDF	5	2.49		2.53
Total PeCDF	3	6.03		
Total HxCDF	1	7.23		
Total HpCDF	1	5.86		

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35597-9DUP

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

La Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-1ADUP

Sample wt/vol: 10.6 (g/ml) G Lab File ID: E009226

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 9-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	2			2.062
Total PeCDD	3			1.371
Total HxCDD	0		U	0.013
Total HpCDD	0		U	0.006
FURANS				
Total TCDF	8			0.053
Total PeCDF	4			0.112
Total HxCDF	1			0.004
Total HpCDF	0	-	U	0.014

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35597-10

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12122-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-2

Sample wt/vol: 10.31 (g/ml) G Lab File ID: E009225

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 6-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 9-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	2			2.12
Total PeCDD	1			0.77
Total HxCDD	0		U	0.02
Total HpCDD	0		U	0.01
FURANS				
Total TCDF	8	0.01		0.09
Total PeCDF	4			0.07
Total HxCDF	2			0.01
Total HpCDF	1			0.01

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35597-11

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35597

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12122-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-49-3

Sample wt/vol: 960 (g/ml) ML Lab File ID: E009205

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 5-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			24.17
Total PeCDD	1			1.89
Total HxCDD	0		U	0.30
Total HpCDD	0		U	0.25
FURANS				
Total TCDF	0		U	0.09
Total PeCDF	0		U	0.17
Total HxCDF	0		U	0.16
Total HpCDF	0		U	0.44

NOTE: The total congener concentrations do not affect the TEF calculations.

RESULTS AND DISCUSSION

A table that summarizes the results found is presented below:

PCDD/PCDF ANALYSES

Analyte	DFBLK (ppb)	35524-5 (ppb)	35524-6 (ppb)
2378-TCDD	ND	ND	ND
12378-PeCDD	ND	ND	ND
123478-HxCDD	ND	ND	ND
123678-HxCDD	ND	ND	ND
123789-HxCDD	ND	ND	ND
1234678-HpCDD	ND	0.1	ND
OCDD	ND	EMPC(0.6508)	1.6
2378-TCDF	ND	0.4	ND
12378-PeCDF	ND	ND	ND
23478-PeCDF	ND	EMPC(0.1799)	ND
123478-HxCDF	ND	0.1	ND
123678-HxCDF	ND	0.04	ND
234678-HxCDF	ND	0.05	ND
123789-HxCDF	ND	ND	ND
1234678-HpCDF	ND	EMPC(0.2180)	ND
1234789-HpCDF	ND	ND	ND
OCDF	ND	ND	ND
Total TCDD	EMPC(2.28)	0.05(2.80)*	EMPC(2.52)
Total PeCDD	ND	EMPC(0.23)	ND
Total HxCDD	ND	0.12	ND
Total HpCDD	ND	0.16	ND
Total TCDF	EMPC(0.04)	2.45(2.84)*	EMPC(0.05)
Total PeCDF	ND	0.80(1.36)*	0.06
Total HxCDF	ND	0.47	ND
Total HpCDF	ND	0.48(0.86)*	ND

ppb = parts per billion
ND = not detected
EMPC = estimated maximum possible concentration

* EMPC concentrations designated by parentheses

Analytical Methodology

Sample Results

The internal and surrogate standard recoveries obtained from the primary column analysis for the soil samples are within the QC advisory limits of 25-150%.

QC Results

The method blanks were found free of PCDD/PCDF contamination, at or above the estimated detection limits. The labeled standard recoveries are within the limits of the method.

The internal and surrogate standard recoveries for the spike and spike duplicate samples are within the QC advisory limit of 40-120% (25-120% for IS-OCDD). The percent recoveries for the target analytes found in the TLH QC spike and spike duplicate samples are within the QC advisory limits of 50-150%. The relative percent difference between the percent recoveries of the spike and spike duplicate samples are below the QC advisory limit of 50%.

Labeled Standard Interferences

The use of low-resolution mass spectrometry (LRMS) that is suggested in the protocol accounts for the following observations:

> Certain ^{13}C-labeled standards (used as internal and recovery standards) appear to have lower mass fragments of higher isotopic masses that appear in analyte channels; this can be witnessed in the cases of $^{13}C_{12}$-TCDF internal standard appearing in the TCDD analyte channels, $^{13}C_{12}$-TCDD internal and recovery standards appearing in the TCDF analyte channels, $^{13}C_{12}$-HxCDD internal and recovery standards appearing in the HpCDF analyte channels, and $^{13}C_{12}$-HpCDF internal standard appearing in the HpCDD analyte channels. For most of the above situations, the interfering peaks due to the labeled standards lie outside the retention time window of the analyte. In the case of the TCDF/TCDDs, the interferences lie within the retention time window, thus resulting in high EMPC (estimated maximum possible concentration) values for the analytes.

Statement of Compliance

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Dora Chen
Operations Manager

4/9/93
Date

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0048
2378-TCDF	304/306		0.00			U	0.0056
12378-PeCDF	340/342		0.00			U	0.0052
12378-PeCDD	356/358		0.00			U	0.0072
23478-PeCDF	340/342		0.00			U	0.0065
123478-HxCDF	374/376		0.00			U	0.0022
123678-HxCDF	374/376		0.00			U	0.0019
123478-HxCDD	390/392		0.00			U	0.0083
123678-HxCDD	390/392		0.00			U	0.0060
123789-HxCDD	390/392		0.00			U	0.0075
234678-HxCDF	374/376		0.00			U	0.0023
123789-HxCDF	374/376		0.00			U	0.0028
1234678-HpCDF	408/410		0.00			U	0.0031
1234678-HpCDD	424/426		0.00			U	0.0040
1234789-HpCDF	408/410		0.00			U	0.0055
OCDD	458/460		0.00			U	0.0507
OCDF	442/444		0.00			U	0.0384

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.15	0.79		0.65-0.89	83.1		25-150
13C-2378-TCDD	332/334	23.93	0.79		0.65-0.89	76.2		25-150
13C-123678-HxCDD	402/404	35.98	1.26		1.05-1.43	68.2		25-150
13C-1234678-HpCDF	420/422	39.12	1.06		0.88-1.20	76.4		25-150
13C-OCDD	470/472	45.30	0.91		0.76-1.01	64.6		25-150
37Cl-2378-TCDD	328/NA	23.95	NA		NA	76.1		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35524-5

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-15-1

Sample wt/vol: 8.28 (g/ml) G Lab File ID: E009191

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 29-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0246
2378-TCDF	304/306	23.18	0.78		0.4	J	
12378-PeCDF	340/342		0.00			U	0.0191
12378-PeCDD	356/358		0.00			U	0.0308
23478-PeCDF	340/342	29.58	2.39	*		#	0.1799
23478-HxCDF	374/376	34.60	1.36		0.1	J	
123678-HxCDF	374/376	34.82	1.39		0.04	J	
123478-HxCDD	390/392		0.00			U	0.0382
123678-HxCDD	390/392		0.00			U	0.0278
123789-HxCDD	390/392		0.00			U	0.0345
234678-HxCDF	374/376	35.68	1.30		0.05	J	
123789-HxCDF	374/376		0.00			U	0.0325
1234678-HpCDF	408/410	39.13	0.64	*		#	0.2180
1234678-HpCDD	424/426	40.55	0.88		0.1	J	
1234789-HpCDF	408/410		0.00			U	0.0342
OCDD	458/460	45.30	1.16	*		#	0.6508
OCDF	442/444		0.00			U	0.2008

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.15	0.79		0.65-0.89	54.5		25-150
13C-2378-TCDD	332/334	23.95	0.78		0.65-0.89	51.4		25-150
13C-123678-HxCDD	402/404	35.98	1.26		1.05-1.43	42.2		25-150
13C-1234678-HpCDF	420/422	39.12	1.06		0.88-1.20	51.3		25-150
13C-OCDD	470/472	45.28	0.90		0.76-1.01	63.9		25-150
37Cl-2378-TCDD	328/NA	23.97	NA		NA	63.4		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35524-6

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-15-2

Sample wt/vol: 10.03 (g/ml) G Lab File ID: E009192

Water Sample Prep.: (Sepf/Cont) Date Received: 29-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0113
2378-TCDF	304/306		0.00			U	0.0094
12378-PeCDF	340/342		0.00			U	0.0131
12378-PeCDD	356/358		0.00			U	0.0209
23478-PeCDF	340/342		0.00			U	0.0165
123478-HxCDF	374/376		0.00			U	0.0182
123678-HxCDF	374/376		0.00			U	0.0163
123478-HxCDD	390/392		0.00			U	0.0300
123678-HxCDD	390/392		0.00			U	0.0219
123789-HxCDD	390/392		0.00			U	0.0271
234678-HxCDF	374/376		0.00			U	0.0194
123789-HxCDF	374/376		0.00			U	0.0236
1234678-HpCDF	408/410		0.00			U	0.0115
1234678-HpCDD	424/426		0.00			U	0.0191
1234789-HpCDF	408/410		0.00			U	0.0202
OCDD	458/460	45.33	0.88		1.6	J	
OCDF	442/444		0.00			U	0.0463

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.15	0.79		0.65-0.89	86.1		25-150
13C-2378-TCDD	332/334	23.95	0.78		0.65-0.89	78.0		25-150
13C-123678-HxCDD	402/404	35.98	1.28		1.05-1.43	69.7		25-150
13C-1234678-HpCDF	420/422	39.12	1.06		0.88-1.20	77.8		25-150
13C-OCDD	470/472	45.30	0.91		0.76-1.01	76.7		25-150
37Cl-2378-TCDD	328/NA	23.97	NA		NA	73.6		25-150

Column to be used to flag values outside QC limits

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
DFBLK

b Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.00	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	0.00	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35524-5

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-15-1

Sample wt/vol: 8.28 (g/ml) G Lab File ID: E009191

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 29-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.44	x 0.1 =	0.04
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.18	x 0.5 =	0.09
123478-HxCDF	0.14	x 0.1 =	0.01
123678-HxCDF	0.04	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.05	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.22	x 0.01 =	0.00
1234678-HpCDD	0.08	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.65	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.16

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35524-6

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-15-2

Sample wt/vol: 10.03 (g/ml) G Lab File ID: E009192

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 29-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	1.64	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. DFBLK

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			2.28
Total PeCDD	0		U	0.01
Total HxCDD	0		U	0.01
Total HpCDD	0		U	0.00
FURANS				
Total TCDF	1			0.04
Total PeCDF	0		U	0.01
Total HxCDF	0		U	0.00
Total HpCDF	0		U	0.01

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. 35524-5

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-15-1

Sample wt/vol: 8.28 (g/ml) G Lab File ID: E009191

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 29-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	5	0.05		2.80
Total PeCDD	2			0.23
Total HxCDD	1	0.12		
Total HpCDD	2	0.16		
FURANS				
Total TCDF	15	2.45		2.84
Total PeCDF	9	0.80		1.36
Total HxCDF	5	0.47		
Total HpCDF	2	0.48		0.86

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. 35524-6

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12105-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-15-2

Sample wt/vol: 10.03 (g/ml) G Lab File ID: E009192

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 29-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			2.52
Total PeCDD	0		U	0.02
Total HxCDD	0		U	0.03
Total HpCDD	0		U	0.02
FURANS				
Total TCDF	1			0.05
Total PeCDF	1	0.06		
Total HxCDF	0		U	0.02
Total HpCDF	0		U	0.02

NOTE: The total congener concentrations do not affect the TEF calculations.

PCDD/PCDF METHOD BLANK SUMMARY

DFBLK

Lab Name: TRIANGLE LABS OF HOUSTON Contract: 35524

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No.: 12105-S

Matrix: _____ (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK

Sample wt/vol: _____(g/mL)____ Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Extracted: 1-Apr 93

Date Analyzed: 6-Apr 93

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, SPIKES, AND DUPLICATES:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
35524-5	15-15-1	E009191	6-Apr 93
35524-6	15-15-2	E009192	6-Apr 93

RESULTS AND DISCUSSION

A table that summarizes the results found is presented below:

PCDD/PCDF ANALYSES

Analyte	DFBLK1 (W) (ppt)	DFBLK2 (S) (ppb)	35519-7 (ppb)	35519-8A-D (ppt)
2378-TCDD	ND	ND	ND	ND
12378-PeCDD	ND	ND	ND	ND
123478-HxCDD	ND	ND	ND	ND
123678-HxCDD	ND	ND	ND	ND
123789-HxCDD	ND	ND	ND	ND
1234678-HpCDD	ND	ND	ND	ND
OCDD	ND	ND	1.1	ND
2378-TCDF	ND	ND	ND	ND
12378-PeCDF	ND	ND	ND	ND
23478-PeCDF	ND	ND	ND	ND
123478-HxCDF	ND	ND	ND	ND
123678-HxCDF	ND	ND	ND	ND
234678-HxCDF	ND	ND	ND	ND
123789-HxCDF	ND	ND	ND	ND
1234678-HpCDF	ND	ND	ND	ND
1234789-HpCDF	ND	ND	ND	ND
OCDF	ND	ND	ND	ND
Total TCDD	EMPC(22.65)	EMPC(2.28)	EMPC(2.56)	EMPC(23.02)
Total PeCDD	EMPC(9.69)	ND	EMPC(0.12)	EMPC(8.57)
Total HxCDD	ND	ND	ND	ND
Total HpCDD	ND	ND	ND	ND
Total TCDF	EMPC(0.54)	EMPC(0.04)	EMPC(0.05)	EMPC(0.38)
Total PeCDF	ND	ND	ND	ND
Total HxCDF	ND	ND	ND	ND
Total HpCDF	ND	ND	ND	ND

ppb = parts per billion
ppt = parts per trillion
ND = not detected
S = soil
W = water
EMPC = estimated maximum possible concentration

Analytical Methodology

Sample Results

The internal and surrogate standard recoveries obtained from the primary column analysis for all soil and water samples are within the QC advisory limits of 25-150%.

QC Results

The method blanks were found free of PCDD/PCDF contamination, at or above the estimated detection limits. The labeled standard recoveries are within the limits of the method.

The internal and surrogate standard recoveries for the matrix spike and matrix spike duplicate are within the QC advisory limit of 40-120% (25-120% for IS-OCDD). The percent recoveries for the target analytes spiked into the matrix sample are within the QC advisory limits of 50-150%. The relative percent difference between the percent recoveries of the matrix spike and matrix spike duplicate are below the QC advisory limit of 50%.

Labeled Standard Interferences

The use of low-resolution mass spectrometry (LRMS) that is suggested in the protocol accounts for the following observations:

> Certain ^{13}C-labeled standards (used as internal and recovery standards) appear to have lower mass fragments of higher isotopic masses that appear in analyte channels; this can be witnessed in the cases of $^{13}C_{12}$-TCDF internal standard appearing in the TCDD analyte channels, $^{13}C_{12}$-TCDD internal and recovery standards appearing in the TCDF analyte channels, $^{13}C_{12}$-HxCDD internal and recovery standards appearing in the HpCDF analyte channels, and $^{13}C_{12}$-HpCDF internal standard appearing in the HpCDD analyte channels. For most of the above situations, the interfering peaks due to the labeled standards lie outside the retention time window of the analyte. In the case of the TCDF/TCDDs, the interferences lie within the retention time window, thus resulting in high EMPC (estimated maximum possible concentration) values for the analytes.

Statement of Compliance

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Dora Chen
Operations Manager

4/9/93
Date

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK1

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E009167

Water Sample Prep.: CONT (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 31-Mar-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 2-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0924
2378-TCDF	304/306		0.00			U	0.1012
12378-PeCDF	340/342		0.00			U	0.1402
12378-PeCDD	356/358		0.00			U	0.2161
23478-PeCDF	340/342		0.00			U	0.1493
123478-HxCDF	374/376		0.00			U	0.6105
123678-HxCDF	374/376		0.00			U	0.5181
123478-HxCDD	390/392		0.00			U	0.3486
123678-HxCDD	390/392		0.00			U	0.2610
123789-HxCDD	390/392		0.00			U	0.3136
234678-HxCDF	374/376		0.00			U	0.6124
123789-HxCDF	374/376		0.00			U	0.7066
1234678-HpCDF	408/410		0.00			U	0.2786
1234678-HpCDD	424/426		0.00			U	0.1890
1234789-HpCDF	408/410		0.00			U	0.4001
OCDD	458/460		0.00			U	1.8059
OCDF	442/444		0.00			U	1.5336

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.90	0.79		0.65-0.89	84.5		25-150
13C-2378-TCDD	332/334	24.68	0.78		0.65-0.89	78.3		25-150
13C-123678-HxCDD	402/404	36.72	1.25		1.05-1.43	68.4		25-150
13C-1234678-HpCDF	420/422	39.83	1.04		0.88-1.20	77.3		25-150
13C-OCDD	470/472	46.15	0.91		0.76-1.01	82.4		25-150
37Cl-2378-TCDD	328/NA	24.70	NA		NA	79.7		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK2

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0048
2378-TCDF	304/306		0.00			U	0.0056
12378-PeCDF	340/342		0.00			U	0.0052
12378-PeCDD	356/358		0.00			U	0.0072
23478-PeCDF	340/342		0.00			U	0.0065
123478-HxCDF	374/376		0.00			U	0.002[illegible]
123678-HxCDF	374/376		0.00			U	0.001[illegible]
123478-HxCDD	390/392		0.00			U	0.0083
123678-HxCDD	390/392		0.00			U	0.0060
123789-HxCDD	390/392		0.00			U	0.0075
234678-HxCDF	374/376		0.00			U	0.0023
123789-HxCDF	374/376		0.00			U	0.0028
1234678-HpCDF	408/410		0.00			U	0.0031
1234678-HpCDD	424/426		0.00			U	0.0040
1234789-HpCDF	408/410		0.00			U	0.0055
OCDD	458/460		0.00			U	0.0507
OCDF	442/444		0.00			U	0.0384

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.15	0.79		0.65-0.89	83.1		25-150
13C-2378-TCDD	332/334	23.93	0.79		0.65-0.89	76.2		25-150
13C-123678-HxCDD	402/404	35.98	1.26		1.05-1.43	68.2		25-150
13C-1234678-HpCDF	420/422	39.12	1.06		0.88-1.20	76.4		25-150
13C-OCDD	470/472	45.30	0.91		0.76-1.01	64.6		25-150
37Cl-2378-TCDD	328/NA	23.95	NA		NA	76.1		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35519-7

