

**U.S. DEPARTMENT OF THE NAVY
INSTALLATION RESTORATION PROGRAM**

**NAVAL AIR STATION BRUNSWICK
BRUNSWICK, MAINE**

REMEDIAL DESIGN SUMMARY REPORT

BUILDING 95

JUNE 1993

REMEDIAL DESIGN SUMMARY REPORT

BUILDING 95 REMOVAL ACTION
NAS BRUNSWICK, BRUNSWICK, MAINE

Prepared for:

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REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95 REMOVAL ACTION

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page No.</u>
1.0	INTRODUCTION	1
1.1	PURPOSE	1
1.2	SITE NAME, LOCATION, AND DESCRIPTION	1
2.0	DESIGN SUMMARY	1
2.1	ACTION MEMORANDUM OBJECTIVES	1
2.2	DESCRIPTION OF DESIGN COMPONENTS	2
2.3	PREDESIGN STUDIES	5
2.4	DESIGN ASSUMPTIONS	8
2.5	DESIGN CALCULATIONS	13
2.6	COMPLIANCE WITH REGULATORY REQUIREMENTS	13
3.0	EVALUATION OF WASTE DISPOSAL FACILITIES	22
4.0	CONSTRUCTION SCHEDULE	22
5.0	SUMMARY OF REQUIRED APPROVALS	25
6.0	MONITORING REQUIREMENTS	25
7.0	OPERATION AND MAINTENANCE REQUIREMENTS	25
8.0	PROJECT OPERATIONS PLANS	26

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

REFERENCES

APPENDICES

APPENDIX A - DESIGN CALCULATIONS

REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95 REMOVAL ACTION

LIST OF FIGURES

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
4-1	Construction Schedule	24

REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95 REMOVAL ACTION

LIST OF TABLES

<u>Table</u>	<u>Title</u>	<u>Page No.</u>
2-1	Analytical Soil Data: January 1993	6
2-2	Analytical Groundwater Data: February 1993	9
2-3	Potential Chemical - Specific ARARs	14
2-4	Potential Location - Specific ARARs	16
2-5	Potential Action - Specific ARARs	17
3-1	RCRA Incineration Facilities	23

REMEDIAL DESIGN SUMMARY REPORT

1.0 INTRODUCTION

1.1 PURPOSE

This Remedial Design Summary Report defines the design basis and provides design information for the removal action at Building 95 at the Naval Air Station (NAS) Brunswick in Brunswick, Maine. This report also includes the results of predesign fieldwork conducted in January 1993. Final drawings, specifications, and the construction cost estimate are being submitted with this report separately.

1.2 SITE NAME, LOCATION, AND DESCRIPTION

Building 95, located one block north of Fitch Avenue at the corner of Fifth Street and Avenue B, was the site of NAS Brunswick's pesticide/herbicide storage and mixing operations, and served as an office from 1955 until 1985. As a result of activities at the Building 95 site, pesticides were spread over about 1 acre. A 1992 site evaluation detected dichlorodiphenyltrichloroethane (DDT) at concentrations up to 17,000 milligrams per kilogram (mg/kg). DDT and other pesticides and herbicides contribute to the unacceptable human health and ecological risks estimated for exposure to site soils.

2.0 DESIGN SUMMARY

2.1 ACTION MEMORANDUM OBJECTIVES

The Building 95 removal action will be conducted in accordance with conditions identified in the Federal Facility Agreement (FFA) among the Navy, the U.S. Environmental Protection Agency (USEPA), and the Maine Department of Environmental Protection (MEDEP), by authority of Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act and the Resource Conservation and Recovery Act (RCRA) closure order signed by the Maine Board of Environmental Protection (the appointed board which oversees state environmental programs and which is authorized to issue such orders). The Navy notified the USEPA of its intent to pursue a "non-time critical" removal action in

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

accordance with Section 300.415 of the National Contingency Plan for structures and surface soils at Building 95. The U.S. Navy plans to implement the selected action specified in the Action Memorandum for the Building 95 site (ABB-ES, 1993). The removal action includes demolition of Building 95, relocation of Building 31 and a storage building, excavation and off-site incineration of soil contaminated with DDT and other pesticides, and backfilling and grading the site. This removal action addresses the human health and environmental risks associated with exposure to contaminated soils.

2.2 DESCRIPTION OF DESIGN COMPONENTS

The Building 95 removal action consists of the following components:

- site preparation
- removal of structures
- excavation
- transportation and incineration
- site restoration

Each of these components is described in detail in the following paragraphs.

Site Preparation. Preparation will include mobilization of all necessary equipment and construction trailers, installation of sediment control measures (i.e., hay bales or siltation fencing), and construction of a decontamination pad. Because of limited space at the site, the laydown area will be located across Sixth Street within the fuel tank farm area. Some trees and brush will be removed before commencing excavation; however, minimal impact to the pine grove north of Building 31 will be a goal during the removal action, to the extent practicable. Barriers will be maintained around the excavation to restrict access. Traffic will be rerouted around the site during the removal action.

Removal of Structures. The first part of the removal action will be to remove the three existing buildings, wooden walkways, railroad ties, and the septic tank, leachfield, and associated piping from the site. Utilities (overhead electric, underground water, and underground steam) serving Buildings 95 and 31 will be disconnected before removing these structures.

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

Building 31 and the storage shed have historically been used by asbestos abatement personnel, and wipe samples from interior surfaces of these buildings have indicated the presence of asbestos fibers. Insulation and other materials containing asbestos may be present in the buildings. Buildings 95 and 31 will be inspected for asbestos before demolition and removal activities commence. If necessary, appropriate asbestos abatement procedures will be followed.

Decontaminating DDT-contaminated debris generated from clearing and demolition activities will be required to comply with the alternative treatment standards for hazardous debris (40 CFR 268.45). Debris treated to meet the requirements of 40 CFR 268.45 can be disposed of in a construction debris landfill.

Exterior surfaces of Building 31 and the storage shed will be steam-cleaned and the structures moved to a site at the corner of Second Street and Burbank Avenue at NAS Brunswick. Site work at this location includes constructing concrete pier foundations; water, sewer, and electricity connections; and installing a chain-link fence.

The contents of the steel septic tank will be pumped into drums and disposed of as a hazardous waste at an approved facility. The septic tank will be excavated, cleaned in accordance with 40 CFR 268.45, and disposed of in a local construction debris landfill. Other material associated with the septic tank (i.e., open joint tile) will be cleaned in accordance with 40 CFR 268.45 and disposed of as debris.