.b Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-13-1

Sample wt/vol: 10.2 (g/ml) G Lab File ID: E009195

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 27-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0136
2378-TCDF	304/306		0.00			U	0.0137
12378-PeCDF	340/342		0.00			U	0.0256
12378-PeCDD	356/358		0.00			U	0.0393
23478-PeCDF	340/342		0.00			U	0.0323
23478-HxCDF	374/376		0.00			U	0.0209
23678-HxCDF	374/376		0.00			U	0.0186
123478-HxCDD	390/392		0.00			U	0.0509
123678-HxCDD	390/392		0.00			U	0.0371
123789-HxCDD	390/392		0.00			U	0.0460
234678-HxCDF	374/376		0.00			U	0.0222
123789-HxCDF	374/376		0.00			U	0.0271
1234678-HpCDF	408/410		0.00			U	0.0239
1234678-HpCDD	424/426		0.00			U	0.0362
1234789-HpCDF	408/410		0.00			U	0.0418
OCDD	458/460	45.30	0.92		1.1	J	
OCDF	442/444		0.00			U	0.1328

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.15	0.80		0.65-0.89	71.0		25-150
13C-2378-TCDD	332/334	23.95	0.79		0.65-0.89	65.2		25-150
13C-123678-HxCDD	402/404	35.97	1.27		1.05-1.43	58.4		25-150
13C-1234678-HpCDF	420/422	39.10	1.06		0.88-1.20	58.3		25-150
13C-OCDD	470/472	45.30	0.90		0.76-1.01	40.6		25-150
37Cl-2378-TCDD	328/NA	23.95	NA		NA	64.7		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35519-8A-D

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-13-2A

Sample wt/vol: 1080 (g/ml) ML Lab File ID: HH02913

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 27-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 31-Mar-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 4-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.1295
2378-TCDF	304/306		0.00			U	0.0713
12378-PeCDF	340/342		0.00			U	0.1743
12378-PeCDD	356/358		0.00			U	0.2386
23478-PeCDF	340/342		0.00			U	0.1690
123478-HxCDF	374/376		0.00			U	0.3235
123678-HxCDF	374/376		0.00			U	0.3098
123478-HxCDD	390/392		0.00			U	0.4762
123678-HxCDD	390/392		0.00			U	0.4962
123789-HxCDD	390/392		0.00			U	0.4722
234678-HxCDF	374/376		0.00			U	0.3341
123789-HxCDF	374/376		0.00			U	0.3915
1234678-HpCDF	408/410		0.00			U	0.1539
1234678-HpCDD	424/426		0.00			U	0.1862
1234789-HpCDF	408/410		0.00			U	0.1952
OCDD	458/460		0.00			U	0.7838
OCDF	442/444		0.00			U	0.4283

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.35	0.80		0.65-0.89	81.5		25-150
13C-2378-TCDD	332/334	24.12	0.79		0.65-0.89	81.1		25-150
13C-123678-HxCDD	402/404	35.92	1.33		1.05-1.43	69.2		25-150
13C-1234678-HpCDF	420/422	39.15	1.08		0.88-1.20	69.9		25-150
13C-OCDD	470/472	45.32	0.91		0.76-1.01	57.3		25-150
37Cl-2378-TCDD	328/NA	24.13	NA		NA	91.1		25-150

Column to be used to flag values outside QC limits

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
DFBLK1

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E009167

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 0-Jan-00

Concentrated Extract Volume: 100 (µl) Date Extracted: 31-Mar-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 2-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
DFBLK1

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E009167

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 0-Jan-00

Concentrated Extract Volume: 100 (µl) Date Extracted: 31-Mar-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 2-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
DFBLK2

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35519-7

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-13-1

Sample wt/vol: 10.2 (g/ml) G Lab File ID: E009195

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 27-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.00	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	1.15	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35519-8A-D

ıb Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-13-2A

Sample wt/vol: 1080 (g/ml) ML Lab File ID: HH02913

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 27-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 31-Mar-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 4-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.00	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	0.00	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY DFBLK1

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12104-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E009167

Water Sample Prep.: CONT (Sepf/Cont) Date Received:

Concentrated Extract Volume: 100 (µl) Date Extracted: 31-Mar-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 2-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			22.65
Total PeCDD	1			9.69
Total HxCDD	0		U	0.35
Total HpCDD	0		U	0.19
FURANS				
Total TCDF	1			0.54
Total PeCDF	0		U	0.15
Total HxCDF	0		U	0.71
Total HpCDF	0		U	0.40

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. DFBLK2

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			2.28
Total PeCDD	0		U	0.01
Total HxCDD	0		U	0.01
Total HpCDD	0		U	0.00
FURANS				
Total TCDF	1			0.04
Total PeCDF	0		U	0.01
Total HxCDF	0		U	0.00
Total HpCDF	0		U	0.01

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35519-7

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-13-1

Sample wt/vol: 10.2 (g/ml) G Lab File ID: E009195

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 27-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			2.56
Total PeCDD	1			0.12
Total HxCDD	0		U	0.05
Total HpCDD	0		U	0.04
FURANS				
Total TCDF	1			0.05
Total PeCDF	0		U	0.03
Total HxCDF	0		U	0.03
Total HpCDF	0		U	0.04

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35519-8A-D

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35519

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12104-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-13-2A

Sample wt/vol: 1080 (g/ml) ML Lab File ID: HH02913

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 27-Mar-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 31-Mar-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 4-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			23.02
Total PeCDD	1			8.57
Total HxCDD	0		U	0.50
Total HpCDD	0		U	0.19
FURANS				
Total TCDF	1			0.38
Total PeCDF	0		U	0.17
Total HxCDF	0		U	0.39
Total HpCDF	0		U	0.20

NOTE: The total congener concentrations do not affect the TEF calculations.

RESULTS AND DISCUSSION

A table that summarizes the results found is presented below:

PCDD/PCDF ANALYSES

Analyte	DFBLK (ppt)	35604-6 (ppt)
2378-TCDD	ND	ND
12378-PeCDD	ND	ND
123478-HxCDD	ND	ND
123678-HxCDD	ND	ND
123789-HxCDD	ND	ND
1234678-HpCDD	ND	ND
OCDD	ND	ND
2378-TCDF	ND	ND
12378-PeCDF	ND	ND
23478-PeCDF	ND	ND
123478-HxCDF	ND	ND
123678-HxCDF	ND	ND
234678-HxCDF	ND	ND
123789-HxCDF	ND	ND
1234678-HpCDF	ND	ND
1234789-HpCDF	ND	ND
OCDF	ND	ND
Total TCDD	EMPC(22.87)	EMPC(25.58)
Total PeCDD	EMPC(4.00)	EMPC(2.19)
Total HxCDD	ND	ND
Total HpCDD	ND	ND
Total TCDF	EMPC(0.54)	EMPC(0.57)
Total PeCDF	ND	ND
Total HxCDF	ND	ND
Total HpCDF	ND	ND

ppt = parts per trillion
ND = not detected
W = water
EMPC = estimated maximum possible concentration

Analytical Methodology

Sample Results

The internal and surrogate standard for the sample are within QC limits of 40-120%.

QC Results

The method blank was found free of PCDD/PCDF contamination, at or above the estimated detection limits. The labeled standard recoveries are within the limits of the method.

The internal and surrogate standard recoveries for the matrix spike and matrix spike duplicate are within the QC advisory limit of 40-120% (25-120% for IS-OCDD). The percent recoveries for the target analytes spiked into the matrix sample are within the QC advisory limits of 50-150%. The relative percent difference between the percent recoveries of the matrix spike and matrix spike duplicate are below the QC advisory limit of 50%.

Labeled Standard Interferences

The use of low-resolution mass spectrometry (LRMS) that is suggested in the protocol accounts for the following observations:

> Certain ^{13}C-labeled standards (used as internal and recovery standards) appear to have lower mass fragments of higher isotopic masses that appear in analyte channels; this can be witnessed in the cases of $^{13}C_{12}$-TCDF internal standard appearing in the TCDD analyte channels, $^{13}C_{12}$-TCDD internal and recovery standards appearing in the TCDF analyte channels, $^{13}C_{12}$-HxCDD internal and recovery standards appearing in the HpCDF analyte channels, and $^{13}C_{12}$-HpCDF internal standard appearing in the HpCDD analyte channels. For most of the above situations, the interfering peaks due to the labeled standards lie outside the retention time window of the analyte. In the case of the TCDF/TCDDs, the interferences lie within the retention time window, thus resulting in high EMPC (estimated maximum possible concentration) values for the analytes.

Analytical Methodology

Sample Results

The internal and surrogate standard for the sample are within QC limits of 25-150%.

QC Results

The method blank was found free of PCDD/PCDF contamination, at or above the estimated detection limits. The labeled standard recoveries are within the limits of the method.

The internal and surrogate standard recoveries for the matrix spike and matrix spike duplicate are within the QC advisory limit of 40-120% (25-120% for IS-OCDD). The percent recoveries for the target analytes spiked into the matrix sample are within the QC advisory limits of 50-150%. The relative percent difference between the percent recoveries of the matrix spike and matrix spike duplicate are below the QC advisory limit of 50%.

Labeled Standard Interferences

The use of low-resolution mass spectrometry (LRMS) that is suggested in the protocol accounts for the following observations:

> Certain ^{13}C-labeled standards (used as internal and recovery standards) appear to have lower mass fragments of higher isotopic masses that appear in analyte channels; this can be witnessed in the cases of $^{13}C_{12}$-TCDF internal standard appearing in the TCDD analyte channels, $^{13}C_{12}$-TCDD internal and recovery standards appearing in the TCDF analyte channels, $^{13}C_{12}$-HxCDD internal and recovery standards appearing in the HpCDF analyte channels, and $^{13}C_{12}$-HpCDF internal standard appearing in the HpCDD analyte channels. For most of the above situations, the interfering peaks due to the labeled standards lie outside the retention time window of the analyte. In the case of the TCDF/TCDDs, the interferences lie within the retention time window, thus resulting in high EMPC (estimated maximum possible concentration) values for the analytes.

Statement of Compliance

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

_____ _____

Dora Chen Date
Operations Manager

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35604

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12125-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E009230

Water Sample Prep.: CONT (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 8-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 12-Apr-92

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.2374
2378-TCDF	304/306		0.00			U	0.2546
12378-PeCDF	340/342		0.00			U	0.2272
12378-PeCDD	356/358		0.00			U	0.4128
23478-PeCDF	340/342		0.00			U	0.2818
123478-HxCDF	374/376		0.00			U	0.3311
123678-HxCDF	374/376		0.00			U	0.2731
123478-HxCDD	390/392		0.00			U	1.3211
123678-HxCDD	390/392		0.00			U	1.0051
123789-HxCDD	390/392		0.00			U	1.2270
234678-HxCDF	374/376		0.00			U	0.3385
123789-HxCDF	374/376		0.00			U	0.4216
1234678-HpCDF	408/410		0.00			U	0.5142
1234678-HpCDD	424/426		0.00			U	1.2246
1234789-HpCDF	408/410		0.00			U	0.8000
OCDD	458/460		0.00			U	2.7302
OCDF	442/444		0.00			U	2.3062

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.15	0.79		0.65-0.89	78.5		25-150
13C-2378-TCDD	332/334	23.95	0.77		0.65-0.89	70.0		25-150
13C-123678-HxCDD	402/404	35.98	1.24		1.05-1.43	66.1		25-150
13C-1234678-HpCDF	420/422	39.13	1.08		0.88-1.20	64.6		25-150
13C-OCDD	470/472	45.33	0.90		0.76-1.01	46.1		25-150
37Cl-2378-TCDD	328/NA	23.97	NA		NA	109.3		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35604-6

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35604

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12125-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-55-1

Sample wt/vol: 940 (g/ml) ML Lab File ID: E009231

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 6-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 8-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 12-Apr-92

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.1338
2378-TCDF	304/306		0.00			U	0.1692
12378-PeCDF	340/342		0.00			U	0.1172
12378-PeCDD	356/358		0.00			U	0.2026
23478-PeCDF	340/342		0.00			U	0.1454
123478-HxCDF	374/376		0.00			U	0.1538
123678-HxCDF	374/376		0.00			U	0.1269
123478-HxCDD	390/392		0.00			U	0.3490
123678-HxCDD	390/392		0.00			U	0.2655
123789-HxCDD	390/392		0.00			U	0.3242
234678-HxCDF	374/376		0.00			U	0.1573
123789-HxCDF	374/376		0.00			U	0.1959
1234678-HpCDF	408/410		0.00			U	0.3456
1234678-HpCDD	424/426		0.00			U	0.2998
1234789-HpCDF	408/410		0.00			U	0.5377
OCDD	458/460		0.00			U	2.0907
OCDF	442/444		0.00			U	1.9588

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.13	0.79		0.65-0.89	76.4		25-150
13C-2378-TCDD	332/334	23.93	0.79		0.65-0.89	69.0		25-150
13C-123678-HxCDD	402/404	35.97	1.27		1.05-1.43	62.4		25-150
13C-1234678-HpCDF	420/422	39.12	1.07		0.88-1.20	62.8		25-150
13C-OCDD	470/472	45.33	0.91		0.76-1.01	54.0		25-150
37Cl-2378-TCDD	328/NA	23.93	NA		NA	104.8		25-150

Column to be used to flag values outside QC limits

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
DFBLK

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35604

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12125-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E009230

Water Sample Prep.: CONT (Sepf/Cont) Date Received:

Concentrated Extract Volume: 100 (µl) Date Extracted: 8-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 12-Apr-92

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO. 35604-6

b Name: TRIANGLE LABS, HOUSTON Contract: 35604

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12125-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-55-1

Sample wt/vol: 940 (g/ml) ML Lab File ID: E009231

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 6-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 8-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 12-Apr-92

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. DFBLK

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35604

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12125-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E009230

Water Sample Prep.: CONT (Sepf/Cont) Date Received:

Concentrated Extract Volume: 100 (µl) Date Extracted: 8-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 12-Apr-92

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			22.87
Total PeCDD	2			4.00
Total HxCDD	0		U	1.32
Total HpCDD	0		U	1.22
FURANS				
Total TCDF	1			0.54
Total PeCDF	0		U	0.28
Total HxCDF	0		U	0.42
Total HpCDF	0		U	0.80

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35604-6

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35604

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12125-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-55-1

Sample wt/vol: 940 (g/ml) ML Lab File ID: E009231

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 6-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 8-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 12-Apr-92

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			25.58
Total PeCDD	1			2.19
Total HxCDD	0		U	0.35
Total HpCDD	0		U	0.30
FURANS				
Total TCDF	1			0.57
Total PeCDF	0		U	0.15
Total HxCDF	0		U	0.20
Total HpCDF	0		U	0.54

NOTE: The total congener concentrations do not affect the TEF calculations.

RESULTS AND DISCUSSION

A table that summarizes the results found is presented below:

PCDD/PCDF ANALYSES

Analyte	DFBLK1 (W) (ppt)	DFBLK2 (S) (ppb)	35558-12 (ppb)	35558-10 (ppb)	35558-11 (ppb)
2378-TCDD	ND	ND	ND	ND	ND
12378-PeCDD	ND	ND	ND	ND	ND
123478-HxCDD	ND	ND	ND	ND	ND
123678-HxCDD	ND	ND	ND	ND	ND
123789-HxCDD	ND	ND	ND	ND	ND
1234678-HpCDD	ND	ND	ND	ND	ND
OCDD	ND	ND	ND	1.1	ND
2378-TCDF	ND	ND	ND	ND	ND
12378-PeCDF	ND	ND	ND	ND	ND
23478-PeCDF	ND	ND	ND	ND	ND
123478-HxCDF	ND	ND	ND	ND	ND
123678-HxCDF	ND	ND	ND	ND	ND
234678-HxCDF	ND	ND	ND	ND	ND
123789-HxCDF	ND	ND	ND	ND	ND
1234678-HpCDF	ND	ND	ND	ND	ND
1234789-HpCDF	ND	ND	ND	ND	ND
OCDF	ND	ND	ND	ND	ND
Total TCDD	EMPC(20.24)	EMPC(2.28)	EMPC(23.84)	EMPC(2..35)	EMPC(2.70)
Total PeCDD	EMPC(1.28)	EMPC(0.07)	EMPC(2.26)	EMPC(0.18)	EMPC(0.09)
Total HxCDD	ND	ND	ND	ND	ND
Total HpCDD	ND	ND	ND	ND	ND
Total TCDF	ND	EMPC(0.04)	EMPC(0.42)	0.01(EMPC 0.09)	EMPC(0.05)
Total PeCDF	ND	ND	ND	0.04(EMPC 0.18)	ND
Total HxCDF	ND	ND	ND	EMPC(0.08)	ND
Total HpCDF	ND	ND	ND	EMPC(0.01)	ND

ppb = parts per billion
ppt = parts per trillion
ND = not detected
W = water
S = soil
EMPC = estimated maximum possible concentration

Analytical Methodology

Sample Results

The internal and surrogate standard recoveries obtained from the primary column analysis for all soil and water samples are within the QC advisory limits of 25-150%.

QC Results

The method blanks were found free of PCDD/PCDF contamination, at or above the estimated detection limits. The labeled standard recoveries are within the limits of the method.

The internal and surrogate standard recoveries for the blank spike and blank spike duplicate are within the QC advisory limit of 40-120% (25-120% for IS-OCDD). The percent recoveries for the target analytes spiked into the blank sample are within the QC advisory limits of 50-150%. The relative percent difference between the percent recoveries of the blank spike and blank spike duplicate are below the QC advisory limit of 50%.

Labeled Standard Interferences

The use of low-resolution mass spectrometry (LRMS) that is suggested in the protocol accounts for the following observations:

> Certain ^{13}C-labeled standards (used as internal and recovery standards) appear to have lower mass fragments of higher isotopic masses that appear in analyte channels; this can be witnessed in the cases of $^{13}C_{12}$-TCDF internal standard appearing in the TCDD analyte channels, $^{13}C_{12}$-TCDD internal and recovery standards appearing in the TCDF analyte channels, $^{13}C_{12}$-HxCDD internal and recovery standards appearing in the HpCDF analyte channels, and $^{13}C_{12}$-HpCDF internal standard appearing in the HpCDD analyte channels. For most of the above situations, the interfering peaks due to the labeled standards lie outside the retention time window of the analyte. In the case of the TCDF/TCDDs, the interferences lie within the retention time window, thus resulting in high EMPC (estimated maximum possible concentration) values for the analytes.

Statement of Compliance

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Dora Chen

Dora Chen
Operations Manager

7/15/93

Date

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK1

b Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: HH02944

Water Sample Prep.: CONT (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.2275
2378-TCDF	304/306		0.00			U	0.0998
12378-PeCDF	340/342		0.00			U	0.1982
12378-PeCDD	356/358		0.00			U	0.2530
23478-PeCDF	340/342		0.00			U	0.2150
23478-HxCDF	374/376		0.00			U	0.1616
123678-HxCDF	374/376		0.00			U	0.1375
123478-HxCDD	390/392		0.00			U	0.3369
123678-HxCDD	390/392		0.00			U	0.3301
123789-HxCDD	390/392		0.00			U	0.3513
234678-HxCDF	374/376		0.00			U	0.1597
123789-HxCDF	374/376		0.00			U	0.1931
1234678-HpCDF	408/410		0.00			U	0.2837
1234678-HpCDD	424/426		0.00			U	0.4766
1234789-HpCDF	408/410		0.00			U	0.3837
OCDD	458/460		0.00			U	1.3295
OCDF	442/444		0.00			U	1.3637

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.52	0.79		0.65-0.89	91.7		25-150
13C-2378-TCDD	332/334	24.30	0.78		0.65-0.89	88.8		25-150
13C-123678-HxCDD	402/404	36.07	1.31		1.05-1.43	72.3		25-150
13C-1234678-HpCDF	420/422	39.28	1.06		0.88-1.20	86.8		25-150
13C-OCDD	470/472	45.52	0.91		0.76-1.01	77.6		25-150
37Cl-2378-TCDD	328/NA	24.30	NA		NA	88.5		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
DFBLK2

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0075
2378-TCDF	304/306		0.00			U	0.0081
12378-PeCDF	340/342		0.00			U	0.0061
12378-PeCDD	356/358		0.00			U	0.0112
23478-PeCDF	340/342		0.00			U	0.0077
123478-HxCDF	374/376		0.00			U	0.0034
123678-HxCDF	374/376		0.00			U	0.0030
123478-HxCDD	390/392		0.00			U	0.0116
123678-HxCDD	390/392		0.00			U	0.0085
123789-HxCDD	390/392		0.00			U	0.0105
234678-HxCDF	374/376		0.00			U	0.0036
123789-HxCDF	374/376		0.00			U	0.0044
1234678-HpCDF	408/410		0.00			U	0.0056
1234678-HpCDD	424/426		0.00			U	0.0060
1234789-HpCDF	408/410		0.00			U	0.0099
OCDD	458/460		0.00			U	0.0888
OCDF	442/444		0.00			U	0.0809

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.15	0.79		0.65-0.89	83.1		25-150
13C-2378-TCDD	332/334	23.93	0.79		0.65-0.89	76.2		25-150
13C-123678-HxCDD	402/404	35.98	1.26		1.05-1.43	68.2		25-150
13C-1234678-HpCDF	420/422	39.12	1.06		0.88-1.20	76.4		25-150
13C-OCDD	470/472	45.30	0.91		0.76-1.01	64.6		25-150
37Cl-2378-TCDD	328/NA	23.95	NA		NA	76.1		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35558-12

ab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12114-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-3

Sample wt/vol: 980 (g/ml) ML Lab File ID: E009204

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.2063
2378-TCDF	304/306		0.00			U	0.1499
12378-PeCDF	340/342		0.00			U	0.1050
12378-PeCDD	356/358		0.00			U	0.1362
23478-PeCDF	340/342		0.00			U	0.1211
123478-HxCDF	374/376		0.00			U	0.0810
123678-HxCDF	374/376		0.00			U	0.0719
123478-HxCDD	390/392		0.00			U	0.3181
123678-HxCDD	390/392		0.00			U	0.2523
123789-HxCDD	390/392		0.00			U	0.2936
234678-HxCDF	374/376		0.00			U	0.0834
123789-HxCDF	374/376		0.00			U	0.0966
1234678-HpCDF	408/410		0.00			U	0.1333
1234678-HpCDD	424/426		0.00			U	0.1193
1234789-HpCDF	408/410		0.00			U	0.1920
OCDD	458/460		0.00			U	2.4206
OCDF	442/444		0.00			U	1.8361

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.37	0.79		0.65-0.89	90.6		25-150
13C-2378-TCDD	332/334	24.17	0.79		0.65-0.89	82.8		25-150
13C-123678-HxCDD	402/404	36.15	1.27		1.05-1.43	75.1		25-150
13C-1234678-HpCDF	420/422	39.28	1.04		0.88-1.20	78.2		25-150
13C-OCDD	470/472	45.53	0.92		0.76-1.01	63.2		25-150
37Cl-2378-TCDD	328/NA	24.18	NA		NA	86.2		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35558-10

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-1

Sample wt/vol: 10.45 (g/ml) G Lab File ID: E009193

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0225
2378-TCDF	304/306		0.00			U	0.0218
12378-PeCDF	340/342		0.00			U	0.0300
12378-PeCDD	356/358		0.00			U	0.0707
23478-PeCDF	340/342		0.00			U	0.0378
123478-HxCDF	374/376		0.00			U	0.0426
123678-HxCDF	374/376		0.00			U	0.0381
123478-HxCDD	390/392		0.00			U	0.0538
123678-HxCDD	390/392		0.00			U	0.0392
123789-HxCDD	390/392		0.00			U	0.0486
234678-HxCDF	374/376		0.00			U	0.0454
123789-HxCDF	374/376		0.00			U	0.0554
1234678-HpCDF	408/410		0.00			U	0.0246
1234678-HpCDD	424/426		0.00			U	0.0363
1234789-HpCDF	408/410		0.00			U	0.0430
OCDD	458/460	45.33	0.81		1.1	J	
OCDF	442/444		0.00			U	0.3774

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.17	0.80		0.65-0.89	70.8		25-150
13C-2378-TCDD	332/334	23.97	0.78		0.65-0.89	65.2		25-150
13C-123678-HxCDD	402/404	35.98	1.28		1.05-1.43	56.4		25-150
13C-1234678-HpCDF	420/422	39.12	1.06		0.88-1.20	54.7		25-150
13C-OCDD	470/472	45.32	0.93		0.76-1.01	34.6		25-150
37Cl-2378-TCDD	328/NA	23.97	NA		NA	61.2		25-150

Column to be used to flag values outside QC limits

1DFA
PCDD/PCDF SAMPLE DATA SUMMARY

EPA SAMPLE NO.
35558-11

ab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-2

Sample wt/vol: 9 (g/ml) G Lab File ID: E009200

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	SELECTED IONS	PEAK RT	ION RATIO	#	CONCENTRATION	Q	EMPC/EDL
2378-TCDD	320/322		0.00			U	0.0139
2378-TCDF	304/306		0.00			U	0.0151
12378-PeCDF	340/342		0.00			U	0.0160
12378-PeCDD	356/358		0.00			U	0.0269
23478-PeCDF	340/342		0.00			U	0.0201
123478-HxCDF	374/376		0.00			U	0.0193
123678-HxCDF	374/376		0.00			U	0.0172
123478-HxCDD	390/392		0.00			U	0.0000
123678-HxCDD	390/392		0.00			U	0.0000
123789-HxCDD	390/392		0.00			U	0.0000
234678-HxCDF	374/376		0.00			U	0.0205
123789-HxCDF	374/376		0.00			U	0.0251
1234678-HpCDF	408/410		0.00			U	0.0000
1234678-HpCDD	424/426		0.00			U	0.0000
1234789-HpCDF	408/410		0.00			U	0.0000
OCDD	458/460		0.00			U	0.0982
OCDF	442/444		0.00			U	0.0000

NOTE: Concentrations, EMPCs, and EDLs are calculated on a DRY weight basis.

INTERNAL STANDARD	SELECTED IONS	PEAK RT	ION RATIO	#	ION RATIO LIMITS	% REC	#	RECOVERY LIMITS
13C-2378-TCDF	316/318	23.33	0.79		0.65-0.89	86.4		25-150
13C-2378-TCDD	332/334	24.13	0.78		0.65-0.89	75.2		25-150
13C-123678-HxCDD	402/404	36.13	1.27		1.05-1.43	71.1		25-150
13C-1234678-HpCDF	420/422	39.25	1.06		0.88-1.20	78.5		25-150
13C-OCDD	470/472	45.50	0.92		0.76-1.01	70.4		25-150
37Cl-2378-TCDD	328/NA	24.15	NA		NA	71.6		25-150

Column to be used to flag values outside QC limits

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
DFBLK1

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: HH02944

Water Sample Prep.: CONT (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
DFBLK2

ab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.00	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	0.00	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB
PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO.
35558-12

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-3

Sample wt/vol: 980 (g/ml) ML Lab File ID: E009204

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

ANALYTE	CONCENTRATION	TEF		TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0	=	0.00
2378-TCDF	0.00	x 0.1	=	0.00
12378-PeCDF	0.00	x 0.05	=	0.00
12378-PeCDD	0.00	x 0.5	=	0.00
23478-PeCDF	0.00	x 0.5	=	0.00
123478-HxCDF	0.00	x 0.1	=	0.00
123678-HxCDF	0.00	x 0.1	=	0.00
123478-HxCDD	0.00	x 0.1	=	0.00
123678-HxCDD	0.00	x 0.1	=	0.00
123789-HxCDD	0.00	x 0.1	=	0.00
234678-HxCDF	0.00	x 0.1	=	0.00
123789-HxCDF	0.00	x 0.1	=	0.00
1234678-HpCDF	0.00	x 0.01	=	0.00
1234678-HpCDD	0.00	x 0.01	=	0.00
1234789-HpCDF	0.00	x 0.01	=	0.00
OCDD	0.00	x 0.001	=	0.00
OCDF	0.00	x 0.001	=	0.00
		Total	=	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO. 35558-10

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-1

Sample wt/vol: 10.45 (g/ml) G Lab File ID: E009193

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	1.08	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

1DFB

PCDD/PCDF TOXICITY EQUIVALENCE SUMMARY

EPA SAMPLE NO. 35558-11

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-2

Sample wt/vol: 9 (g/ml) G Lab File ID: E009200

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

ANALYTE	CONCENTRATION	TEF	TEF-ADJUSTED CONCENTRATION
2378-TCDD	0.00	x 1.0 =	0.00
2378-TCDF	0.00	x 0.1 =	0.00
12378-PeCDF	0.00	x 0.05 =	0.00
12378-PeCDD	0.00	x 0.5 =	0.00
23478-PeCDF	0.00	x 0.5 =	0.00
123478-HxCDF	0.00	x 0.1 =	0.00
123678-HxCDF	0.00	x 0.1 =	0.00
123478-HxCDD	0.00	x 0.1 =	0.00
123678-HxCDD	0.00	x 0.1 =	0.00
123789-HxCDD	0.00	x 0.1 =	0.00
234678-HxCDF	0.00	x 0.1 =	0.00
123789-HxCDF	0.00	x 0.1 =	0.00
1234678-HpCDF	0.00	x 0.01 =	0.00
1234678-HpCDD	0.00	x 0.01 =	0.00
1234789-HpCDF	0.00	x 0.01 =	0.00
OCDD	0.00	x 0.001 =	0.00
OCDF	0.00	x 0.001 =	0.00
		Total =	0.00

If the Total Toxic Equivalent Concentration of the sample is greater than 7 ng/L for an aqueous sample, greater than 0.7 µg/Kg for any solid matrix, or greater than 7 µg/Kg for a chemical waste sample, then second column confirmation of the results may be required.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. DFBLK1

ab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: SAS No.: SDG No. 12114-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK1

Sample wt/vol: 1000 (g/ml) ML Lab File ID: HH02944

Water Sample Prep.: CONT (Sepf/Cont) Date Received:

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			20.24
Total PeCDD	1			1.28
Total HxCDD	0		U	0.35
Total HpCDD	0		U	0.48
FURANS				
Total TCDF	0		U	0.10
Total PeCDF	0		U	0.22
Total HxCDF	0		U	0.19
Total HpCDF	0		U	0.38

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY DFBLK2

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: DFBLK2

Sample wt/vol: 10 (g/ml) G Lab File ID: E009188

Water Sample Prep.: _____ (Sepf/Cont) Date Received: _____

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			2.28
Total PeCDD	1			0.07
Total HxCDD	0		U	0.01
Total HpCDD	0		U	0.01
FURANS				
Total TCDF	1			0.04
Total PeCDF	0		U	0.01
Total HxCDF	0		U	0.00
Total HpCDF	0		U	0.01

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

EPA SAMPLE NO.

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY 35558-12

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-W

Matrix: WATER (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-3

Sample wt/vol: 980 (g/ml) ML Lab File ID: E009204

Water Sample Prep.: CONT (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 5-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) NG/L

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	1			23.84
Total PeCDD	1			2.26
Total HxCDD	0		U	0.32
Total HpCDD	0		U	0.12
FURANS				
Total TCDF	1			0.42
Total PeCDF	0		U	0.12
Total HxCDF	0		U	0.10
Total HpCDF	0		U	0.19

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. 35558-10

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-1

Sample wt/vol: 10.45 (g/ml) G Lab File ID: E009193

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 6-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	6			2.35
Total PeCDD	4			0.18
Total HxCDD	0		U	0.05
Total HpCDD	0		U	0.04
FURANS				
Total TCDF	7	0.01		0.09
Total PeCDF	7	0.04		0.18
Total HxCDF	2			0.08
Total HpCDF	1	---		0.01

NOTE: The total congener concentrations do not affect the TEF calculations.

2DF

PCDD/PCDF TOTAL HOMOLOGUE CONCENTRATION SUMMARY

EPA SAMPLE NO. 35558-11

Lab Name: TRIANGLE LABS, HOUSTON Contract: 35558

Lab Code: TRILABX Case No.: _____ SAS No.: _____ SDG No. 12114-S

Matrix: SOIL (Soil/Water/Waste/Ash) Lab Sample ID: 15-33-2

Sample wt/vol: 9 (g/ml) G Lab File ID: E009200

Water Sample Prep.: _____ (Sepf/Cont) Date Received: 1-Apr-93

Concentrated Extract Volume: 100 (µl) Date Extracted: 1-Apr-93

Injection Volume: 2 (µl) %Solids 100 Date Analyzed: 7-Apr-93

GC Column: DB-5 60M ID: 0.25 (mm) Dilution Factor: 1

CONCENTRATION UNITS: (ng/L or µg/Kg) µG/KG

HOMOLOGUE	PEAKS	CONC.	Q	EMPC/EDL
DIOXINS				
Total TCDD	2			2.70
Total PeCDD	1			0.09
Total HxCDD	0		U	0.06
Total HpCDD	0		U	0.04
FURANS				
Total TCDF	2			0.05
Total PeCDF	0		U	0.02
Total HxCDF	0		U	0.03
Total HpCDF	0		U	0.04

NOTE: The total congener concentrations do not affect the TEF calculations.

GROUNDWATER

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW17 *
****

Sample Collection Date: 4/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-036
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	UJ
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	U	1.0000	UJ
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMA: FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW5 *
****

Sample Collection Date: 4/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-032
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	UJ
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	U	1.0000	UJ
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW7 *
****

Sample Collection Date: 4/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-035
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	UJ
1,1,2-Trichloroethane	U	1.0000	UJ
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	UJ
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	UJ
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	UJ
4-Methyl-2-pentanone	U	5.0000	UJ
Acetone	U	5.0000	UJ
Benzene	U	1.0000	UJ
Bromodichloromethane	U	1.0000	UJ
Bromoform	U	1.0000	UJ
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	UJ
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	UJ
Ethylbenzene	U	1.0000	UJ
Methylene_Chloride	U	1.0000	UJ
Styrene	U	1.0000	UJ
Tetrachloroethene	U	1.0000	UJ
Toluene	U	1.0000	UJ
Trichloroethene	U	1.0000	UJ
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	UJ
cis-1,3-Dichloropropene	U	1.0000	UJ
trans-1,3-Dichloropropene	U	1.0000	UJ

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 *
****

Sample Collection Date: 4/28/93 Method: 8260/2 Units: UG/L Laboratory ID: 35912-030
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	1.0000		
1,1,2,2-Tetrachloroethane	U	1.0000		
1,1,2-Trichloroethane	U	1.0000		
1,1-Dichloroethane	U	1.0000		
1,1-Dichloroethene	U	1.0000		
1,2-Dichloroethane	U	1.0000		
1,2-Dichloroethene_(total)	U	1.0000		
1,2-Dichloropropane	U	1.0000		
2-Butanone	U	5.0000		
2-Hexanone	U	5.0000		
4-Methyl-2-pentanone	U	5.0000		
Acetone	U	5.0000		UJ
Benzene	U	1.0000		
Bromodichloromethane	U	1.0000		
Bromoform	U	1.0000		
Bromomethane	U	2.0000		
Carbon Disulfide	U	1.0000		
Carbon Tetrachloride	U	1.0000		
Chlorobenzene	U	1.0000		
Chloroethane	U	2.0000		
Chloroform	U	1.0000		
Chloromethane	U	2.0000		
Dibromochloromethane	U	1.0000		
Ethylbenzene	U	1.0000		
Methylene_Chloride	B	1.0000	1.0000	U
Styrene	U	1.0000		
Tetrachloroethene	U	1.0000		
Toluene	U	1.0000		
Trichloroethene	U	1.0000		
Vinyl Chloride	U	2.0000		
Xylene (total)	U	1.0000		
cis-1,3-Dichloropropene	U	1.0000		
trans-1,3-Dichloropropene	U	1.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 *
****

Sample Collection Date: 4/28/93 Method: 8260/2 Units: UG/L Laboratory ID: 35912-031
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	U	1.0000		
1,1,2,2-Tetrachloroethane	U	1.0000		
1,1,2-Trichloroethane	U	1.0000		
1,1-Dichloroethane	U	1.0000		
1,1-Dichloroethene	U	1.0000		
1,2-Dichloroethane	U	1.0000		
1,2-Dichloroethene_(total)	U	1.0000		
1,2-Dichloropropane	U	1.0000		
2-Butanone	U	5.0000		
2-Hexanone	U	5.0000		
4-Methyl-2-pentanone	U	5.0000		
Acetone	U	5.0000		UJ
Benzene	U	1.0000		
Bromodichloromethane	U	1.0000		
Bromoform	U	1.0000		
Bromomethane	U	2.0000		
Carbon Disulfide	U	1.0000		
Carbon Tetrachloride	U	1.0000		
Chlorobenzene	U	1.0000		
Chloroethane	U	2.0000		
Chloroform	U	1.0000		
Chloromethane	U	2.0000		
Dibromochloromethane	U	1.0000		
Ethylbenzene	U	1.0000		
Methylene_Chloride	B	1.0000	1.0000	U
Styrene	U	1.0000		
Tetrachloroethene	U	1.0000		
Toluene	U	1.0000		
Trichloroethene	U	1.0000		
Vinyl Chloride	U	2.0000		
Xylene (total)	U	1.0000		
cis-1,3-Dichloropropene	U	1.0000		
trans-1,3-Dichloropropene	U	1.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 *
****

Sample Collection Date: 4/28/93 Method: 8260/2 Units: UG/L Laboratory ID: 35912-032
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	UJ
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform		2.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	U	1.0000	UJ
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 *
****