Railroad ties along the southern boundary of the site within the area to be excavated will be removed, decontaminated, and disposed of according to the requirements of 40 CFR 268.45.

Excavation. Excavation involves the removal of soil exceeding the surface soil preliminary remediation goals (PRGs) of 0.5 mg/kg for DDT and 10 mg/kg for pyrethrin to a depth of 2 feet, and exceeding the subsurface soil PRG of 135 mg/kg for DDT. A minimum of 1,250 cubic yards of soil will be excavated and transported off site for incineration, but this estimate is subject to change based on the results of confirmation sampling. Stones larger than 2.5 inches will be disposed of in accordance with the alternative treatment standards for hazardous debris (40 CFR 268.45). Tree stumps and roots are expected to be chipped and included with contaminated soil for disposal.

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

To prevent dust, soil in the area of excavation will be kept moist at all times. The contractor will spray with potable water as necessary to maintain a moist soil condition.

Samples will be collected as part of the excavation activities to confirm complete removal of contaminated soils. Sampling and analysis will be performed in accordance with a Sampling and Analysis Plan, prepared and submitted by the contractor. The Sampling and Analysis Plan will be submitted to the Navy within thirty days of contract award, and will be provided to USEPA and MEDEP for review and comment. A total of 25 samples will be collected from the excavation sidewalls and an additional 13 samples will be collected from the bottom of the excavation. Areas from which samples exceed PRGs will require additional excavation. The extent of additional excavation will be established by the Contracting Officer. Additional sampling will then be conducted to confirm that PRGs have been attained.

Four monitoring wells were installed during predesign activities to establish groundwater flow direction and collect groundwater samples. These wells will be protected during the soil removal action.

Transportation and Incineration. Excavated soil will be loaded into covered rolloffs or lined dump trailers and transported by a licensed hazardous waste hauler to an off-site hazardous waste incinerator. The hauler must comply with hazardous waste transportation requirements outlined in 40 CFR Part 263 and 49 CFR Parts 107, 171, 172, 173, and 177. A manifest, signed by the Navy, must accompany each shipment. The Navy will be responsible for complying with RCRA generator requirements in 40 CFR Part 262. NAS Brunswick has a U.S. Environmental Protection Agency (USEPA) ID number as a hazardous waste generator.

Incineration of the Building 95 soils will be required to comply with Land Disposal Restrictions (40 CFR 268) after May 8, 1993, unless the capacity variance is extended. Several RCRA-permitted hazardous waste incinerators are available in the United States. However, the waste must be approved by the facility acceptance. The facilities typically require a representative soil sample and completed waste profile prior to approval. The approval process can take a few weeks to a few months, so it should be initiated before excavating the soil to minimize the amount of contaminated soil to be stockpiled. The disposal facility must also be in compliance with the USEPA Office of Solid Waste and Emergency Response Directive

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

No. 9834.11, Revised Procedures for Implementing Off-site Response Actions. The contractor will be required to provide evidence of compliance with this directive at the time of waste shipment.

Site Restoration. Following excavation and off-site transport of contaminated soils, the site will be restored. A geotextile fabric will be placed in the excavated area and fill will be placed, compacted, and graded to restore the former drainage pattern. The purpose of the geotextile fabric is to provide a physical separation between the clean fill and the native soil. A 6-inch vegetative layer will be placed over the fill material and seeded to establish a vegetated cover.

2.3 PREDESIGN STUDIES

Predesign field activities were conducted to better define site conditions. These activities included:

- Site Survey
- Surface Soil Sampling
- Groundwater Monitoring Well Installation
- Groundwater Sampling

The results of the analytical program are discussed below.

Surface Soil Samples. Twelve surface soil samples were collected at Building 95 in January 1993 for off-site laboratory analysis for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and herbicides, and Target Analyte List (TAL) inorganics. The purpose of the sampling program was to better define the area of soil requiring remediation. Five surface soil samples were collected north of Building 95, three surface soil samples were collected east of Sixth Street, and four surface soil samples were collected southeast of Building 95 and Avenue B. The analytical data are presented in Appendix A of the Action Memorandum (ABB-ES, 1993) and summarized in Table 2-1.

Total DDT, dichlorodiphenyldichloroethane (DDD) and dichlorodiphenyldichloroethylene (DDE) concentrations at 11 of the 12 sampling locations were below the ecological PRG of 0.5 mg/kg. The total DDT, DDD, and DDE concentration at

Installation Restoration Program

TABLE 2-1
ANALYTICAL SOIL DATA: JANUARY 1993

REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95
NAS BRUNSWICK

CONTAMINANT	SAMPLING LOCATION											
	SS-1 (mg/kg)	SS-2 (mg/kg)	SS-3 (mg/kg)	SS-4 (mg/kg)	SS-5 (mg/kg)	SS-6 (mg/kg)	SS-7 (mg/kg)	SS-8 (mg/kg)	SS-9 (mg/kg)	SS-10 (mg/kg)	SS-11 (mg/kg)	SS-12 (mg/kg)
delta BHC	--	--	0.001J	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	0.006J	0.004J	0.006J	0.004J	0.001J	0.002J	0.004J	0.013J	0.046J	0.020J	0.130J	--
4,4'-DDE	0.038J	0.038J	0.028J	0.008J	0.017J	0.073J	0.0110J	0.009J	0.420J	0.058J	0.039J	--
4,4'-DDD	0.016J	0.016J	0.009J	--	0.001J	0.010J	0.018J	--	0.099J	0.020J	--	--
4,4'-DDT	0.130J	0.14J	0.040J	0.015J	0.015J	0.100J	0.120J	0.021J	1.100J	0.250J	0.073J	--
Methoxychlor	--	--	--	--	--	--	--	--	--	--	0.055J	--
alpha-Chlordane	0.002J	0.001J	0.002J	--	--	0.002J	0.005J	--	0.029J	0.006J	0.016J	--
gamma-Chlordane	--	0.000097J	0.002J	--	--	0.000033J	0.003J	--	0.042J	--	--	--
Heptachlor	--	--	--	--	--	--	0.000063J	--	--	--	--	--
Rotenone	0.4	--	--	--	--	--	--	--	--	--	1.800	--
Pyrethrins (Total)	--	--	--	--	--	--	--	--	54	--	97	--
Total DDT, DDD, and DDE	0.184J	0.194	0.178	0.231	0.034	0.183	0.248	0.031	1.619	0.328	0.112	--

Notes:

mg/kg = milligrams per kilogram
J = estimated value
-- = not detected

REMEDIAL DESIGN SUMMARY REPORT

sampling location SS-9 was 1.6 mg/kg. Because this sampling location exceeds the PRG of 0.5 mg/kg total DDT, DDD, and DDE, it is included in the area to be excavated.