Sample Collection Date: 4/28/93 Method: 8260/2 Units: UG/L Laboratory ID: 35912-029
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	
1,1,1-Trichloroethane	J	.6000		
1,1,2,2-Tetrachloroethane	U	1.0000		
1,1,2-Trichloroethane	U	1.0000		
1,1-Dichloroethane	U	1.0000		
1,1-Dichloroethene	U	1.0000		
1,2-Dichloroethane	U	1.0000		
1,2-Dichloroethene_(total)	U	1.0000		
1,2-Dichloropropane	U	1.0000		
2-Butanone	U	5.0000		
2-Hexanone	U	5.0000		
4-Methyl-2-pentanone	U	5.0000		
Acetone	U	5.0000		
Benzene	U	1.0000		
Bromodichloromethane	U	1.0000		
Bromoform	U	1.0000		
Bromomethane	U	2.0000		
Carbon Disulfide	U	1.0000		
Carbon Tetrachloride	U	1.0000		
Chlorobenzene	U	1.0000		
Chloroethane	U	2.0000		
Chloroform	U	1.0000		
Chloromethane	U	2.0000		
Dibromochloromethane	U	1.0000		
Ethylbenzene	U	1.0000		
Methylene_Chloride	B	1.0000	1.0000	U
Styrene	U	1.0000		
Tetrachloroethene	U	1.0000		
Toluene	U	1.0000		
Trichloroethene	J	.6000		
Vinyl Chloride	U	2.0000		
Xylene (total)	U	1.0000		
cis-1,3-Dichloropropene	U	1.0000		
trans-1,3-Dichloropropene	U	1.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW17 *
****

Sample Collection Date: 4/29/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4053.6
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	27	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	27	UJ
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	J	4		2-Methylphenol	U	11	
2-Nitroaniline	U	27		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	27	R
4,6-Dinitro-2-methylphenol	U	27		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	UJ
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	27		4-Nitrophenol	U	27	
Acenaphthene	J	2		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	UJ
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11	UJ	Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	27	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW5 *
****

Sample Collection Date: 4/29/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4049.8
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	26	UJ
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	26		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	26	R
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	UJ
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	J	4		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	UJ
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	R
Fluorene	J	2		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11	UJ	Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	26	
Phenanthrene	J	1		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW7 *
****

Sample Collection Date: 4/29/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4052.8
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	UJ
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	J	3		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	R
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	UJ
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	J	2		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	UJ
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10	UJ	Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 *
****

Sample Collection Date: 4/28/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4044.7
Lab Receipt Date: 4/28/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	27	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	27	UJ
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	27		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	27	R
4,6-Dinitro-2-methylphenol	U	27		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	UJ
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	27		4-Nitrophenol	U	27	
Acenaphthene	U	11		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	UJ
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11	UJ	Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	27	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 *
****

Sample Collection Date: 4/28/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4045.5
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	27	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	27	
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	27		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	27	
4,6-Dinitro-2-methylphenol	U	27		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	27		4-Nitrophenol	U	27	
Acenaphthene	J	10		Acenaphthylene	J	1	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	J	1	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11		Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	27	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	J	1		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 *
****

Sample Collection Date: 4/28/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4046.3
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	27	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	27	
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	27		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	27	
4,6-Dinitro-2-methylphenol	U	27		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	27		4-Nitrophenol	U	27	
Acenaphthene	U	11		Acenaphthylene	J	1	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11		Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	27	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 *
****

Sample Collection Date: 4/28/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4043.9
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	26	
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	26		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	26	
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	U	11		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11		Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	26	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW17 *
****

Sample Collection Date: 4/29/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4053.6
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	162.0000	U
ANTIMONY	U	30.0000	
ARSENIC	B	4.2000	U
BARIUM	B	72.8000	U
BERYLLIUM	U	1.0000	
BORON	B	259.0000	U
CADMIUM	U	2.0000	
CALCIUM	*	96900.0000	J
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	*	1810.0000	J
LEAD	B	1.2000	U
MAGNESIUM	*	15300.0000	J
MANGANESE	*	487.0000	J
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	*	12000.0000	J
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM	*	49400.0000	J
THALLIUM	U	1.0000	
VANADIUM	U	5.0000	
ZINC	B	8.9000	U

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW5 *
****

Sample Collection Date: 4/29/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4049.8
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
ALUMINUM		210.0000	U
ANTIMONY	U	30.0000	
ARSENIC	B	4.5000	U
BARIUM		398.0000	
BERYLLIUM	U	1.0000	
BORON	B	374.0000	U
CADMIUM	U	2.0000	
CALCIUM	*	44300.0000	J
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	B*	68.6000	U
LEAD	W	6.0000	
MAGNESIUM	*	9740.0000	J
MANGANESE	*	191.0000	J
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	*	7870.0000	J
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM	*	31800.0000	J
THALLIUM	UW	1.0000	
VANADIUM	U	5.0000	
ZINC	B	3.3000	U

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW7 *
****

Sample Collection Date: 4/29/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4052.8
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
ALUMINUM		215.0000	U
ANTIMONY	U	30.0000	UJ
ARSENIC	B	3.9000	U
BARIUM	B	71.6000	U
BERYLLIUM	U	1.0000	UJ
BORON	B	353.0000	U
CADMIUM	U	2.0000	UJ
CALCIUM	*	89200.0000	J
CHROMIUM	U	4.0000	UJ
COBALT	U	3.0000	UJ
COPPER	U	3.0000	UJ
CYANIDE	U	10.0000	UJ
IRON	*	1600.0000	J
LEAD	B	1.9000	U
MAGNESIUM	*	14100.0000	J
MANGANESE	*	461.0000	J
MERCURY	U	.1800	UJ
NICKEL	U	9.0000	UJ
POTASSIUM	*	11100.0000	J
SELENIUM	U	1.0000	UJ
SILVER	U	4.0000	UJ
SODIUM	*	45200.0000	J
THALLIUM	UW	1.0000	UJ
VANADIUM	U	5.0000	UJ
ZINC	B	3.6000	U

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 *
****

Sample Collection Date: 4/28/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4044.7
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	158.0000	U
ANTIMONY	U	30.0000	
ARSENIC	BW	4.9000	U
BARIUM	B	131.0000	
BERYLLIUM	U	1.0000	
BORON	B	340.0000	U
CADMIUM	U	2.0000	
CALCIUM	*	54700.0000	J
CHROMIUM	U	4.0000	
COBALT	B	4.4000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	*	12000.0000	
LEAD	B	1.0000	U
MAGNESIUM	*	20400.0000	J
MANGANESE	*	3490.0000	J
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	*	21400.0000	J
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM	*	143000.0000	J
THALLIUM	B	5.4000	U
VANADIUM	U	5.0000	
ZINC	B	3.2000	U

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 *
****

Sample Collection Date: 4/28/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4045.5
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	191.0000	U
ANTIMONY	U	30.0000	UJ
ARSENIC	BW	3.8000	U
BARIUM	B	72.8000	U
BERYLLIUM	U	1.0000	UJ
BORON	B	407.0000	U
CADMIUM	U	2.0000	UJ
CALCIUM	*	75600.0000	J
CHROMIUM	U	4.0000	UJ
COBALT	U	3.0000	UJ
COPPER	U	3.0000	UJ
CYANIDE	U	10.0000	UJ
IRON	*	1910.0000	UJ
LEAD	B	1.8000	U
MAGNESIUM	*	27000.0000	J
MANGANESE	*	1450.0000	J
MERCURY	U	.1800	UJ
NICKEL	U	9.0000	UJ
POTASSIUM	*	14200.0000	J
SELENIUM	U	1.0000	UJ
SILVER	U	4.0000	UJ
SODIUM	*	156000.0000	J
THALLIUM	B	3.7000	U
VANADIUM	U	5.0000	UJ
ZINC	B	9.8000	U

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 *
****

Sample Collection Date: 4/28/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4046.3
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	158.0000	U
ANTIMONY	U	30.0000	UJ
ARSENIC	BW	4.2000	U
BARIUM	B	27.3000	U
BERYLLIUM	U	1.0000	UJ
BORON		924.0000	U
CADMIUM	U	2.0000	UJ
CALCIUM	*	18900.0000	J
CHROMIUM	U	4.0000	UJ
COBALT	U	3.0000	UJ
COPPER	U	3.0000	UJ
CYANIDE	U	10.0000	UJ
IRON	B*	64.4000	U
LEAD	B	2.2000	U
MAGNESIUM	*	8030.0000	J
MANGANESE	*	92.7000	J
MERCURY	U	.1800	UJ
NICKEL	U	9.0000	UJ
POTASSIUM	*	11800.0000	J
SELENIUM	U	1.0000	UJ
SILVER	U	4.0000	UJ
SODIUM	*	114000.0000	J
THALLIUM	BW	4.1000	U
VANADIUM	U	5.0000	UJ
ZINC	B	6.8000	U

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 *
****

Sample Collection Date: 4/28/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4043.9
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	144.0000	U
ANTIMONY	U	30.0000	
ARSENIC	BW	2.9000	U
BARIUM	B	58.2000	U
BERYLLIUM	U	1.0000	
BORON	B	220.0000	U
CADMIUM	B	3.1000	U
CALCIUM	*	30500.0000	J
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	B	24.4000	
CYANIDE	U	10.0000	
IRON	B*	44.3000	U
LEAD		117.0000	J
MAGNESIUM	B*	4030.0000	J
MANGANESE	B*	14.8000	U
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	*	5440.0000	J
SELENIUM	B	1.3000	
SILVER	U	4.0000	
SODIUM	*	18700.0000	J
THALLIUM	BW	2.6000	U
VANADIUM	U	5.0000	
ZINC		816.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW17 *
****

Sample Collection Date: 4/29/93 Units: UG/L Laboratory ID: 4053.6F
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte		Lab Result or DL	Validation Data
ALUMINUM		244.0000	U
ANTIMONY	U	30.0000	
ARSENIC	BW	4.2000	U
BARIUM	B	72.8000	U
BERYLLIUM	B	1.2000	U
BORON	BE	317.0000	U
CADMIUM	U	2.0000	
CALCIUM		100000.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON		1710.0000	
LEAD	BE	1.2000	U
MAGNESIUM		15500.0000	
MANGANESE		480.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM		12100.0000	
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM		49400.0000	
THALLIUM	U	1.0000	
VANADIUM	U	5.0000	
ZINC		37.7000	J

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW5 *
****

Sample Collection Date: 4/29/93 Units: UG/L Laboratory ID: 4049.8F
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	163.0000	
ANTIMONY	U	30.0000	
ARSENIC	U	2.0000	
BARIUM		382.0000	
BERYLLIUM	U	1.0000	
BORON	BE	316.0000	
CADMIUM	U	2.0000	
CALCIUM		42200.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON	B	28.3000	
LEAD	B	1.5000	
MAGNESIUM		9350.0000	
MANGANESE		174.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM		7640.0000	
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM		29800.0000	
THALLIUM	U	1.0000	
VANADIUM	U	5.0000	
ZINC	B	6.4000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20GW7 *
****

Sample Collection Date: 4/29/93 Units: UG/L Laboratory ID: 4052.8F
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	149.0000	U
ANTIMONY	U	30.0000	UJ
ARSENIC	B	4.9000	U
BARIUM	B	72.8000	U
BERYLLIUM	U	1.0000	UJ
BORON	BE	261.0000	U
CADMIUM	U	2.0000	UJ
CALCIUM		92300.0000	J
CHROMIUM	U	4.0000	UJ
COBALT	U	3.0000	UJ
COPPER	U	3.0000	UJ
CYANIDE	U*	10.0000	UJ
IRON		1550.0000	J
LEAD	B	1.6000	U
MAGNESIUM		14500.0000	J
MANGANESE		444.0000	J
MERCURY	U	.1800	UJ
NICKEL	U	9.0000	UJ
POTASSIUM		11500.0000	J
SELENIUM	U	1.0000	UJ
SILVER	U	4.0000	UJ
SODIUM		46700.0000	J
THALLIUM	U	1.0000	UJ
VANADIUM	U	5.0000	UJ
ZINC	B	6.8000	U

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW2 *
****

Sample Collection Date: 4/28/93 Units: UG/L Laboratory ID: 4044.7F
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	151.0000	
ANTIMONY	U	30.0000	
ARSENIC	BW	5.7000	
BARIUM	B	141.0000	
BERYLLIUM	U	1.0000	
BORON	BE	344.0000	
CADMIUM	B	3.1000	
CALCIUM		56300.0000	
CHROMIUM	U	4.0000	
COBALT	B	3.1000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON		12500.0000	
LEAD	B	1.8000	
MAGNESIUM		21200.0000	
MANGANESE		3600.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM		22100.0000	
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM		148000.0000	
THALLIUM	B	1.9000	
VANADIUM	U	5.0000	
ZINC	B	6.4000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW3 *
****

Sample Collection Date: 4/28/93 Units: UG/L Laboratory ID: 4045.5F
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	156.0000	
ANTIMONY	U	30.0000	
ARSENIC	BW	4.0000	
BARIUM	B	71.0000	
BERYLLIUM	U	1.0000	
BORON	BE	396.0000	
CADMIUM	U	2.0000	
CALCIUM		69900.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON		1570.0000	
LEAD	B	1.6000	
MAGNESIUM		24800.0000	
MANGANESE		1330.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM		13000.0000	
SELENIUM	UW	1.0000	
SILVER	U	4.0000	
SODIUM		144000.0000	
THALLIUM	BW	1.2000	
VANADIUM	U	5.0000	
ZINC	U	3.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW4 *
****

Sample Collection Date: 4/28/93 Units: UG/L Laboratory ID: 4046.3F
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	136.0000	
ANTIMONY	U	30.0000	
ARSENIC	B	2.7000	
BARIUM	B	26.5000	
BERYLLIUM	U	1.0000	
BORON	E	939.0000	
CADMIUM	U	2.0000	
CALCIUM		19900.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U*	10.0000	
IRON	B	39.1000	
LEAD	B	1.8000	
MAGNESIUM		8210.0000	
MANGANESE		100.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM		12200.0000	
SELENIUM	UW	1.0000	
SILVER	U	4.0000	
SODIUM		115000.0000	
THALLIUM	B	2.0000	
VANADIUM	U	5.0000	
ZINC	B	3.5000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 20MW6 *
****

Sample Collection Date: 4/28/93 Units: UG/L Laboratory ID: 4043.9F
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93 Method: ILM02.1 SOW Dissolve

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	133.0000	
ANTIMONY	U	30.0000	
ARSENIC	BW	3.8000	
BARIUM	B	58.2000	
BERYLLIUM	U	1.0000	
BORON	BE	241.0000	
CADMIUM	U	2.0000	
CALCIUM		30000.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	B	21.1000	
CYANIDE	U*	10.0000	
IRON	B	80.2000	
LEAD		97.5000	
MAGNESIUM	B	4000.0000	
MANGANESE		16.9000	
MERCURY	U	.1800	
NICKEL	B	13.1000	
POTASSIUM		5390.0000	
SELENIUM	B	1.2000	
SILVER	U	4.0000	
SODIUM		18600.0000	
THALLIUM	BW	1.3000	
VANADIUM	U	5.0000	
ZINC		780.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20GW17 *
****

Sample Collection Date: 4/29/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35955-009
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20GW5 *
****

Sample Collection Date: 4/29/93 Method: 418.1,5038,E/1,3 Units: mg/L Laboratory ID: 35955-005
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20GW7 *
****

Sample Collection Date: 4/29/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35955-008
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW2 *
****

Sample Collection Date: 4/28/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35918-002
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/03/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW3 *
****

Sample Collection Date: 4/28/93 Method: 418.1,5038,E/1,3 Units: mg/L Laboratory ID: 35918-003
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/03/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW4 *
****

Sample Collection Date: 4/28/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35918-004
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/03/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 20MW6 *
****

Sample Collection Date: 4/28/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35918-001
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/03/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20GW17 *
****

Sample Collection Date: 4/29/93 Method: 608/1 Units: UG/L Laboratory ID: 35952-029
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
4,4'-DDT	U	.1000	
Aldrin	U	.0520	
Aroclor-1016	U	1.0000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.0000	
Aroclor-1242	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1260	U	1.0000	
Dieldrin	U	.1000	
Endosulfan I	U	.0520	
Endosulfan II	U	.1000	
Endosulfan sulfate	U	.1000	
Endrin	U	.1000	
Endrin aldehyde	U	.1000	
Endrin ketone	U	.1000	
Heptachlor	U	.0520	
Heptachlor epoxide	U	.0520	
Methoxychlor	U	.5200	
Toxaphene	U	5.2000	
alpha-BHC	U	.0520	
alpha-Chlordane	U	.0520	
beta-BHC	U	.0520	
delta-BHC	U	.0520	
gamma-BHC (Lindane)	U	.0520	
gamma-Chlordane	U	.0520	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20GW5 *
****

Sample Collection Date: 4/29/93 Method: 608/1 Units: UG/L Laboratory ID: 35952-025
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
4,4'-DDT	U	.1000	
Aldrin	U	.0500	
Aroclor-1016	U	1.0000	
Aroclor-1221	U	2.0000	
Aroclor-1232	U	1.0000	
Aroclor-1242	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1260	U	1.0000	
Dieldrin	U	.1000	
Endosulfan I	U	.0500	
Endosulfan II	U	.1000	
Endosulfan sulfate	U	.1000	
Endrin	U	.1000	
Endrin aldehyde	U	.1000	
Endrin ketone	U	.1000	
Heptachlor	U	.0500	
Heptachlor epoxide	U	.0500	
Methoxychlor	U	.5000	
Toxaphene	U	5.0000	
alpha-BHC	U	.0500	
alpha-Chlordane	U	.0500	
beta-BHC	U	.0500	
delta-BHC	U	.0500	
gamma-BHC (Lindane)	U	.0500	
gamma-Chlordane	U	.0500	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: GW7 *
****

Sample Collection Date: 4/29/93 Method: 608/1 Units: UG/L Laboratory ID: 35952-028
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0540	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0540	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0540	
Heptachlor epoxide	U	.0540	
Methoxychlor	U	.5400	
Toxaphene	U	5.4000	
alpha-BHC	U	.0540	
alpha-Chlordane	U	.0540	
beta-BHC	U	.0540	
delta-BHC	U	.0540	
gamma-BHC (Lindane)	U	.0540	
gamma-Chlordane	U	.0540	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW2 *
****