Total pyrethrin concentrations were also evaluated to confirm that the removal action included soils exceeding the 10 mg/kg ecological PRG for total pyrethrin. Total pyrethrin concentrations of 54 mg/kg and 970 mg/kg were detected at SS-9 and SS-11, respectively. Because these areas exceeded the ecological PRG for total pyrethrin they were included in the removal action. (SS-9 was identified as an area requiring remediation based on the results of the DDT, DDD and DDE concentrations.)

Groundwater Samples. Groundwater remediation is not part of the current design. The following is provided for general information only.

Four unfiltered groundwater samples were collected from properly installed and developed monitoring wells in February 1993. These samples were analyzed for TCL VOCs, SVOCs, pesticides and herbicides and TAL inorganics. These data are presented in Appendix A of the Action Memorandum (ABB-ES, 1993) and summarized in Table 2-2 of this report.

Six pesticides were detected in these groundwater samples: DDT, DDE, endrin, alpha chlordane, gamma chlordane, and heptachlor epoxide. Rotenone, previously detected in groundwater, was not detected during this sampling episode. Of these compounds, Maximum Contaminant Levels (MCLs) exist for endrin and heptachlor epoxide. The levels detected did not exceed MCLs; however, the two compounds were each detected once at concentrations in excess of their Maine Maximum Exposure Guideline (MEG).

One organic compound (carbon disulfide) and several inorganic compounds were also detected in the groundwater. These data are included in Table 2-2. None of these compounds were detected in excess of their respective MCLs or MEGs. Inorganic analytes detected but not included in Table 2-2 include calcium, iron, magnesium, manganese, potassium, sodium, and zinc. These analytes were detected within naturally occurring concentrations and are not present at concentrations considered to present health risks (see Appendix A, ABB-ES, 1993).

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

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2.4 DESIGN ASSUMPTIONS

The following is a list of assumptions that form the basis of the design of the Building 95 removal action.

Site Preparation:

1. The contractor will be able to use an area near Building 32 in the fuel tank farm for trailers and an equipment laydown area.
2. Access to Avenue B and Sixth Street will be restricted to traffic associated with the Building 95 removal action.

Installation Restoration Program

TABLE 2-2
ANALYTICAL GROUNDWATER DATA: FEBRUARY 1993

REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95
NAS BRUNSWICK

	95GWX01 (µg/L)	95GWX02 (µg/L)	95GWX03D (µg/L)	95GWX03 (µg/L)	95GWX04 (µg/L)	FEDERAL MCL (µg/L)	MAINE MEG (µg/L)
Carbon Disulfide	--	3J	--	--	--	NA	NA
4,4'-DDE	0.031J	--	--	--	0.062J	NA	NA
Endrin	0.39J	--	--	--	--	2	0.2
4,4'-DDT	0.34J	--	--	--	--	NA	0.83
alpha-Chlordane	0.051	--	--	--	--	2 ¹	0.27 ²
gamma-Chlordane	0.061J	--	47J	78J	0.14J	2 ¹	0.27 ²
Heptachlor Epoxide	--	--	--	--	0.048J	0.2	0.04
Aluminum	474J	339J	1,060J	785J	313J	NA	1,430
Arsenic	--	--	3J	--	--	50	30
Barium	--	75J	59.1J	54.9J	65.4J	2,000	1,000
Vanadium	5.1J	--	--	--	--	NA	NA

Notes:

µg/L = micrograms per liter
MCL = Maximum Contaminant Level. Promulgated Standards developed under the Safe Drinking Water Act (updated December, 1992).
MEG = Maximum Exposure Guideline. State criteria concentrations (updated May, 1990).
J = estimated value
NA = not available
-- = not detected

¹ MCL is for chlordane; no distinction between alpha or gamma.

² MEG is for chlordane; no distinction between alpha or gamma.

REMEDIAL DESIGN SUMMARY REPORT

3. Trees within the area to be excavated will be cut 1 foot above existing ground surface in a manner that does not allow the trunks or branches to come in contact with contaminated soil. Stumps and roots will be grubbed and treated as hazardous debris under 40 CFR 268.45. Timber will become the property of the contractor.
4. Temporary water service during construction will be established at a hydrant. The contractor shall coordinate with the base fire chief, and provide the labor and materials to make the connection. Water will be provided at no cost to the contractor.

Removal of Structures:

1. Underground utilities at the Building 95 site are active. At Building 31, they will be disconnected at the point where they enter the building, for ease of moving the building. The utilities to Buildings 95 and 31 will be capped and abandoned in place below ground. Pipes from Buildings 95 and 31 to the septic tank will be removed with the tank. The tank's contents will be pumped out and disposed of as hazardous waste before removing the tank.
2. Overhead electric lines will be disconnected at the pole. The abandoned pole between Avenue B and Building 31 will be removed and handled in a manner similar to that described for trees within the contaminated area.
3. Demolition debris (Building 95 and concrete foundations), railroad ties, roots and stumps, piping, open joint tile, and any other material larger than 2.5 inches (any dimension) intended for disposal will be considered contaminated with RCRA-listed waste, and can be treated by any of the methods outlined in 40 CFR 268.45, as long as the method is appropriate for the type of debris (e.g., porous or nonporous) and type of waste (e.g., low solubility). An option under this regulation is to incinerate the debris, but the requirements (i.e., analytical, separation of debris from soil, and size of material) may vary and should be obtained from the contracted incineration facility. If treated on site to prescribed treatment standards, the debris would no longer be considered hazardous and could be disposed of at a construction/demolition debris landfill.

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

4. Asbestos insulation is assumed to be present in the buildings because of the age of the buildings, and will need to be removed during demolition/relocation.
5. The interior of Building 31 and the equipment storage shed will need to be cleaned before relocation because of the presence of asbestos fibers. The building exteriors will be cleaned of surface dust and dirt that could contain DDT.
6. Building 31 and the storage shed will be moved intact.
7. Setback requirements for the buildings are 10 feet from the existing fence along Second Street and Burbank Avenue, and 5 feet from the new fence along the interior of the lot.
8. Water service to the new location will be copper tubing, and sewer service will be either ductile iron or polyvinyl chloride pressure pipe.