Sample Collection Date: 4/28/93 Method: 608/1 Units: UG/L Laboratory ID: 35912-024
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
4,4'-DDT	U	.1000	
Aldrin	U	.0520	
Aroclor-1016	U	1.0000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.0000	
Aroclor-1242	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1260	U	1.0000	
Dieldrin	U	.1000	
Endosulfan I	U	.0520	
Endosulfan II	U	.1000	
Endosulfan sulfate	U	.1000	
Endrin	U	.1000	
Endrin aldehyde	U	.1000	
Endrin ketone	U	.1000	
Heptachlor	U	.0520	
Heptachlor epoxide	U	.0520	
Methoxychlor	U	.5200	
Toxaphene	U	5.2000	
alpha-BHC	U	.0520	
alpha-Chlordane	U	.0520	
beta-BHC	U	.0520	
delta-BHC	U	.0520	
gamma-BHC (Lindane)	U	.0520	
gamma-Chlordane	U	.0520	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW3 *
****

Sample Collection Date: 4/28/93 Method: 608/1 Units: UG/L Laboratory ID: 35912-025
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0560	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0560	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0560	
Heptachlor epoxide	U	.0560	
Methoxychlor	U	.5600	
Toxaphene	U	5.6000	
alpha-BHC	U	.0560	
alpha-Chlordane	U	.0560	
beta-BHC	U	.0560	
delta-BHC	U	.0560	
gamma-BHC (Lindane)	U	.0560	
gamma-Chlordane	U	.0560	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW4 *
****

Sample Collection Date: 4/28/93 Method: 608/1 Units: UG/L Laboratory ID: 35912-026
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0540	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0540	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0540	
Heptachlor epoxide	U	.0540	
Methoxychlor	U	.5400	
Toxaphene	U	5.4000	
alpha-BHC	U	.0540	
alpha-Chlordane	U	.0540	
beta-BHC	U	.0540	
delta-BHC	U	.0540	
gamma-BHC (Lindane)	U	.0540	
gamma-Chlordane	U	.0540	

NAVAL SUBMARINE BASE - NEW LONDON
BERTH 16/FORMER INCINERATOR
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: 20MW6 *
****

Sample Collection Date: 4/28/93 Method: 608/1 Units: UG/L Laboratory ID: 35912-023
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
4,4'-DDT	U	.1000	
Aldrin	U	.0520	
Aroclor-1016	U	1.0000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.0000	
Aroclor-1242	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1260	U	1.0000	
Dieldrin	U	.1000	
Endosulfan I	U	.0520	
Endosulfan II	U	.1000	
Endosulfan sulfate	U	.1000	
Endrin	U	.1000	
Endrin aldehyde	U	.1000	
Endrin ketone	U	.1000	
Heptachlor	U	.0520	
Heptachlor epoxide	U	.0520	
Methoxychlor	U	.5200	
Toxaphene	U	5.2000	
alpha-BHC	U	.0520	
alpha-Chlordane	U	.0520	
beta-BHC	U	.0520	
delta-BHC	U	.0520	
gamma-BHC (Lindane)	U	.0520	
gamma-Chlordane	U	.0520	

PIER 33 AND BERTH 16/FORMER INCINERATOR

SOILS AND GROUNDWATER

OIL FINGERPRINTING

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5510 Date Received: 4/09/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

ER5: Spectra typical of light petroleum products (ie. Insulating oil; No.2 Fuel/Diesel oil) or petroleum product derivatives (ie. Plastics; Public Water Treatment Polymers) at trace levels.

ER7: Refer to sample ER5 comments.

ER9: Refer to sample ER5 comments.

ER11: No detection of these compounds was observed.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5510 Date Received: 4/09/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

19SS1: Spectra typical of No. 2 / Diesel fuel oil.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5510 Date Received: 4/09/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

MISLABELED EJT

~~19MW2 (12-14)~~: Spectra typical of a heavy fuel oil (ie. No. 6 Fuel Oil).
→ 20MW2 (12-14)

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5510 Date Received: 4/09/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

20MW2 (14-16):	Spectra typical of a heavy residual fuel oil / road tar.
20MW3 (8-10):	Spectra unknown. Similar in characteristics to heavy equipment / "off road" industrial lube oil / bituminous concrete.
20MW4 (4-6):	Refer to 20MW2 comments.
20MW5 (6-8):	Spectra typical of No. 2 / Diesel Fuel oil.
20MW7 (4-6):	Refer to 20MW2 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5510 Date Received: 4/09/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

20SD1: Spectra typical of a heavy fuel oil (ie. No. 6 fuel oil).

20SD2: Refer to sample 20SD1 comments.

Authorization: William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5510 Date Received: 4/09/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

19SD1:	Spectra typical of a heavy fuel oil (ie. No. 4 / No. 6 Fuel Oil).
19SD2:	Spectra typical of a heavy residual fuel oil (ie No. 6 Fuel Oil).
19SD11:	Refer to 19SD1 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5510 Date Received: 4/09/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

20TB1 (6-8):	Spectra typical of a heavy residual fuel oil / road tar.
20TB2 (14-16):	Unknown spectra consisting of light aromatic compounds.
20TB3 (10-12):	Spectra typical of a heavy fuel oil (ie. No. 6 Fuel Oil).
20TB4 (14-16):	Spectra typical of a heavy fuel oil (ie. No. 6 Fuel Oil).
20TB5 (4-6):	Refer to 20TB3 comments.
20TB7 (48-56):	Unknown spectra. Similar in characteristics to heavy equipment / "off road" industrial lube oil / bituminous concrete.
20TB11 (6-8):	Refer to 20TB1 comments.
20TB17 (48-56):	Spectra typical of bituminous concrete.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5439 Date Received: 3/26/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

19TB1 (6-8):	Sample typical of a heavy fuel oil (ie. No. 6 Fuel oil).
19TB2 (6-8):	Sample typical of a No. 2 Fuel/Diesel oil.
19TB3 (10-12):	Refer to sample 19TB1 comments.
19TB4 (4-6):	Refer to sample 19TB1 comments.
20TB6 (8-10):	Spectra unknown. Similar in characteristics to heavy equipment / "off road" industrial lube oil.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5439 Date Received: 3/26/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

19MW2 (4-6): Sample typical of a heavy fuel oil (ie. No. 6 Fuel oil).

19MW3 (4-6): Sample typical of a No. 2 Fuel/Diesel oil.

19MW4 (6-8): Refer to sample 19MW3 comments.

19MW12 (4-6): Refer to sample 19MW2 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5439 Date Received: 3/26/93

Project Pier 33/Berth 16 submitted for oil "fingerprinting" by fluorescence spectroscopy.

ER1: Spectra typical of light petroleum products (ie. Insulating oil; No.2 Fuel/Diesel oil) or petroleum product derivatives (ie. Plastics; Public Water Treatment Polymers) at trace levels.

ER2: Refer to sample ER1 comments.

ER3: No detection of these compounds was observed.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5628 Date Received: 6/17/93

Project 1256-15-02-03 submitted for oil "fingerprinting" by fluorescence spectroscopy.

FB1: Spectra typical of light petroleum products (ie. Insulating oil; No.2 Fuel/Diesel oil) or petroleum product derivatives (ie. Plastics; Public Water Treatment Polymers) at trace levels.

FB2: No detection of these compounds was observed.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5629 Date Received: 5/3/93

Project 1256-15-02-03 submitted for oil "fingerprinting" by fluorescence spectroscopy.

0427 ER1: Spectra typical of light petroleum products (ie. Insulating oil; No.2 Fuel/Diesel oil) or petroleum product derivatives (ie. Plastics; Public Water Treatment Polymers) at trace levels.

0429 ER3: Refer to 0427 ER1 comments.

0430 ER4: Refer to 0427 ER1 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5629 Date Received: 5/3/93

Project 1256-15-02-03 submitted for oil "fingerprinting" by fluorescence spectroscopy.

19MW1 0.25-2.25: No detection of these compounds was ovserved.

19MW11 0.25-2.25: Refer to 19MW1 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5629 Date Received: 5/3/93

Project 1256-15-02-03 submitted for oil "fingerprinting" by fluorescence spectroscopy.

20MW1 0.5-2.25: Spectra typical of heavy fuel oil (ie. No. 6 Fuel Oil).

20MW11 0.5-2.25: Refer to 20MW1 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5629 Date Received: 5/3/93

Project 1256-15-02-03 submitted for oil "fingerprinting" by fluorescence spectroscopy.

19GW2: Spectra typical of heavy residual fuel oil / road tar.

19GW3: Spectra typical of a heavy fuel oil (ie. No. 4 / No. 6 Fuel Oil).

19GW4: Refer to 19GW3 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5629 Date Received: 5/3/93

Project 1256-15-02-03 submitted for oil "fingerprinting" by fluorescence spectroscopy.

20GW5: Spectra typical of a heavy fuel oil (ie. No. 4 / No. 6 Fuel Oil).

20GW7: Refer to 20 GW5 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

niantic
envirolab incorporated

249 boston post road
east lyme, ct 06333

(203) 739-4080

Atlantic Environmental Services, Inc.
188 Norwich Avenue
P.O. Box 297
Colchester, CT 06415

Log number: C-5629 Date Received: 5/3/93

Project 1256-15-02-03 submitted for oil "fingerprinting" by fluorescence spectroscopy.

20MW2: Spectra typical of a heavy fuel oil (ie. No. 4 / No. 6 Fuel Oil).

20MW3: Refer to 20MW2 comments.

20MW4: Refer to 20MW2 comments.

20MW6: Refer to 20MW2 comments.

Authorization: William S. Georgian
William S. Georgian,
Director

0001

niantic
envirolab incorporated

249 boston post ro:
east lyme, ct 06333

(203) 739-4080

Post-It™ brand fax transmittal memo 7671	# of pages ▸ 1
To Barry Groux	From Stuart Bronson
Co. Atlantic	Co. Pace
Dept.	Phone #
Fax #	Fax # 7-20-93

Pace - New England
One Lafayette Road
Hampton, NH 03842

Log number: C-5630 Date Received: 5/11/93

Sample 35952-29C submitted for o: fingerprinting" by fluorescence spectroscopy.

20GW17 EJN

35952-29C: Spectra typical of a heavy fuel oil (ie. No. 4 / No. 6 Fuel Oil).

Authorization: William S. Georgian
William S. Georgian,
Director

ASTM D3650 ?

Atlantic Env
35952-29
"20GW17"

SD6-7

Barry Groux says this report + bill should've gone to him directly. called Niantic w. Georgian will re-issue report + invoice to Atlantic Env.
S. Bronson.

00018

SOILS
PARTICLE SIZE DISTRIBUTION

Quality Control: Particle Size Distribution
Sand, Silt & Clay with Sieve Analysis

Field I.D.:
Laboratory Number: 35519-1

Fraction	Percent (as received) Rep. 1	Rep. 2	Average	Relative Range (%)
Moisture	8.2	8.5	8.4	3.6
Peroxide digestible matter	2.8	1.6	2.2	54.5
Non-digestible fibrous matter	<0.1	<0.1	NC	NC
Sand and gravel:				
>4.75 mm (US Sieve No. 4)	6.4	20.6	13.5	105.2
<4.75 mm, >2.00 mm (US Sieve No. 10)	13.0	9.8	11.4	28.1
<2.00 mm, >1.00 mm (US Sieve No. 18)	13.3	11.1	12.2	18.0
<1.00 mm, >500 um (US Sieve No. 35)	17.7	15.1	16.4	15.9
<500 um, >250 um (US Sieve No. 60)	16.3	14.1	15.2	14.5
<250 um, >125 um (US Sieve No.120)	9.9	8.7	9.3	12.9
<125 um, >63 um (US Sieve No.230)	4.8	4.2	4.5	13.3
Silt <63 um, >4 um	5.4	4.4	4.9	20.4
Clay <4 um	1.9	1.7	1.8	11.1
Total:	99.7	99.8	99.8	0.1

ND = Not Determined
NC = Not calculable. Result(s) below detection limit

Laboratory Number: 35,519-5
Date: 03/29/93

Field I.D.: 032593 19MW3 (4-6)

Fraction		Percent (as received)
Moisture		11.5
Peroxide digestible material:		<0.1
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	<0.1
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	10.9
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	20.8
between 1.00 mm and 500 um	(US Sieve No. 35)	28.7
between 500 um and 250 um	(US Sieve No. 60)	19.9
between 250 um and 125 um	(US Sieve No.120)	6.4
between 125 um and 63 um	(US Sieve No.230)	1.1
less than 63 um	(Pan)	<0.1
Silt:		
between 63 um and 4 um		0.4
Clay:		
less than 4 um		0.6
	Total:	100.3

00002

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory Number: 35,519-1
Date: 03/29/93

Field I.D.: 032493 19MW2 (4-6)

Fraction		Percent (as received)
Moisture		8.2
Peroxide digestible material:		2.8
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	6.4
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	13.0
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	13.3
between 1.00 mm and 500 um	(US Sieve No. 35)	17.7
between 500 um and 250 um	(US Sieve No. 60)	16.3
between 250 um and 125 um	(US Sieve No.120)	9.9
between 125 um and 63 um	(US Sieve No.230)	4.8
less than 63 um	(Pan)	0.3
Silt:		
between 63 um and 4 um		5.4
Clay:		
less than 4 um		1.9
	Total:	100.0

Laboratory Number: 35,519-1dup
Date: 03/29/93

Field I.D.: 032493 19MW2 (4-6)

Fraction		Percent (as received)
Moisture		8.5
Peroxide digestible material:		1.6
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	20.6
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	9.8
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	11.1
between 1.00 mm and 500 um	(US Sieve No. 35)	15.1
between 500 um and 250 um	(US Sieve No. 60)	14.1
between 250 um and 125 um	(US Sieve No.120)	8.7
between 125 um and 0.063 mm	(US Sieve No.230)	4.2
less than 0.063 mm	(Pan)	0.2
Silt:		
between 63 um and 4 um		4.4
Clay:		
less than 4 um		1.7
	Total:	100.0

pace INCORPORATED THE ASSURANCE OF QUALITY

mislabeled
EJN!
(MW4)

Laboratory Number: 35,495-5
Date: 03/29/93

Field I.D.: 032393 ~~19TB1 (6-8)~~ 4-5.75

Fraction		Percent (as received)
Moisture		16.2
Peroxide digestible material:		<0.1
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	13.8
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	7.1
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	9.2
between 1.00 mm and 500 um	(US Sieve No. 35)	18.4
between 500 um and 250 um	(US Sieve No. 60)	20.2
between 250 um and 125 um	(US Sieve No.120)	10.6
between 125 um and 63 um	(US Sieve No.230)	3.3
less than 63 um	(Pan)	<0.1
Silt:		
between 63 um and 4 um		1.1
Clay:		
less than 4 um		0.8
	Total:	100.7

00004

pace INCORPORATED
THE ASSURANCE OF QUALITY

Quality Control: Particle Size Distribution
Sand, Silt & Clay with Sieve Analysis

Field I.D.:
Laboratory Number: 35519-1

Fraction		Percent (as received) Rep. 1	Rep. 2	Average	Relative Range (%)
Moisture		8.2	8.5	8.4	3.6
Peroxide digestible matter		2.8	1.6	2.2	54.5
Non-digestible fibrous matter		<0.1	<0.1	NC	NC
Sand and gravel:					
	>4.75 mm (US Sieve No. 4)	6.4	20.6	13.5	105.2
<4.75 mm,	>2.00 mm (US Sieve No. 10)	13.0	9.8	11.4	28.1
<2.00 mm,	>1.00 mm (US Sieve No. 18)	13.3	11.1	12.2	18.0
<1.00 mm,	>500 um (US Sieve No. 35)	17.7	15.1	16.4	15.9
<500 um,	>250 um (US Sieve No. 60)	16.3	14.1	15.2	14.5
<250 um,	>125 um (US Sieve No.120)	9.9	8.7	9.3	12.9
<125 um,	>63 um (US Sieve No.230)	4.8	4.2	4.5	13.3
Silt <63 um,	>4 um	5.4	4.4	4.9	20.4
Clay	<4 um	1.9	1.7	1.8	11.1
Total:		99.7	99.8	99.8	0.1

ND = Not Determined
NC = Not calculable. Result(s) below detection limit

Laboratory Number: 35,597-1
Date: 04/12/93

Field I.D.: 040193 20MW3 (8-10)

Fraction		Percent (as received)
Moisture		8.9
Peroxide digestible material:		<0.1
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	51.6
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	5.4
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	5.4
between 1.00 mm and 500 um	(US Sieve No. 35)	7.5
between 500 um and 250 um	(US Sieve No. 60)	7.2
between 250 um and 125 um	(US Sieve No.120)	6.3
between 125 um and 63 um	(US Sieve No.230)	4.6
less than 63 um	(Pan)	0.2
Silt:		
between 63 um and 4 um		3.5
Clay:		
less than 4 um		1.1
	Total:	101.7

Laboratory Number: 35,597-2
Date: 04/12/93

Field I.D.: 033193 20MW2 (14-16)

Fraction		Percent (as received)
Moisture		16.2
Peroxide digestible material:		0.4
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	1.8
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	5.7
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	6.7
between 1.00 mm and 500 um	(US Sieve No. 35)	14.1
between 500 um and 250 um	(US Sieve No. 60)	21.3
between 250 um and 125 um	(US Sieve No.120)	19.6
between 125 um and 63 um	(US Sieve No.230)	8.9
less than 63 um	(Pan)	0.4
Silt:		
between 63 um and 4 um		3.9
Clay:		
less than 4 um		1.0
	Total:	100.0

Method Reference: COE/EPA Plumb, 1981

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory Number: 35,558-3
Date: 04/12/93

Field I.D.: 033093 20MW4 (4-6)

Fraction		Percent (as received)
Moisture		12.6
Peroxide digestible material:		1.8
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	3.0
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	11.3
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	11.6
between 1.00 mm and 500 um	(US Sieve No. 35)	16.4
between 500 um and 250 um	(US Sieve No. 60)	16.1
between 250 um and 125 um	(US Sieve No.120)	12.5
between 125 um and 63 um	(US Sieve No.230)	8.3
less than 63 um	(Pan)	0.6
Silt:		
between 63 um and 4 um		4.4
Clay:		
less than 4 um		1.4
	Total:	100.0

Laboratory Number: 35,558-4
Date: 04/12/93

Field I.D.: 033093 20MW7 (4-6)

Fraction		Percent (as received)
Moisture		11.0
Peroxide digestible material:		2.2
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	5.9
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	12.2
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	11.2
between 1.00 mm and 500 um	(US Sieve No. 35)	19.7
between 500 um and 250 um	(US Sieve No. 60)	18.3
between 250 um and 125 um	(US Sieve No.120)	10.0
between 125 um and 63 um	(US Sieve No.230)	4.2
less than 63 um	(Pan)	0.2
Silt:		
between 63 um and 4 um		3.9
Clay:		
less than 4 um		1.2
	Total:	100.0

Method Reference: COE/EPA Plumb, 1981

pace INCORPORATED
THE ASSURANCE OF QUALITY

Laboratory Number: 35,524-1
Date: 03/29/93

Field I.D.: 032693 20MW6 (12-14)