Excavation:

1. The excavation limit has been changed from that shown in the Engineering Evaluation/Cost Analysis report based on results of the January sampling program. The limit south of Avenue B has been extended to include two sample locations where the pyrethrin PRG was exceeded.
2. Although the excavation area will be marked on the plans, excavation beyond the demarcated limits will be required if analysis of confirmatory samples indicates that DDT or pyrethrin are present in excess of PRGs. Additional excavation will be as directed by the Contracting Officer.
3. Because Avenue B was constructed before pesticides were used at Building 95, pesticides are not believed to be present beneath the road, and Avenue B will not be excavated.
4. Subsurface soils beneath and around the septic tank and open joint tile overflow will be removed if sampling indicates they are contaminated with DDT in excess of the subsurface PRG (135 mg/kg). Such soil removal will be as directed by the Contracting Officer.

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

5. Decontamination will occur in an area where fluids generated during decontamination of equipment and trucks will be allowed to infiltrate the soil within the area to be excavated. However, once the contaminated soil in the vicinity of the decontamination pad has been removed, decontamination fluids will be contained and collected for off-site treatment and disposal. Collected decontaminated fluids will be considered to contain listed hazardous wastes and will be handled accordingly.
6. Monitoring wells located within the excavation area will be fitted with protective casings. If the wells are damaged during excavation, they will be replaced with new wells.
7. Confirmatory samples will be collected along the sidewalls of the excavation at 50-foot intervals. Also, samples will be collected from the bottom of the excavation at locations to be established by the Contracting Officer. In the event that target compounds are detected at levels exceeding PRGs, the Contracting Officer will direct the contractor to conduct additional sampling to better define the area of exceedance prior to excavating additional soil. The contractor's sampling plan will need to be approved by the Contracting Officer.

Transportation and Incineration:

1. All contaminated material on the exterior of transport vehicles must be removed to the satisfaction of the Contracting Officer before leaving the Building 95 site.
2. Contaminated soil will be transported off site via Fifth Street and Fitch Avenue and exit via the main gate between the hours of 8 a.m. and 5 p.m.
3. Transportation of soil, hazardous debris, sludge, and fluids from the site is regulated under RCRA and the U.S. Department of Transportation. Haulers will be licensed, and trucks will display appropriate placards for the type of waste being transported. A manifest, signed by the Navy, will accompany each load.
4. NAS Brunswick's USEPA ID number will be used to identify waste from the Building 95 site.

Installation Restoration Program

REMEDIAL DESIGN SUMMARY REPORT

5. The Treatment, Storage, or Disposal Facility (TSDF) selected by the Contractor must comply with OSWER Directive No. 9834.11.
6. The contractor will notify the USEPA of the selected TSDF prior to initiating the removal action.
7. The contractor will comply with the requirements of the selected TSDF and obtain the necessary approvals before waste is removed from the site.

Site Restoration:

1. A geotextile will be placed to cover the bottom and sidewalls of the excavation.
2. The site will be backfilled and graded such that the former drainage pattern is restored.
3. The fence around the fuel farm area that will be removed for excavation will be replaced.

2.5 DESIGN CALCULATIONS

Because of the nature of this project, design calculations are limited primarily to quantity calculations. Calculations are attached as Appendix A.

2.6 COMPLIANCE WITH REGULATORY REQUIREMENTS

Applicable or Relevant and Appropriate Requirements (ARARs) were identified in the Engineering Evaluation/Cost Analysis report for Building 95 (ABB-ES, 1992). These ARARs formed the basis of the design specifications and are summarized in Tables 2-3 through 2-5. Because the soils are contaminated with a listed hazardous waste, several RCRA regulations apply. Although groundwater at the site has been contaminated, ARARs for groundwater have not been included because the objective of this removal action is to remove soils contributing to unacceptable risks from exposure. Groundwater contamination will be addressed separately.

Installation Restoration Program

TABLE 2-3
 POTENTIAL CHEMICAL-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

REMEDIAL DESIGN SUMMARY REPORT
 BUILDING 95
 NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
AIR				
<u>Federal</u>	Clean Air Act - National Primary and Secondary Ambient Air Quality Standards (40 CFR 50)	Applicable	Primary ambient air quality standards define levels of air quality to protect public health. Secondary ambient air quality standards protect public welfare from known or anticipated adverse effects from pollutants.	Particulate standard for matter less than 10 microns is $150 \mu\text{g}/\text{m}^3$, 24-hour average concentration. Compliance will be achieved by wetting the soils during excavation and monitoring with a respirable dust monitor.
	National Emission Standards for Hazardous Air Pollutants - Asbestos Removal (40 CFR 61)	Applicable	This regulation describes the minimum standards, procedures, or actions taken or used for removal, enclosure, or encapsulation of asbestos-containing material or the renovation, demolition, maintenance, or repair of facilities with asbestos-containing materials.	If asbestos materials are found at the site, these regulations will be followed for removal of the material prior to demolition or removal of structures.
<u>State</u>	Establishment of Air Quality Regions (38 MRSA, Section 583; MEDEP Regs, Chapter 114)	Relevant and Appropriate	The Metropolitan Portland Air Quality Region is Class II.	Remedial actions should not result in the degradation of air quality classification. Compliance will be achieved by wetting the soils during excavation.
	Maine Ambient Air Quality Standards (38 MRSA, Section 584; MEDEP Regs, Chapter 110)	Applicable	This Chapter establishes ambient air quality standards that are maximum levels of a particular pollutant permitted in the ambient air.	Standards for specific contaminants include: (1) particulate matter - $150 \mu\text{g}/\text{m}^3$, 24-hour average concentration; (2) hydrocarbons - $160 \mu\text{g}/\text{m}^3$, 3-hour period. Compliance will be achieved by wetting the soils during excavation and monitoring with a respirable dust monitor.

14

TABLE 2-3
 POTENTIAL CHEMICAL-SPECIFIC ARARS, CRITERIA, ADVISORIES, AND GUIDANCE

REMEDIAL DESIGN SUMMARY REPORT
 BUILDING 95
 NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
SOIL				
<u>Federal Guidance and Advisories to be Considered</u>	USEPA Risk Reference Doses (RfDs)	To Be Considered	RfDs are considered the levels unlikely to cause significant adverse health effects associated with a threshold mechanism of action in human exposure for a lifetime.	USEPA RfDs are used to characterize risks due to noncarcinogens in soil. Preliminary remediation goals (PRGs) were established based on the risk assessment. Removal of soil with pesticide concentrations exceeding PRGs will reduce risks at the site. Confirmatory soil sampling will document attainment of PRGs.
	USEPA Human Health Assessment Group Cancer Slope Factors (CSFs)	To Be Considered	Carcinogenic effects present the most up-to-date information on cancer risk potency derived from USEPA's Human Health Assessment Group.	USEPA CSFs are used to compute the individual incremental cancer risk resulting from exposure to certain compounds in soil. PRGs were established based on the risk assessment. Removal of soil with pesticide concentrations exceeding PRGs will reduce risks at the site. Confirmatory soil sampling will document attainment of PRGs.