Fraction		Percent (as received)
Moisture		13.4
Peroxide digestible material:		3.4
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	15.9
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	15.3
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	12.4
between 1.00 mm and 500 um	(US Sieve No. 35)	12.1
between 500 um and 250 um	(US Sieve No. 60)	12.0
between 250 um and 125 um	(US Sieve No.120)	6.6
between 125 um and 63 um	(US Sieve No.230)	3.3
less than 63 um	(Pan)	0.2
Silt:		
between 63 um and 4 um		3.6
Clay:		
less than 4 um		1.8
	Total:	100.0

Laboratory Number: 35,524-2
Date: 03/29/93

Field I.D.: 032693 20MW5 (6-8)

Fraction		Percent (as received)
Moisture		17.8
Peroxide digestible material:		4.3
Non-digestible fiberous material:		<0.1
Particle size:		
greater than 4.75 mm	(US Sieve No. 4)	7.6
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	7.1
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	6.6
between 1.00 mm and 500 um	(US Sieve No. 35)	11.7
between 500 um and 250 um	(US Sieve No. 60)	14.2
between 250 um and 125 um	(US Sieve No.120)	9.6
between 125 um and 63 um	(US Sieve No.230)	7.8
less than 63 um	(Pan)	1.0
Silt:		
between 63 um and 4 um		11.0
Clay:		
less than 4 um		1.3
	Total:	100.0

Method Reference: COE/EPA Plumb, 1981

pace INCORPORATED THE ASSURANCE OF QUALITY

Laboratory Number: 35,955-1 Field I.D.: X19MW1
Date: 05/07/93

Fraction		Percent (as received)
Moisture		23.0
Peroxide digestible material		2.8
Non-digestible fiberous material		<0.1
Sand and gravel:		
greater than 4.75 mm (US Sieve No. 4)		2.3
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	1.7
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	5.0
between 1.00 mm and 500 um	(US Sieve No. 35)	8.6
between 500 um and 250 um	(US Sieve No. 60)	9.2
between 250 um and 125 um	(US Sieve No.120)	8.8
between 125 um and 63 um	(US Sieve No.230)	8.8
less than 63 um	(Dust From Sieving, Passes No. 230)	1.3
Silt:		
between 63 um and 4 um		23.9
Clay:		
less than 4 um		4.6
	Total:	100.0

Laboratory Number: 35,955-1 Field I.D.: X20MW1
Date: 05/07/93

Fraction		Percent (as received)
Moisture		16.8
Peroxide digestible material		4.0
Non-digestible fiberous material		<0.1
Sand and gravel:		
greater than 4.75 mm (US Sieve No. 4)		9.3
between 4.75 mm and 2.00 mm	(US Sieve No. 10)	1.1
between 2.00 mm and 1.00 mm	(US Sieve No. 18)	3.0
between 1.00 mm and 500 um	(US Sieve No. 35)	8.5
between 500 um and 250 um	(US Sieve No. 60)	16.2
between 250 um and 125 um	(US Sieve No.120)	8.3
between 125 um and 63 um	(US Sieve No.230)	7.3
less than 63 um	(Dust From Sieving, Passes No. 230)	1.6
Silt:		
between 63 um and 4 um		21.9
Clay:		
less than 4 um		2.0
	Total:	100.0

Method Reference: COE/EPA Plumb, 1981

pace INCORPORATED THE ASSURANCE OF QUALITY

PIER 33 AND BERTH 16/FORMER INCINERATOR

SOILS QA/QC

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER10 *
****

Sample Collection Date: 4/06/93 Method: 8260/2 Units: UG/L Laboratory ID: 35673-035
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	B	12.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform		2.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	2.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene		37.0000	
Trichloroethene	U	1.0000	
Vinyl Acetate	U	5.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER11 *
****

Sample Collection Date: 4/07/93 Method: 8260/2 Units: UG/L Laboratory ID: 35673-031
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/14/93

Analyte		Lab Result or DL	Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	B	10.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform		2.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	3.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene		39.0000	
Trichloroethene	U	1.0000	
Vinyl Acetate	U	5.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER2 *
****

Sample Collection Date: 3/23/93 Method: 8260/2 Units: UG/L Laboratory ID: 35490-026
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/01/93

Analyte		Lab Result or DL	Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone		32.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform		3.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	4.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER3 *
****

Sample Collection Date: 3/25/93 Method: 8260/2 Units: UG/L Laboratory ID: 35520-036
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone		32.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform		2.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	3.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER5 *
****

Sample Collection Date: 3/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35557-032
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone		12.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene		4.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)		3.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER7 *
****

Sample Collection Date: 3/31/93 Method: 8260/2 Units: UG/L Laboratory ID: 35593-028
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone		7.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone		42.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform		4.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	6.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER9 *
****

Sample Collection Date: 4/03/93 Method: 8260/2 Units: UG/L Laboratory ID: 35603-013
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone		9.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	E	44.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform		3.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	6.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene		1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB1 *
****

Sample Collection Date: 3/22/93 Method: 8260/2 Units: UG/L Laboratory ID: 35490-028
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	U	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB2 *
****

Sample Collection Date: 3/23/93 Method: 8260/2 Units: UG/L Laboratory ID: 35490-027
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	U	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB3 *
****

Sample Collection Date: 3/24/93 Method: 8260/2 Units: UG/L Laboratory ID: 35520-034
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropene	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB4 *
****

Sample Collection Date: 3/25/93 Method: 8260/2 Units: UG/L Laboratory ID: 35520-035
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB5 *
****

Sample Collection Date: 3/26/93 Method: 8260/2 Units: UG/L Laboratory ID: 35523-013
Lab Receipt Date: 3/27/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB6 *
****

Sample Collection Date: 3/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35557-031
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB7 *
****

Sample Collection Date: 3/31/93 Method: 8260/2 Units: UG/L Laboratory ID: 35593-029
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB8 *
****

Sample Collection Date: 4/03/93 Method: 8260/2 Units: UG/L Laboratory ID: 35603-014
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB9 *
****

Sample Collection Date: 4/07/93 Method: 8260/2 Units: UG/L Laboratory ID: 35673-036
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	B	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Acetate	U	5.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER10 *
****

Sample Collection Date: 4/06/93 Method: 625/1 Units: UG/L Laboratory ID: 35673-034
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/20/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER11 *
****

Sample Collection Date: 4/07/93 Method: 625/1 Units: UG/L Laboratory ID: 35673-030
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/20/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
Acenaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER2 *
****

Sample Collection Date: 3/23/93 Method: 625/1 Units: UG/L Laboratory ID: 35490-024
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	27	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	27	
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	27		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	27	
4,6-Dinitro-2-methylphenol	U	27		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	27		4-Nitrophenol	U	27	
cenaphthene	U	11		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11		Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	27	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER3 *
****

Sample Collection Date: 3/25/93 Method: 625/1 Units: UG/L Laboratory ID: 35520-039
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/02/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	25	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	25	
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	25		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	25	
4,6-Dinitro-2-methylphenol	U	25		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	25		4-Nitrophenol	U	25	
Acenaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	25	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER5 *
****

Sample Collection Date: 3/29/93 Method: 625/1 Units: UG/L Laboratory ID: 35557-029
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/06/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
enaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	UJ
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER7 *
****

Sample Collection Date: 3/31/93 Method: 625/1 Units: UG/L Laboratory ID: 35593-027
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10	UJ	2,4,5-Trichlorophenol	U	25	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	25	UJ
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	25		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	25	
4,6-Dinitro-2-methylphenol	U	25	UJ	4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	25		4-Nitrophenol	U	25	UJ
Acenaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	UJ
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	25	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER9 *
****

Sample Collection Date: 4/03/93 Method: 625/1 Units: UG/L Laboratory ID: 35603-012
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/22/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	28	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	28	
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	28		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	28	
4,6-Dinitro-2-methylphenol	U	28		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	28		4-Nitrophenol	U	28	
enaphthene	U	11		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11		Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11		Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	28	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: ER10 *
****

Sample Collection Date: 4/06/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35674-013
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: ER11 *
****

Sample Collection Date: 4/07/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35674-012
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/19/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: ER3 *
****

Sample Collection Date: 3/25/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35519-015
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: ER5 *
****

Sample Collection Date: 3/29/93 Method: 418.1,5038,E/1,3 Units: mg/L Laboratory ID: 35558-009
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: ER7 *
****

Sample Collection Date: 3/31/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35597-012
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: ER9 *
****

Sample Collection Date: 4/02/93 Method: 418.1,5038,E/1,3 Units: mg/L Laboratory ID: 35604-003
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: ER10 *
****

Sample Collection Date: 4/06/93 Method: 608/1 Units: UG/L Laboratory ID: 35673-034
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/23/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	.0520	
Endosulfan sulfate	U	.1000	
Aroclor-1260	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1016	U	1.0000	
Aldrin	U	.0520	
alpha-BHC	U	.0520	
beta-BHC	U	.0520	
delta-BHC	U	.0520	
Endosulfan II	U	.1000	
4,4'-DDT	U	.1000	
alpha-Chlordane	U	.0520	
gamma-Chlordane	U	.0520	
Aroclor-1242	U	1.0000	
Endrin ketone	U	.1000	
gamma-BHC (Lindane)	U	.0520	
Dieldrin	U	.1000	
Endrin	U	.1000	
Methoxychlor	U	.5200	
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
Endrin aldehyde	U	.1000	
Heptachlor	U	.0520	
Toxaphene	U	5.2000	
Endosulfan I	U	.0520	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: ER11 *
****

Sample Collection Date: 4/07/93 Method: 608/1 Units: UG/L Laboratory ID: 35673-030
Lab Receipt Date: 4/08/93
Sample Analysis Date: 4/23/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	.0540	
Endosulfan sulfate	U	.1100	
Aroclor-1260	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1016	U	1.1000	
Aldrin	U	.0540	
alpha-BHC	U	.0540	
beta-BHC	U	.0540	
delta-BHC	U	.0540	
Endosulfan II	U	.1100	
4,4'-DDT	U	.1100	
alpha-Chlordane	U	.0540	
gamma-Chlordane	U	.0540	
Aroclor-1242	U	1.1000	
Endrin ketone	U	.1100	
gamma-BHC (Lindane)	U	.0540	
Dieldrin	U	.1100	
Endrin	U	.1100	
Methoxychlor	U	.5400	
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
Endrin aldehyde	U	.1100	
Heptachlor	U	.0540	
Toxaphene	U	5.4000	
Endosulfan I	U	.0540	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: ER2 *
****

Sample Collection Date: 3/23/93 Method: 608/1 Units: UG/L Laboratory ID: 35490-024
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/01/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	.0500	
Endosulfan sulfate	U	.1000	
Aroclor-1260	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1221	U	2.0000	
Aroclor-1232	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1016	U	1.0000	
Aldrin	U	.0500	
alpha-BHC	U	.0500	
beta-BHC	U	.0500	
delta-BHC	U	.0500	
Endosulfan II	U	.1000	
4,4'-DDT	U	.1000	
alpha-Chlordane	U	.0500	
gamma-Chlordane	U	.0500	
Aroclor-1242	U	1.0000	
Endrin ketone	U	.1000	
gamma-BHC (Lindane)	U	.0500	
Dieldrin	U	.1000	
Endrin	U	.1000	
Methoxychlor	U	.5000	
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
Endrin aldehyde	U	.1000	
Heptachlor	U	.0500	
Toxaphene	U	5.0000	
Endosulfan I	U	.0500	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: ER3 *
****

Sample Collection Date: 3/25/93 Method: 608/1 Units: UG/L Laboratory ID: 35520-039
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/11/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	.0500	
Endosulfan sulfate	U	.1000	
Aroclor-1260	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1221	U	2.0000	
Aroclor-1232	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1016	U	1.0000	
Aldrin	U	.0500	
alpha-BHC	U	.0500	
beta-BHC	U	.0500	
delta-BHC	U	.0500	
Endosulfan II	U	.1000	
4,4'-DDT	U	.1000	
alpha-Chlordane	U	.0500	
gamma-Chlordane	U	.0500	
Aroclor-1242	U	1.0000	
Endrin ketone	U	.1000	
gamma-BHC (Lindane)	U	.0500	
Dieldrin	U	.1000	
Endrin	U	.1000	
Methoxychlor	U	.5000	
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
Endrin aldehyde	U	.1000	
Heptachlor	U	.0500	
Toxaphene	U	5.0000	
Endosulfan I	U	.0500	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: ER5 *
****

Sample Collection Date: 3/29/93 Method: 608/1 Units: UG/L Laboratory ID: 35557-029
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	.0520	
Endosulfan sulfate	U	.1000	
Aroclor-1260	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1016	U	1.0000	
Aldrin	U	.0520	
alpha-BHC	U	.0520	
beta-BHC	U	.0520	
delta-BHC	U	.0520	
Endosulfan II	U	.1000	
4,4'-DDT	U	.1000	
alpha-Chlordane	U	.0520	
gamma-Chlordane	U	.0520	
Aroclor-1242	U	1.0000	
Endrin ketone	U	.1000	
gamma-BHC (Lindane)	U	.0520	
Dieldrin	U	.1000	
Endrin	U	.1000	
Methoxychlor	U	.5200	
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
Endrin aldehyde	U	.1000	
Heptachlor	U	.0520	
Toxaphene	U	5.2000	
Endosulfan I	U	.0520	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: ER7 *
****

Sample Collection Date: 3/31/93 Method: 608/1 Units: UG/L Laboratory ID: 35593-027
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/14/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	.0520	UJ
Endosulfan sulfate	U	.1000	UJ
Aroclor-1260	U	1.0000	UJ
Aroclor-1254	U	1.0000	UJ
Aroclor-1221	U	2.1000	UJ
Aroclor-1232	U	1.0000	UJ
Aroclor-1248	U	1.0000	UJ
Aroclor-1016	U	1.0000	UJ
Aldrin	U	.0520	UJ
alpha-BHC	U	.0520	UJ
beta-BHC	U	.0520	UJ
delta-BHC	U	.0520	UJ
Endosulfan II	U	.1000	UJ
4,4'-DDT	U	.1000	UJ
alpha-Chlordane	U	.0520	UJ
gamma-Chlordane	U	.0520	UJ
Aroclor-1242	U	1.0000	UJ
Endrin ketone	U	.1000	UJ
gamma-BHC (Lindane)	U	.0520	UJ
Dieldrin	U	.1000	UJ
Endrin	U	.1000	UJ
Methoxychlor	U	.5200	UJ
4,4'-DDD	U	.1000	UJ
4,4'-DDE	U	.1000	UJ
Endrin aldehyde	U	.1000	UJ
Heptachlor	U	.0520	UJ
Toxaphene	U	5.2000	UJ
Endosulfan I	U	.0520	UJ

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: ER9 *
****

Sample Collection Date: 4/03/93 Method: 608/1 Units: UG/L Laboratory ID: 35603-012
Lab Receipt Date: 4/03/93
Sample Analysis Date: 4/23/93

Analyte	Lab Result or DL		Validation Data
Heptachlor epoxide	U	.0540	
Endosulfan sulfate	U	.1100	
Aroclor-1260	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1016	U	1.1000	
Aldrin	U	.0540	
alpha-BHC	U	.0540	
beta-BHC	U	.0540	
delta-BHC	U	.0540	
Endosulfan II	U	.1100	
4,4'-DDT	U	.1100	
alpha-Chlordane	U	.0540	
gamma-Chlordane	U	.0540	
Aroclor-1242	U	1.1000	
Endrin ketone	U	.1100	
gamma-BHC (Lindane)	U	.0540	
Dieldrin	U	.1100	
Endrin	U	.1100	
Methoxychlor	U	.5400	
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
Endrin aldehyde	U	.1100	
Heptachlor	U	.0540	
Toxaphene	U	5.4000	
Endosulfan I	U	.0540	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER10 *
****

Sample Collection Date: 4/06/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35673-032
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum	U	12.8000	
Antimony	B	12.4000	
Arsenic	U	.5000	
Barium	U	.9000	
Beryllium	U	.3000	
Boron	U	8.8000	
Cadmium	U	1.8000	
Calcium	B	50.6000	
Chromium	U	3.1000	
Cobalt	U	2.6000	
Copper	B	1.7000	
Cyanide	U	1.8000	
Iron	B	32.1000	
Lead		3.9000	
Magnesium	U	14.0000	
Manganese	U	.7000	
Mercury	U	.1000	
Nickel	U	8.0000	
Potassium	U	290.0000	
Selenium	U	.8000	
Silver	U	2.9000	
Sodium	B	100.0000	
Thallium	U	.6000	
Vanadium	U	5.0000	
Zinc	B	11.2000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER11 *
****

Sample Collection Date: 4/07/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35673-028
Lab Receipt Date: 4/08/93
Sample Analysis Date: 5/04/93

Analyte		Lab Result or DL	Validation Data
Aluminum	U	12.8000	
Antimony	U	12.3000	
Arsenic	U	.5000	
Barium	U	.9000	
Beryllium	U	.3000	
Boron	U	8.8000	
Cadmium	U	1.8000	
Calcium	B	51.4000	
Chromium	U	3.1000	
Cobalt	U	2.6000	
Copper	B	1.7000	
Cyanide	U	1.8000	
Iron	B	30.9000	
Lead		3.7000	
Magnesium	U	14.0000	
Manganese	U	.7000	
Mercury	U	.1000	
Nickel	U	8.0000	
Potassium	U	290.0000	
Selenium	U	.8000	
Silver	U	2.9000	
Sodium	B	176.0000	
Thallium	U	.6000	
Vanadium	U	5.0000	
Zinc	B	9.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER2 *
****

Sample Collection Date: 3/23/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35490-022
Lab Receipt Date: 3/24/93
Sample Analysis Date: 4/07/93

Analyte		Lab Result or DL	Validation Data
Aluminum	B	41.6000	
Antimony	U	14.4000	
Arsenic	U	1.0000	
Barium	B	.9900	
Beryllium	U	.4000	
Boron	U	17.0000	
Cadmium	U	2.5000	
Calcium	B	418.0000	
Chromium		21.2000	
Cobalt	U	2.6000	
Copper	B	15.0000	
Cyanide	U	1.8000	
Iron		1730.0000	
Lead	B	1.6000	
Magnesium	B	53.8000	
Manganese		21.9000	
Mercury	U	.2000	
Nickel	U	10.6000	
Potassium	U	343.0000	
Selenium	U	1.0000	
Silver	U	2.5000	
Sodium	B	2010.0000	
Thallium	U	.6000	
Vanadium	U	4.8000	
Zinc		25.5000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER3 *
****

Sample Collection Date: 3/25/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35520-037
Lab Receipt Date: 3/26/93
Sample Analysis Date: 4/07/93