15

Notes:

ARAR = Applicable or Relevant and Appropriate Requirement
 CFR = Code of Federal Regulations
 CSF = cancer slope factor
 MEDEP = Maine Department of Environmental Protection
 MRSA = Maine Revised Statutes Annotated
 NAS = Naval Air Station
 PRG = preliminary remediation goal
 RCRA = Resource Conservation and Recovery Act
 RfD = reference dose

USEPA = U.S. Environmental Protection Agency
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter

TABLE 2-4
 POTENTIAL LOCATION-SPECIFIC ARARs, CRITERIA, ADVISORIES, AND GUIDANCE

REMEDIAL DESIGN SUMMARY REPORT
 BUILDING 95
 NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
<u>NATURAL RESOURCES</u>				
<u>State</u>	Maine Standards for Classification of Groundwater (38 MRSa, Section 470)	Applicable	This law requires the classification of the state's groundwater to protect, conserve, and maintain groundwater resources in the interest of the health, safety, and general welfare of the people of the state.	Under the Maine standards, groundwater is classified as GW-A. Activities associated with the removal action are not expected to impact groundwater, because excavation will primarily occur in the top 4 feet. The contents of the septic tank will be removed prior to excavating the tank to prevent leakage.
	Maine Inland Fisheries and Wildlife Laws and Regulations (12 MRSa Chapter 713, Section 7751)	Applicable	The State of Maine has authority to research, list and protect any species deemed endangered or threatened. These species are listed as either endangered or threatened in the state regulations. The Maine Department of Inland Fisheries and Wildlife has also developed the following administrative categories for species not considered endangered or threatened but considered important for research and further evaluation: Maine Watch List, Special Concern List, and Indeterminate Category. The Department determines appropriate use(s) of various habitats on a case-by-case basis. The Maine lists may differ from the federal lists of endangered species.	Three protected species at NAS Brunswick have been identified. Activities are not anticipated to impact protected species, because the Building 95 area does not include the habitat of these protected species.

Notes:

- ARAR = Applicable or Relevant and Appropriate Requirement
- MRSa = Maine Revised Statutes Annotated
- NAS = Naval Air Station

TABLE 2-5
 POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

REMEDIAL DESIGN SUMMARY REPORT
 BUILDING 95
 NAS BRUNSWICK

REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
<u>Federal</u>			
RCRA - General Facility Standards (40 CFR 264.10-264.18)	Relevant and Appropriate	General facility requirements outline general waste analysis, security measures, inspections, and training requirements.	Any facilities will be constructed, fenced, posted, and operated in accordance with this requirement. All workers will be properly trained.
RCRA - Preparedness and Prevention (40 CFR 264.30-264.37)	Relevant and Appropriate	This regulation outlines requirements for safety equipment and spill control for hazardous waste facilities. Part of the regulation includes a requirement that facilities be designed, maintained, constructed, and operated to minimize the possibility of an unplanned release that could threaten human health or the environment.	Safety and communication equipment will be installed at the site; local authorities will be familiarized with site operations.
RCRA - Contingency Plan and Emergency Procedures (40 CFR 264.50-264.56)	Relevant and Appropriate	This regulation outlines the requirements for emergency procedures to be used following explosions, fires, etc.	Plans will be developed and implemented during implementation of the removal action. Copies of the plans will be kept on site.
RCRA - Releases from Solid Waste Management Units (40 CFR 264.90-264.109)	Relevant and Appropriate	This regulation details groundwater monitoring requirements for hazardous waste treatment facilities. The regulation outlines general groundwater monitoring standards, as well as standards for detection monitoring, compliance monitoring, and corrective action monitoring.	General groundwater monitoring standards will be addressed as part of the base-wide monitoring program.
RCRA - Closure and Post-closure (40 CFR 264.110-264.120)	Relevant and Appropriate	This regulation details general requirements for closure and post-closure of hazardous waste facilities, including installation of a groundwater monitoring program.	Final cover will be established. A long-term monitoring program will be implemented.

**TABLE 2-5
POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

**REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95
NAS BRUNSWICK**

REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
RCRA - Waste Piles (40 CFR 264.250-264.269)	Applicable	This regulation details procedures, operating requirements, and closure and post-closure for waste piles. If removal or decontamination of all contaminated subsoils is not possible, closure and post-closure requirements for landfills must be attained.	Waste piles, if used for the temporary storage of hazardous waste on site, will be placed on bermed liners and covered to control run-on.
RCRA - Landfills (40 CFR 264.300-264.339)	Applicable	This regulation details the design, operation, monitoring, inspection, recordkeeping, closure, and permit requirements for a RCRA landfill. Two liners must be installed to prevent groundwater contamination. A leachate collection system must be placed above and between the liner systems.	Disposal of contaminated materials from NAS Brunswick must be to a facility that complies with all relevant and appropriate RCRA landfill regulations, including closure and post-closure.
RCRA - Incinerators (40 CFR 264.340 - 264.599)	Applicable	This regulation specifies the performance standards, operating requirements and monitoring, inspection, and closure guidelines of any incinerator burning hazardous waste.	Incineration of contaminated materials will occur at a RCRA-licensed facility permitted to receive wastes from Superfund sites.