Analyte	Lab Result or DL		Validation Data
Aluminum	U	21.6000	
Antimony	U	14.4000	
Arsenic	U	1.0000	
Barium	U	.8000	
Beryllium	U	.4000	
Boron	U	17.0000	
Cadmium	U	2.5000	
Calcium	B	17.8000	
Chromium	U	3.9000	
Cobalt	U	2.6000	
Copper	B	9.9000	
Cyanide	U	1.8000	
Iron	B	29.5000	
Lead	B	2.9000	
Magnesium	U	12.5000	
Manganese	U	1.0000	
Mercury	U	.2000	
Nickel	U	10.6000	
Potassium	U	343.0000	
Selenium	U	1.0000	
Silver	B	9.7000	
Sodium	B	177.0000	
Thallium	U	.6000	
Vanadium	U	4.8000	
Zinc	U	1.6000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER5 *
****

Sample Collection Date: 3/29/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35557-027
Lab Receipt Date: 3/31/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Aluminum	B	27.2000	U
Antimony	U	12.3000	UJ
Arsenic	U	1.0000	UJ
Barium	U	.9000	UJ
Beryllium	U	.3000	UJ
Boron	B	16.4000	U
Cadmium	U	1.8000	UJ
Calcium	B	52.7000	U
Chromium	U	3.1000	UJ
Cobalt	U	2.6000	UJ
Copper	B	1.6000	J
Cyanide	U	1.8000	UJ
Iron	B	99.8000	U
Lead	B	.7000	U
Magnesium	U	14.0000	UJ
Manganese	B	1.6000	U
Mercury	U	.1000	UJ
Nickel	U	8.0000	UJ
Potassium	U	290.0000	UJ
Selenium	B	1.1000	J
Silver	U	2.9000	UJ
Sodium	B	57.4000	U
Thallium	B	.6500	U
Vanadium	U	5.0000	UJ
Zinc	B	6.8000	U

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER7 *
****

Sample Collection Date: 3/31/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35593-025
Lab Receipt Date: 4/02/93
Sample Analysis Date: 4/27/93

Analyte		Lab Result or DL	Validation Data
Aluminum	B	22.9000	U
Antimony	U	12.3000	UJ
Arsenic	U	1.0000	UJ
Barium	U	.9000	UJ
Beryllium	U	.3000	UJ
Boron	B	13.7000	U
Cadmium	U	1.8000	UJ
Calcium	B	36.1000	U
Chromium	U	3.1000	UJ
Cobalt	U	2.6000	UJ
Copper	B	1.6000	J
Cyanide	U	1.8000	UJ
Iron	B	35.2000	U
Lead	B	.6500	U
Magnesium	U	14.0000	UJ
Manganese	B	1.3000	U
Mercury	U	.1000	UJ
Nickel	U	8.0000	UJ
Potassium	U	290.0000	UJ
Selenium	B	1.1000	J
Silver	U	2.9000	UJ
Sodium	B	43.0000	U
Thallium	U	.6000	UJ
Vanadium	U	5.0000	UJ
Zinc	B	5.9000	U

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER9 *
****

Sample Collection Date: 4/03/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35603-010
Lab Receipt Date: 4/03/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data
Aluminum	U	12.8000	
Antimony	U	12.3000	
Arsenic	U	.5000	
Barium	U	.9000	
Beryllium	U	.3000	
Boron	U	8.8000	
Cadmium	U	1.8000	
Calcium	B	35.2000	
Chromium	U	3.1000	
Cobalt	U	2.6000	
Copper	U	1.6000	
Cyanide	U	1.8000	
Iron	B	38.0000	
Lead	B	1.2000	
Magnesium	U	14.0000	
Manganese	B	1.0000	
Mercury	U	.1000	
Nickel	U	8.0000	
Potassium	U	290.0000	
Selenium	U	.8000	
Silver	U	2.9000	
Sodium	B	43.6000	
Thallium	U	.6000	
Vanadium	U	5.0000	
Zinc	B	1.5000	

PIER 33 AND BERTH/16 FORMER INCINERATOR

GROUNDWATER QA/QC

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 0427ER1 *
****

Sample Collection Date: 4/27/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4047.1
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
cenaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene	J	1	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	J	1	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 0429ER3 *
****

Sample Collection Date: 4/29/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4054.4
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	11		1,2-Dichlorobenzene	U	11	
1,3-Dichlorobenzene	U	11		1,4-Dichlorobenzene	U	11	
2,2'-oxybis(1-Chloropropane)	U	11		2,4,5-Trichlorophenol	U	27	
2,4,6-Trichlorophenol	U	11		2,4-Dichlorophenol	U	11	
2,4-Dimethylphenol	U	11		2,4-Dinitrophenol	U	27	UJ
2,4-Dinitrotoluene	U	11		2,6-Dinitrotoluene	U	11	
2-Chloronaphthalene	U	11		2-Chlorophenol	U	11	
2-Methylnaphthalene	U	11		2-Methylphenol	U	11	
2-Nitroaniline	U	27		2-Nitrophenol	U	11	
3,3'-Dichlorobenzidine	U	11		3-Nitroaniline	U	27	R
4,6-Dinitro-2-methylphenol	U	27		4-Bromophenyl-phenylether	U	11	
4-Chloro-3-methylphenol	U	11		4-Chloroaniline	U	11	
4-Chlorophenyl-phenylether	U	11		4-Methylphenol	U	11	
4-Nitroaniline	U	27	UJ	4-Nitrophenol	U	27	UJ
Acenaphthene	U	11		Acenaphthylene	U	11	
Anthracene	U	11		Benzo(a)anthracene	U	11	
Benzo(a)pyrene	U	11		Benzo(b)fluoranthene	U	11	
Benzo(g,h,i)perylene	U	11	UJ	Benzo(k)fluoranthene	U	11	
Butylbenzylphthalate	U	11		Carbazole	U	11	UJ
Chrysene	U	11		Di-n-butylphthalate	U	11	
Di-n-octylphthalate	U	11		Dibenz(a,h)anthracene	U	11	
Dibenzofuran	U	11		Diethylphthalate	U	11	
Dimethylphthalate	U	11		Fluoranthene	U	11	
Fluorene	U	11		Hexachlorobenzene	U	11	
Hexachlorobutadiene	U	11		Hexachlorocyclopentadiene	U	11	UJ
Hexachloroethane	U	11		Indeno(1,2,3-cd)pyrene	U	11	
Isophorone	U	11		N-Nitroso-di-n-propylamine	U	11	
N-Nitrosodiphenylamine (1)	U	11	UJ	Naphthalene	U	11	
Nitrobenzene	U	11		Pentachlorophenol	U	27	
Phenanthrene	U	11		Phenol	U	11	
Pyrene	U	11		bis(2-Chloroethoxy)methane	U	11	
bis(2-Chloroethyl)ether	U	11		bis(2-Ethylhexyl)phthalate	U	11	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 0430ER4 *
****

Sample Collection Date: 4/30/93 Method: OLM01.8 SOW Units: UG/L Laboratory ID: 4055.2
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/26/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
1,2,4-Trichlorobenzene	U	10		1,2-Dichlorobenzene	U	10	
1,3-Dichlorobenzene	U	10		1,4-Dichlorobenzene	U	10	
2,2'-oxybis(1-Chloropropane)	U	10		2,4,5-Trichlorophenol	U	26	
2,4,6-Trichlorophenol	U	10		2,4-Dichlorophenol	U	10	
2,4-Dimethylphenol	U	10		2,4-Dinitrophenol	U	26	
2,4-Dinitrotoluene	U	10		2,6-Dinitrotoluene	U	10	
2-Chloronaphthalene	U	10		2-Chlorophenol	U	10	
2-Methylnaphthalene	U	10		2-Methylphenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
3,3'-Dichlorobenzidine	U	10		3-Nitroaniline	U	26	
4,6-Dinitro-2-methylphenol	U	26		4-Bromophenyl-phenylether	U	10	
4-Chloro-3-methylphenol	U	10		4-Chloroaniline	U	10	
4-Chlorophenyl-phenylether	U	10		4-Methylphenol	U	10	
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
cenaphthene	U	10		Acenaphthylene	U	10	
Anthracene	U	10		Benzo(a)anthracene	U	10	
Benzo(a)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Benzo(g,h,i)perylene	U	10		Benzo(k)fluoranthene	U	10	
Butylbenzylphthalate	U	10		Carbazole	U	10	
Chrysene	U	10		Di-n-butylphthalate	U	10	
Di-n-octylphthalate	U	10		Dibenz(a,h)anthracene	U	10	
Dibenzofuran	U	10		Diethylphthalate	U	10	
Dimethylphthalate	U	10		Fluoranthene	U	10	
Fluorene	U	10		Hexachlorobenzene	U	10	
Hexachlorobutadiene	U	10		Hexachlorocyclopentadiene	U	10	
Hexachloroethane	U	10		Indeno(1,2,3-cd)pyrene	U	10	
Isophorone	U	10		N-Nitroso-di-n-propylamine	U	10	
N-Nitrosodiphenylamine (1)	U	10		Naphthalene	U	10	
Nitrobenzene	U	10		Pentachlorophenol	U	26	
Phenanthrene	U	10		Phenol	U	10	
Pyrene	U	10		bis(2-Chloroethoxy)methane	U	10	
bis(2-Chloroethyl)ether	U	10		bis(2-Ethylhexyl)phthalate	U	10	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 427ER1 *
****

Sample Collection Date: 4/27/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4047.1
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	111.0000	
ANTIMONY	U	30.0000	
ARSENIC	B	4.0000	
BARIUM	U	1.0000	
BERYLLIUM	U	1.0000	
BORON	B	212.0000	
CADMIUM	U	2.0000	
CALCIUM	U*	82.4000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	B*	21.2000	J
LEAD	BW	1.1000	
MAGNESIUM	U*	41.0000	
MANGANESE	U*	1.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	B*	171.0000	J
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM	B*	604.0000	J
THALLIUM	UW	1.0000	
VANADIUM	U	5.0000	
ZINC	B	4.2000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 429ER3 *
****

Sample Collection Date: 4/29/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4054.4
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93

Analyte		Lab Result or DL	Validation Data
ALUMINUM	B	125.0000	
ANTIMONY	U	30.0000	
ARSENIC	U	2.0000	
BARIUM	U	1.0000	
BERYLLIUM	U	1.0000	
BORON	B	181.0000	
CADMIUM	U	2.0000	
CALCIUM	U*	102.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	B*	13.8000	J
LEAD	UW	1.0000	
MAGNESIUM	U*	41.0000	
MANGANESE	U*	1.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	B*	159.0000	J
SELENIUM	UW	1.0000	
SILVER	U	4.0000	
SODIUM	B*	559.0000	J
THALLIUM	UW	1.0000	
VANADIUM	U	5.0000	
ZINC	B	6.2000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: 430ER4 *
****

Sample Collection Date: 4/30/93 Method: ILM02.1 SOW T Units: UG/L Laboratory ID: 4055.2
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/19/93

Analyte	Lab Result or DL		Validation Data
ALUMINUM	B	140.0000	
ANTIMONY	U	30.0000	
ARSENIC	U	2.0000	
BARIUM	U	1.0000	
BERYLLIUM	U	1.0000	
BORON	B	239.0000	
CADMIUM	U	2.0000	
CALCIUM	U*	102.0000	
CHROMIUM	U	4.0000	
COBALT	U	3.0000	
COPPER	U	3.0000	
CYANIDE	U	10.0000	
IRON	B*	15.9000	J
LEAD	UW	1.0000	
MAGNESIUM	U*	41.0000	
MANGANESE	U*	1.0000	
MERCURY	U	.1800	
NICKEL	U	9.0000	
POTASSIUM	B*	177.0000	J
SELENIUM	U	1.0000	
SILVER	U	4.0000	
SODIUM	B*	577.0000	J
THALLIUM	U	1.0000	
VANADIUM	U	5.0000	
ZINC	B	4.8000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 427ER1 *
****

Sample Collection Date: 4/27/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35918-005
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/03/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 429ER3 *
****

Sample Collection Date: 4/29/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35955-010
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.1000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR TOTAL PETROLEUM HYDROCARBONS

****
* SAMPLE ID: 430ER4 *
****

Sample Collection Date: 4/30/93 Method: 418.1,503B,E/1,3 Units: mg/L Laboratory ID: 35955-011
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
Petroleum Hydrocarbons by IR	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: 427ER1 *
****

Sample Collection Date: 4/27/93 Method: 608/1 Units: UG/L Laboratory ID: 35912-027
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/07/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
4,4'-DDT	U	.1000	
Aldrin	U	.0510	
Aroclor-1016	U	1.0000	
Aroclor-1221	U	2.0000	
Aroclor-1232	U	1.0000	
Aroclor-1242	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1260	U	1.0000	
Dieldrin	U	.1000	
Endosulfan I	U	.0510	
Endosulfan II	U	.1000	
Endosulfan sulfate	U	.1000	
Endrin	U	.1000	
Endrin aldehyde	U	.1000	
Endrin ketone	U	.1000	
Heptachlor	U	.0510	
Heptachlor epoxide	U	.0510	
Methoxychlor	U	.5100	
Toxaphene	U	5.1000	
alpha-BHC	U	.0510	
alpha-Chlordane	U	.0510	
beta-BHC	U	.0510	
delta-BHC	U	.0510	
gamma-BHC (Lindane)	U	.0510	
gamma-Chlordane	U	.0510	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: 429ER3 *
****

Sample Collection Date: 4/29/93 Method: 608/1 Units: UG/L Laboratory ID: 35952-030
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/08/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0540	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0540	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0540	
Heptachlor epoxide	U	.0540	
Methoxychlor	U	.5400	
Toxaphene	U	5.4000	
alpha-BHC	U	.0540	
alpha-Chlordane	U	.0540	
beta-BHC	U	.0540	
delta-BHC	U	.0540	
gamma-BHC (Lindane)	U	.0540	
gamma-Chlordane	U	.0540	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR PESTICIDES

****
* SAMPLE ID: 430ER4 *
****

Sample Collection Date: 4/30/93 Method: 608/1 Units: UG/L Laboratory ID: 35952-031
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/08/93

Analyte	Lab Result or DL		Validation Data
4,4'-DDD	U	.1100	
4,4'-DDE	U	.1100	
4,4'-DDT	U	.1100	
Aldrin	U	.0540	
Aroclor-1016	U	1.1000	
Aroclor-1221	U	2.2000	
Aroclor-1232	U	1.1000	
Aroclor-1242	U	1.1000	
Aroclor-1248	U	1.1000	
Aroclor-1254	U	1.1000	
Aroclor-1260	U	1.1000	
Dieldrin	U	.1100	
Endosulfan I	U	.0540	
Endosulfan II	U	.1100	
Endosulfan sulfate	U	.1100	
Endrin	U	.1100	
Endrin aldehyde	U	.1100	
Endrin ketone	U	.1100	
Heptachlor	U	.0540	
Heptachlor epoxide	U	.0540	
Methoxychlor	U	.5400	
Toxaphene	U	5.4000	
alpha-BHC	U	.0540	
alpha-Chlordane	U	.0540	
beta-BHC	U	.0540	
delta-BHC	U	.0540	
gamma-BHC (Lindane)	U	.0540	
gamma-Chlordane	U	.0540	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 0430TB1 *
****

Sample Collection Date: 4/30/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-039
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride		1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 427ER1 *
****

Sample Collection Date: 4/27/93 Method: 8260/2 Units: UG/L Laboratory ID: 35912-033
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	UJ
Benzene		1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene		1.0000	
Methylene_Chloride	B	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene		4.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)		4.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 429ER3 *
****

Sample Collection Date: 4/29/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-037
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone		27.0000	J
Benzene	J	.9000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	J	.8000	
Methylene_Chloride	U	1.0000	UJ
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene		11.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)		3.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: 430ER4 *
****

Sample Collection Date: 4/30/93 Method: 8260/2 Units: UG/L Laboratory ID: 35952-038
Lab Receipt Date: 5/01/93
Sample Analysis Date: 5/05/93

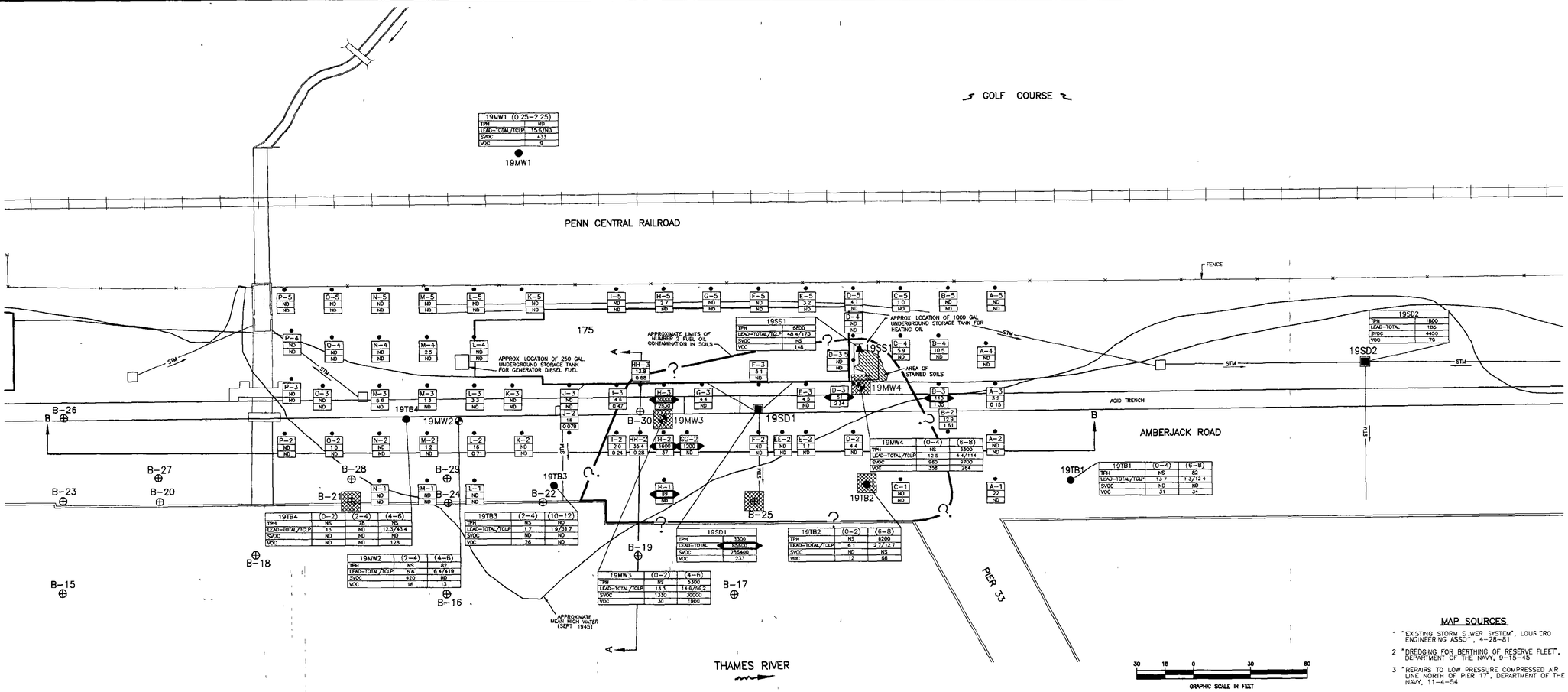
Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone		30.0000	
Benzene		4.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	J	.7000	
Methylene_Chloride	U	1.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene		5.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)		2.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
PIER 33 AND BERTH 16/FORMER INCINERATOR
QUALITY ASSURANCE/QUALITY CONTROL FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB20 *
****