18

**TABLE 2-5
POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

**REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95
NAS BRUNSWICK**

REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
RCRA Land Disposal Restrictions (40 CFR 268)	Applicable	Land disposal of RCRA hazardous wastes is restricted without specified treatment. It must be determined that the waste, beyond a reasonable doubt, meets the definition of one of the specified restricted wastes and the remedial action must constitute "placement" for the land disposal restrictions to be considered applicable. For each hazardous waste, the LDRs specify that the waste must be treated either by a treatment technology or to a concentration level prior to disposal in a RCRA Subtitle C permitted facility.	Excavated soils and contaminated debris are considered wastes subject to LDRs and will be handled and treated in compliance with these regulations. Building 95 soils will be incinerated, as specified in this regulation, before they are disposed of.
OSHA - General Industry Standards (29 CFR 1910)	Applicable	These regulations specify the 8-hour time-weighted average concentration for various organic compounds. Training requirements for workers at hazardous waste operations are specified in 29 CFR 1910.120.	Monitoring will be performed where warranted by site-conditions and proper respiratory equipment will be worn if it is impossible to maintain the work atmosphere below regulated levels. Workers performing activities will be required to have completed health and safety training requirements.
OSHA - Construction Standards (29 CFR 1926)	Applicable	This regulation specifies the type of safety equipment and procedures to be followed during site remediation. 29 CFR 1926.58 specifies the asbestos permissible exposure limit for worker exposure, the medical and training requirements for abatement workers, and respiratory protection requirements.	All appropriate safety equipment will be on site. In addition, safety procedures will be followed during on-site activities. Workers conducting asbestos abatement will follow the specific requirements in 29 CFR 1926.58.

19

**TABLE 2-5
POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

**REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95
NAS BRUNSWICK**

REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
OSHA - Recordkeeping, Reporting, and Related Regulations (29 CFR 1904)	Applicable	This regulation outlines the recordkeeping and reporting requirements for an employer under OSHA.	These requirements apply to all site contractors and subcontractors, and must be followed during all site work.
RCRA - Standards Applicable to Generators and Transporters of Hazardous Waste (40 CFR Parts 262 and 263)	Applicable	This requirement sets standards for generators of hazardous waste that address (1) accumulating waste, (2) preparing hazardous waste for shipment, and (3) preparing the uniform hazardous waste manifest. These requirements are integrated with DOT regulations.	Wastes shipped off site must be shipped in proper containers that are accurately marked and labeled, and the transporter must display proper placards. All waste shipments must be accompanied by an appropriate manifest and EPA Generator ID number.
DOT Rules for Transportation of Hazardous Materials (49 CFR Parts 107, 171 - 178)	Applicable	This regulation outlines procedures for the packaging, labeling, manifesting, and transporting of hazardous materials.	Contaminated materials will be packaged, manifested, and transported to a licensed off-site disposal facility in compliance with these regulations.
Federal Insecticide, Fungicide, and Rodenticide Act Regulations (FIFRA) - Disposal and Storage of Pesticides (40 CFR Part 165)	Applicable	FIFRA regulations include procedures for the storage and disposal of pesticides, pesticide-related wastes, and their containers.	FIFRA requirements are potentially applicable to pesticide-contaminated media. Remediation techniques requiring drumming, storage, or disposal of pesticide-contaminated wastes would need to incorporate these requirements.
<u>State</u>			
Maine Hazardous Waste Management Rules (MEDEP Regs, Chapters 800-802, 850, 851, 853-857)	Applicable	The rules provide a comprehensive program for handling, storage, and recordkeeping at hazardous waste facilities. They supplement the RCRA regulations.	Maine requirements will be met by complying with RCRA hazardous waste regulations.

20

**TABLE 2-5
POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS**

**REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95
NAS BRUNSWICK**

REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	COMPLIANCE DURING THE REMOVAL ACTION
Maine Asbestos Abatement Regulations (MEDEP Regs, Chapter 136)	Applicable	These regulations define requirements for the licencing of asbestos abatement contractors, workers, project supervisors, evaluation specialists, and design consultants, and training courses for each job category. These regulations also specify the minimum work practice requirements for asbestos abatement contractors.	These regulations will be followed for asbestos removal and cleaning of building interiors prior to demolition or removal of the structures.
Maine Solid Waste Disposal Regulations (MEDEP Regs, Chapters 400 - 409)	Applicable	These regulations define requirements for solid waste disposal facilities in the State of Maine. Disposal of construction/demolition wastes, and special wastes (including asbestos) is regulated in these chapters.	Disposal facilities in the State of Maine receiving waste from the Building 95 site will be in compliance with these regulations.

Notes:

- | | |
|---|--|
| CFR = Code of Federal Regulations | LDR = Land Disposal Restrictions |
| DOT = Department of Transportation (U.S.) | MEDEP = Maine Department of Environmental Protection |
| EPA = Environmental Protection Agency (U.S.) | NAS = Naval Air Station |
| FIFRA = Federal Insecticide, Fungicide, and Rodenticide Act | OSHA = Occupational Safety and Health Act |
| | RCRA = Resource Conservation and Recovery Act |

3.0 EVALUATION OF WASTE DISPOSAL FACILITIES

Several incineration facilities permitted to receive RCRA hazardous wastes were contacted for information on costs and permitting status. This information is presented in Table 3-1. Of the five companies contacted, four are currently permitted to accept hazardous waste from Superfund sites. Building 95 is located at NAS Brunswick, which is on the National Priorities List of hazardous waste sites.

The disposal site evaluation focused on hazardous waste incinerators located within a reasonable distance from Brunswick, Maine. The nearest hazardous waste incinerator currently permitted to accept Superfund site wastes is in South Carolina. Transportation costs were quoted based on different units (e.g., weight, distance, or load), making it difficult to compare costs. In general, transportation costs increase with distance, regardless of the units. While incineration facilities may provide transportation services through a subcontractor or subsidiary, it may be in the best interest of the Navy's contractor to subcontract transportation services to avoid the incineration facility's 15 percent cost markup.

Each disposal facility requires the waste to be characterized by sending a representative sample of the material to the facility's laboratory for analysis. A sample of each medium (e.g., soil, sludge, debris) must be sent in advance, accompanied by paperwork obtained from the facility. Each facility's requirements differ for sample volume, type of analyses, and scheduling, and should be clarified prior to sending the sample. The cost of these analyses varies from \$300 to \$1,000 per sample. Based on the results of the analyses, the facility will approve or disapprove the shipment.

Disposal (incineration) costs were generally quoted on a weight basis, and ranged from \$0.50 to \$1.00 per pound of material. One company quoted a cost per cubic yard.

The major costs and basic requirements of each facility are summarized in Table 3-1.