Sample Collection Date: 4/28/93 Method: 8260/2 Units: UG/L Laboratory ID: 35912-035
Lab Receipt Date: 4/29/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data
1,1,1-Trichloroethane	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	
1,1,2-Trichloroethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
2-Hexanone	U	5.0000	
4-Methyl-2-pentanone	U	5.0000	
Acetone	U	5.0000	UJ
Benzene	U	1.0000	
Bromodichloromethane	U	1.0000	
Bromoform	U	1.0000	
Bromomethane	U	2.0000	
Carbon Disulfide	U	1.0000	
Carbon Tetrachloride	U	1.0000	
Chlorobenzene	U	1.0000	
Chloroethane	U	2.0000	
Chloroform	U	1.0000	
Chloromethane	U	2.0000	
Dibromochloromethane	U	1.0000	
Ethylbenzene	U	1.0000	
Methylene_Chloride	B	2.0000	
Styrene	U	1.0000	
Tetrachloroethene	U	1.0000	
Toluene	U	1.0000	
Trichloroethene	U	1.0000	
Vinyl Chloride	U	2.0000	
Xylene (total)	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	



19TB4	(0–2)	(2–4)	(4–6)
TPH	NS	78	NS
LEAD–TOTAL/TCLP	13	ND	12.3/43.4
SVOC	ND	ND	ND
VOC	ND	ND	128

19MW2	(2–4)	(4–6)
TPH	NS	82
LEAD–TOTAL/TCLP	6.6	6.4/419
SVOC	420	ND
VOC	16	13

19TB3	(2–4)	(10–12)
TPH	NS	ND
LEAD–TOTAL/TCLP	1.7	19/39.7
SVOC	ND	ND
VOC	26	ND

19MW3	(0–2)	(4–6)
TPH	NS	5300
LEAD–TOTAL/TCLP	13.3	14.6/58.2
SVOC	1330	30000
VOC	30	1900

19SD1	
TPH	3300
LEAD–TOTAL	80000
SVOC	254400
VOC	233

19TB2	(0–2)	(6–8)
TPH	NS	6200
LEAD–TOTAL/TCLP	6.1	27/12.7
SVOC	ND	NS
VOC	12	66

19MW4	(0–4)	(6–8)
TPH	NS	3300
LEAD–TOTAL/TCLP	12.5	4.4/114
SVOC	960	9700
VOC	336	264

19TB1	(0–4)	(6–8)
TPH	NS	82
LEAD–TOTAL/TCLP	13.7	1.3/12.4
SVOC	ND	ND
VOC	31	34

MAP SOURCES

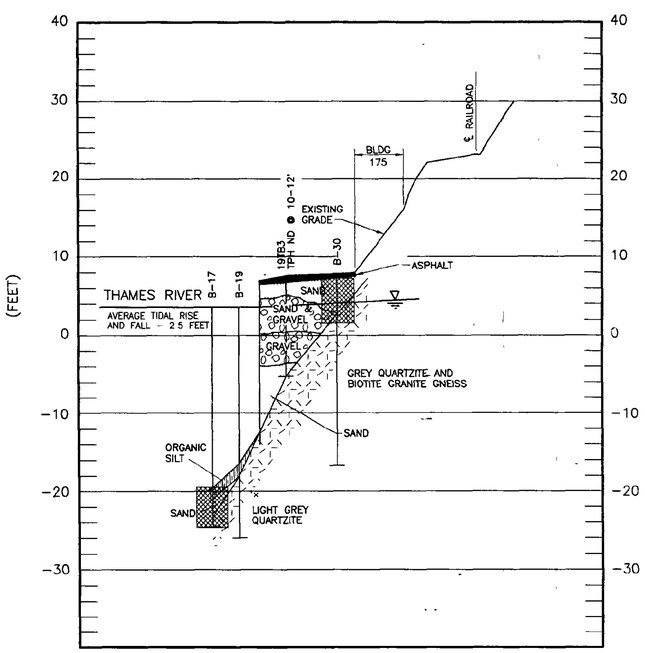
1 "EXISTING STORM SEWER SYSTEM", LOUR ZRO ENGINEERING ASSO., 4–28–81

2 "DREDGING FOR BERTHING OF RESERVE FLEET", DEPARTMENT OF THE NAVY, 9–13–45

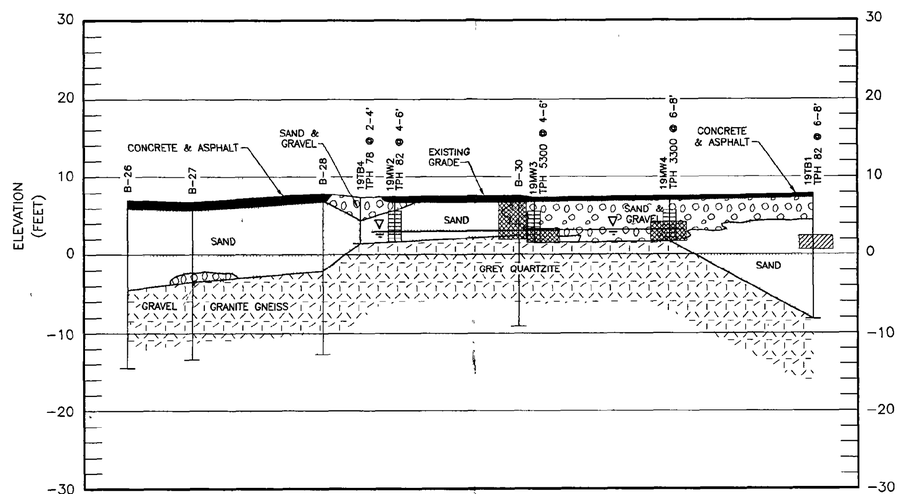
3 "REPAIRS TO LOW PRESSURE COMPRESSED AIR LINE NORTH OF PIER 17", DEPARTMENT OF THE NAVY, 11–4–54

NOTES

1 AREA OF NUMBER 2 FUEL OIL DELINEATION IS APPROXIMATE AND BASED ON THE AVAILABLE DATA. ADDITIONAL TESTING WOULD BE REQUIRED TO DEFINE THE LATERAL AND VERTICAL LIMITS



SECTION A–A



SECTION B–B

VISUAL PETROLEUM CONTAMINATION

OLFACTORY CONTAMINATION

HORIZONTAL GRAPHIC SCALE IN FEET

SAMPLING SUMMARY

SAMPLING INTERVALS

SAMPLE LOCATION IDENTIFIER

19MW2	(2–4)	(4–6)	
TPH	NS	82	TOTAL PETROLEUM HYDROCARBONS (ppm)
LEAD–TOTAL/TCLP	6.6	6.4/419	LEAD TOTAL LEAD(ppm) / TCLP LEAD(ppb)
SVOC	420	ND	TOTAL SEMI–VOLATILE ORGANIC COMPOUNDS (ppb)
VOC	16	13	TOTAL VOLATILE ORGANIC COMPOUNDS (ppb)

1600 – INDICATES TOTAL LEAD > 500 ppm and/or TCLP LEAD > 5 ppm

SOILGAS SAMPLING SUMMARY

P–2 — SOILGAS SAMPLE IDENTIFIER
ND — TOTAL VOLT–SECONDS (Vs)
ND — TOTAL BTEX ppm IN AIR

1600 – INDICATES MODERATE TO HIGH SOIL GAS CONCENTRATION > 50 Vs

PPM PARTS PER MILLION
PPB PARTS PER BILLION
ND NONE DETECTED
NS NOT SAMPLED

INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE–NEW LONDON
GROTON, CONN.

LEGEND

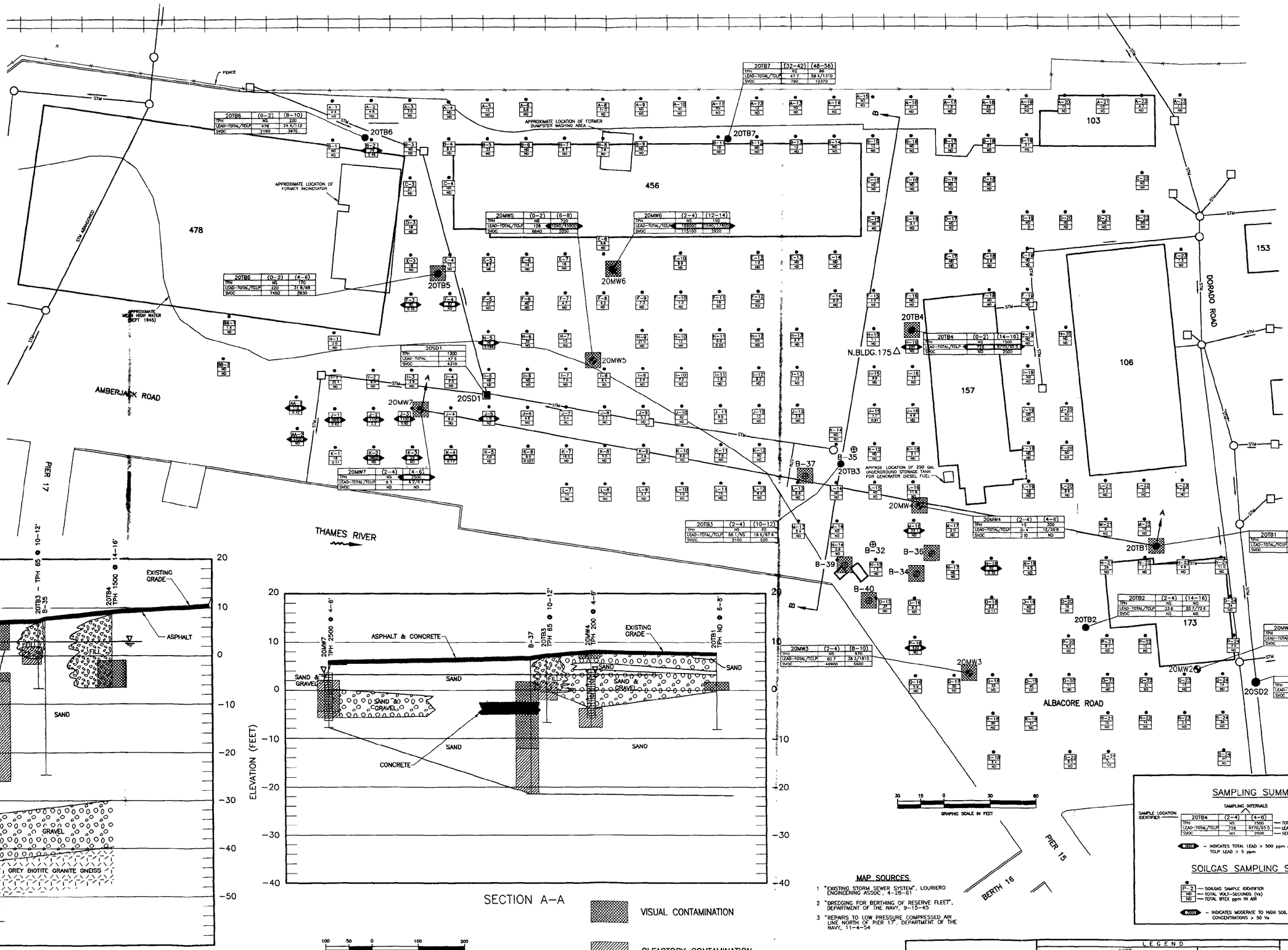
EXIST.

- B-20 PREVIOUS BORING PERFORMED BY MORRISON GEOTECHNICAL INC
- 19MW1 MONITORING WELL
- 19TB1 TEST BORING
- 19SD1 SEDIMENT SAMPLE
- 19SS1 SURFACE SOIL SAMPLE
- A-1 SOIL GAS SAMPLE POINT
- 123 BUILDING No
- UNDERGROUND STORAGE TANK
- STM STORM SEWER
- RAILROAD TRACKS

PLATE 1
FIELD SAMPLING RESULTS
PIER 33

ATLANTIC ENVIRONMENTAL SERVICES, INC

00634 01X



20TB7	(32-42)	(48-56)
TPH	NS	86
LEAD-TOTAL/TCLP	417.7	59.4/1310
SVOC	790	12370

20TB6	(0-2)	(8-10)
TPH	NS	220
LEAD-TOTAL/TCLP	476	24.4/112
SVOC	2190	3970

20TB5	(0-2)	(4-6)
TPH	NS	770
LEAD-TOTAL/TCLP	220	31.8/68
SVOC	7450	2930

20MW5	(0-2)	(6-8)
TPH	NS	720
LEAD-TOTAL/TCLP	128	1240/45900
SVOC	6640	2050

20MW6	(2-4)	(12-14)
TPH	NS	150
LEAD-TOTAL/TCLP	180000	1540/7450
SVOC	1151100	3900

20SD1	
TPH	1300
LEAD-TOTAL	47.5
SVOC	4310

20MW7	(2-4)	(4-6)
TPH	NS	2500
LEAD-TOTAL/TCLP	6.3	6.2/7.6
SVOC	ND	ND

20TB4	(0-2)	(14-16)
TPH	NS	1500
LEAD-TOTAL/TCLP	726	9770/65.5
SVOC	ND	2500

20TB3	(2-4)	(10-12)
TPH	NS	65
LEAD-TOTAL/TCLP	56.1/NS	16.6/87.6
SVOC	2190	520

20MW4	(2-4)	(4-6)
TPH	NS	200
LEAD-TOTAL/TCLP	21.4	13/20.8
SVOC	2.10	ND

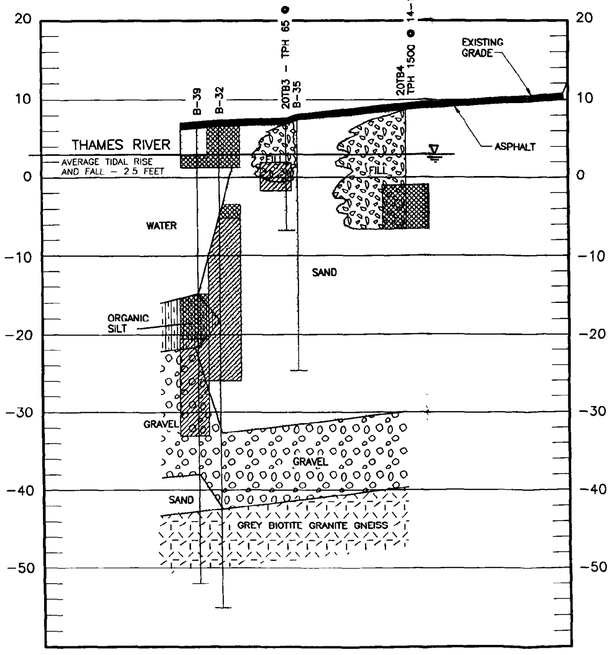
20TB1	(2-4)	(6-8)
TPH	NS	ND
LEAD-TOTAL/TCLP	35.5	2.2/4
SVOC	1240	ND

20TB2	(2-4)	(14-16)
TPH	NS	ND
LEAD-TOTAL/TCLP	33.6	20.7/73.6
SVOC	ND	ND

20MW3	(2-4)	(8-10)
TPH	NS	970
LEAD-TOTAL/TCLP	60.7	38.3/1810
SVOC	46900	5500

20MW2	(0-2)	(14-16)
TPH	NS	ND
LEAD-TOTAL/TCLP	85.1	2.7/94
SVOC	3300	ND

20SD2	
TPH	1100
LEAD-TOTAL	102
SVOC	10010



SECTION B-B

SECTION A-A

VISUAL CONTAMINATION

OLFACTORY CONTAMINATION

100 50 0 100 200
HORIZONTAL GRAPHIC SCALE IN FEET

MAP SOURCES

1 "EXISTING STORM SEWER SYSTEM", LOURIERO ENGINEERING ASSOC., 4-26-51

2 "DREDGING FOR BERTHING OF RESERVE FLEET", DEPARTMENT OF THE NAVY, 9-15-45

3 "REPAIRS TO LOW PRESSURE COMPRESSED AIR LINE NORTH OF PIER 17", DEPARTMENT OF THE NAVY, 11-4-54

SAMPLING SUMMARY

SAMPLING INTERVALS

SAMPLE LOCATION IDENTIFIER

20TB4	(2-4)	(4-6)
TPH	NS	1500
LEAD-TOTAL/TCLP	726	9770/65.5
SVOC	ND	2500

TPH — TOTAL PETROLEUM HYDROCARBONS (ppm)
LEAD-TOTAL/TCLP — LEAD TOTAL LEAD(ppm) / TCLP LEAD(ppb)
SVOC — SEMI-VOLATILE ORGANIC COMPOUNDS (ppb)

1200 – INDICATES TOTAL LEAD > 500 ppm AND/OR TCLP LEAD > 5 ppm

SOILGAS SAMPLING SUMMARY

P-2 — SOILGAS SAMPLE IDENTIFIER
ND — TOTAL VOLI-SECONDS (Vs)
ND — TOTAL BTEX ppm IN AIR

PPM PARTS PER MILLION
PPB PARTS PER BILLION
ND NONE DETECTED
NS NOT SAMPLED

9201 – INDICATES MODERATE TO HIGH SOIL GAS CONCENTRATIONS > 50 Vs

INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE-NEW LONDON
GROTON, CONN.

LEGEND

B-30 PREVIOUS BORING PERFORMED BY MORRISON GEOTECHNICAL INC

EXIST.
20MW1 MONITORING WELL
20TB1 TEST BORING
20SD1 SEDIMENT SAMPLE
A-1 SOIL GAS SAMPLE POINT

123 BUILDING No
UNDERGROUND STORAGE TANK
STM STORM SEWER
RAILROAD TRACKS

PLATE 2
FIELD SAMPLING RESULTS
BERTH 16/FORMER INCINERATOR

ATLANTIC ENVIRONMENTAL SERVICES, INC

00634 02X