4.0 CONSTRUCTION SCHEDULE

Figure 4-1 presents the projected construction schedule for implementing the Building 95 Removal Action. The schedule assumes that the major submittals and

TABLE 3-1
RCRA INCINERATION FACILITIES

REMEDIAL DESIGN SUMMARY REPORT
BUILDING 95
NAS BRUNSWICK

NAME	LOCATION	PHONE	TRANSPORTATION COST	DISPOSAL COST	ANALYTICAL	TAX	OTHER COSTS	NOTES
Chemical Waste Management	Sauget, IL Port Arthur, TX E. Liverpool, OH	(800) 843-3604	\$4.05/mi	\$0.65/lb (2,000-3,000 Btu/lb)	\$1,000 (approval fee)	\$6.06/cy (IL)	\$50/load (liner fee)	Not currently CERCLA approved. E. Liverpool incinerator currently undergoing test burn. Base rates same for all - transportation distance makes a difference.
Rollins Environmental Services	Deer Park, TX	(713) 930-2300 (TX) (609) 467-3105 (NJ)	\$6,700/load \$0.17/lb	\$0.50/lb	\$1,000	\$19/ton (TX)	none	Custom Environmental Transport - subsidiary. No PCBs accepted; concern about dioxin.
Westinghouse	Coffeyville, KS	(412)937-4076	\$0.50/lb	\$1,000/ton (> 35,000 lbs)	\$500	did not quote	none	Do not need analytical data. Minimum 10 tons for bulk shipment. Plan on 1-2 months for scheduling, 2-3 weeks lab, 2-6 weeks approval.
ENSCO	El Dorado, AR	(501) 223-4100 (AR) (603) 888-4240 (NH)		\$0.75/lb	\$300	none	none	Plenty of capacity. No surcharges. Can arrange for shipping, but they will add 15% markup.
ThermalKern (formerly Stablex)	Rock Hill, SC	(803) 324-5310 (803) 329-9690	\$2,000/load	\$1,890/cy	did not quote	did not quote	did not quote	Can provide a person on site (free) to coordinate shipping. Can arrange for shipping, but they will add 15% markup.

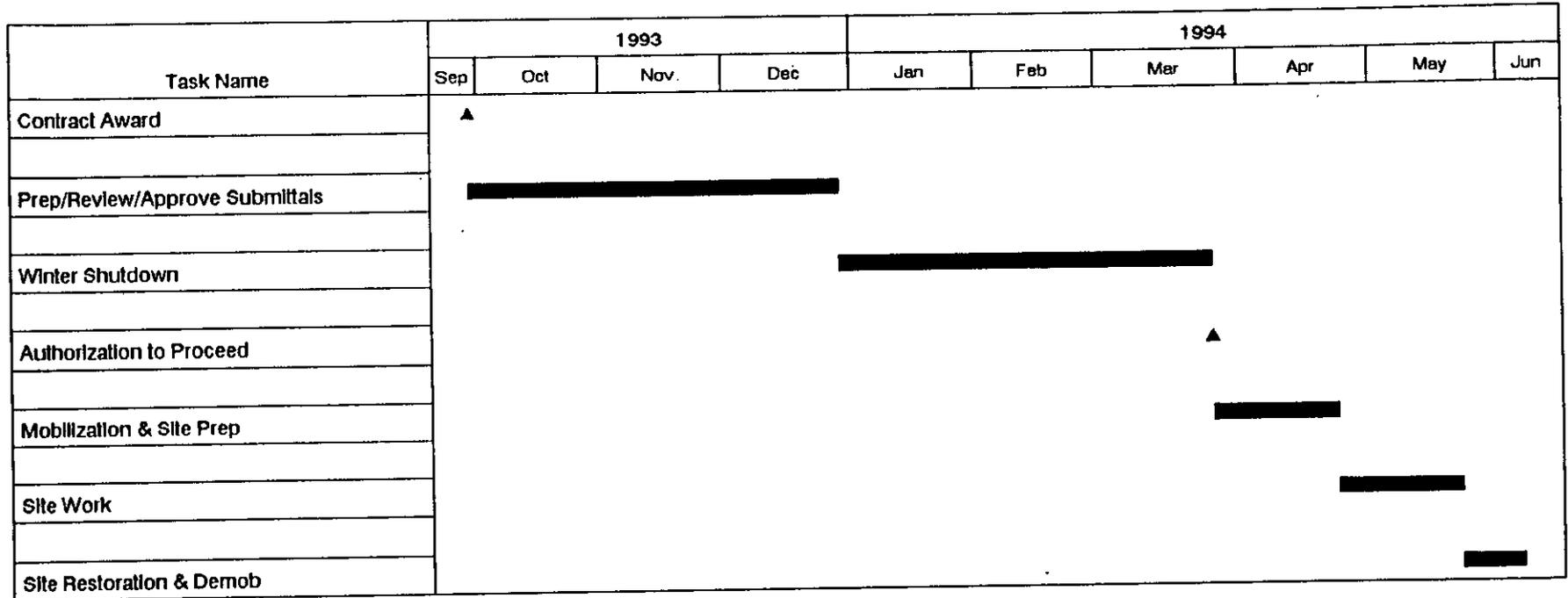


FIGURE 4-1
 PROJECTED CONSTRUCTION SCHEDULE
 BUILDING 95 SITE REMOVAL ACTION
 NAS BRUNSWICK, BRUNSWICK, MAINE

REMEDIAL DESIGN SUMMARY REPORT

approvals occur before the notice to proceed, and that the contractor can obtain analytical results within one week of sample collection. The projected schedule also currently shows a shutdown period for the winter months, with site work occurring in the spring of 1994. The sequence of activities shown is not mandated in the bid documents. The contractor will be submitting a proposed schedule for review and approval by the Navy.

5.0 SUMMARY OF REQUIRED APPROVALS

Substantive requirements of regulations applicable to the Building 95 Removal Action are to be met as described in Subsection 2.6. Permits for on-site actions are not required because the administrative permit requirements are waived for remedial activities at federal Superfund sites. Off-site activities, including waste transportation and disposal, must be accomplished in accordance with all applicable regulations and approvals. The contractor shall provide copies to the Navy of all appropriate permits for off-site activities. The contractor must also certify that the off-site disposal facilities chosen to receive wastes from the Building 95 Removal Action comply with the requirements of USEPA OSWER Directive 9834.11 (i.e., the "Off-site Disposal Policy").

6.0 MONITORING REQUIREMENTS

There is no long-term monitoring associated with the work included in this design. Long-term monitoring of groundwater at the Building 95 site is expected to occur under a separate action.

7.0 OPERATION AND MAINTENANCE REQUIREMENTS

There are no operation and maintenance requirements associated with the actions that are the subject of this design.

8.0 PROJECT OPERATIONS PLANS

Under the construction contract, the contractor will be required to prepare and submit a number of deliverables to the Navy for review. A list of the major deliverables and the technical specification section describing their requirements in detail is as follows:

- a. Construction Schedule - Section 01011
- b. Equipment Delivery Schedule - Section 01011
- c. Safety Plan - Section 01011
- d. Quality Control Plan - Section 01400
- e. Sampling and Analysis Plan - Section 01410
- f. Environmental Protection Plan - Section 01560
- g. Demolition Plan - Section 02050
- h. Asbestos Hazard Abatement Plan - Section 02080
- i. Work Plan - Section 02990
- j. Safety, Health, and Emergency Response Plan - Section 02995
- k. Spill Control Plan - Section 02995

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

ARAR	Applicable or Relevant and Appropriate Requirements
CFR	Code of Federal Regulations
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
MCL	Maximum Contaminant Level
MEG	Maximum Exposure Guideline
mg/kg	milligrams per kilogram
NAS	Naval Air Station
PRG	preliminary remediation goal
RCRA	Resource Conservation and Recovery Act
SVOC	semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TSDF	Treatment, Storage, and Disposal Facility
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

REFERENCES

ABB Environmental Services, Inc. (ABB-ES), 1992. "Engineering Evaluation/Cost Analysis Building 95"; Portland, Maine; November 1992.

ABB Environmental Services, Inc. (ABB-ES), 1993. "Action Memorandum Building 95"; Portland, Maine; April 1993.

APPENDIX A

DESIGN CALCULATIONS

PROJECT BUDG 95 CONFIRMATION SAMPLING	COMP. BY KHK	JOB NO. 712705
	CHK. BY KHK	DATE 3/26/93

OBJECTIVE

ESTIMATE MIN. NUMBER OF CONFIRMATORY SAMPLES TO TAKE AT B-95 EXCAVATION

ASSUMPTIONS

- START WITH ~50 FT SPACING AT PERIMETER AND THEN MOVE IN TO CENTER OF EXCAVATION

SUMMARY

- MINIMUM OF 30 SAMPLES REQUIRED

PROJECT BNAS ACCELERATED DESIGN BUILDING 95	COMP. BY KHL	JOB NO. 712705
	CHK BY TEK	DATE 3/8/93

GEOTEXTILE SEPARATION LAYER

SURFACE AREA TO BE COVERED:

FROM FIGURE 3 OF ACTION MEMO ⇒ EXCAVATION LIMITS

$$210 \text{ FT} \times 130 \text{ FT} - \underbrace{120 \times 18}_{\text{AVE. B}} = 25140 \text{ SF}$$

$$25140 \times (1.10) = 27654 \text{ SF} = \underline{\underline{3073 \text{ SY}}}$$

↑
OVERLAP
10%

ESTIMATED MAT'L & INSTALLATION PRICE (PHIL MARTIN)

$$\$1.00/\text{SY} \Rightarrow \boxed{\$3000-4000}$$

↑
CLOSE TO

PROJECT BUILDING 95 EXCAVATED SOIL VOLUME - REVISED	COMP. BY KAL	JOB NO. 712705
	CHK. BY KEK	DATE 3/20/93

Ⓐ • 1 FT REMOVAL AREA NORTH OF AVE B:

$$\bar{A} = 16527 \text{ SF}$$

Ⓑ • 2 FT AREA N OF AVE. B:

$$\bar{A} = 7175 \text{ SF}$$

TOTAL SURFACE AREA

Ⓒ • 4 FT. AREA N OF AVE B

$$\bar{A} = 827 \text{ SF}$$

Ⓓ • 1 FT AREA S OF AVE. B.

$$\bar{A} = 8217 \text{ SF}$$

$$V = 8217 \text{ CF} = \underline{\underline{304 \text{ CY}}}$$

$$V_{\text{Ⓐ}} = (16527 \text{ SF} - 7175 \text{ SF}) \frac{1 \text{ FT}}{27} = \underline{\underline{346 \text{ CY}}}$$

$$V_{\text{Ⓑ}} = (7175 - 827) \frac{2 \text{ FT}}{27} = \underline{\underline{470 \text{ CY}}}$$

$$V_{\text{Ⓒ}} = 827 \frac{(4 \text{ FT})}{27} = \underline{\underline{123 \text{ CY}}}$$

$$\text{TOTAL VOL} = \underline{\underline{1243 \text{ CY}}}$$

Say 1250 CY SOIL

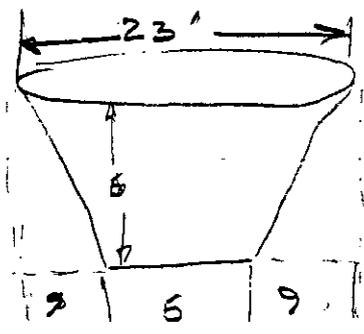
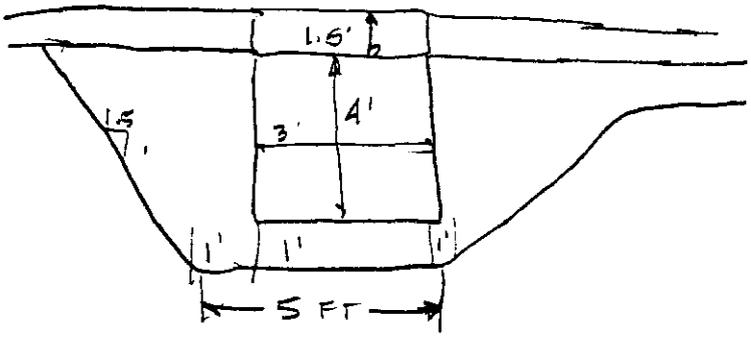
2/2

PROJECT
BIJAS BLDG 95

COMP. BY
KLL
CHK BY
KLL

JOB NO.
21205
DATE
4/30

SEPTIC TANK REMOVAL QUANTITIES



$$\begin{aligned} \pi(5)^2/4 &= 20 > \overline{217.5 \text{ CF}} \\ \pi(23)^2/4 &= 415 \\ V &= 6(217.5) = \underline{\underline{1300 \text{ CF}}} \end{aligned}$$

ADD 10% SWELL FOR BACKFILL

$$1300(1.1) = 1430 \text{ CF} / 27 = \underline{\underline{53 \text{ CY}}} \checkmark$$

SOIL REMOVED

$$1300 \text{ CF} - \pi(3)^2/4(4) = 1270 \text{ CF} = \underline{\underline{47 \text{ CY}}} \checkmark$$