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NAS BRUNSWICK
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FINAL SITE 17 WORK PLAN TO INVESTIGATE AND REMOVE RELOCATED SOILS WITH TRANSMITTAL LETTER NAS BRUNSWICK ME
10/3/2008
ECC

LETTER OF TRANSMITTAL

ECC
33 Boston Post Road West
Suite 340
Marlborough, MA 01772
Tel: (508) 229-2270
Fax: (508) 229-7737

TO: U.S. Department of Navy
BRAC PMO Northeast
4911 South Broad Street
Philiadephia, PA 19112-1303

DATE: 3 OCTOBER 2008	JOB NO.: 5700.017
ATTENTION: Todd Bober, RPM and Paul Burgio, BEC	
RE: Final Site 17 Work Plan to Investigate and Remove Relocated Soils Naval Air Station Brunswick, Maine	

WE ARE SENDING YOU [X] Attached [ ] Under separate cover via _____ the following items:

[ ] Shop drawings [ ] Prints [ ] Plans [ ] Samples [ ] Specifications

[ ] Copy of letter [ ] Change order [ ] _____

COPIES	DATE	DESCRIPTION
1	October 2008	FINAL SITE 17 WORK PLAN TO INVESTIGATE AND REMOVE RELOCATED SOILS, NAVAL AIR STATION BRUNSWICK, MAINE

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[ ] For approval [ ] Approved as submitted [ ] Resubmit _____ copies for approval

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L. Klink, TtNUS (1)
C. Race, TtNUS (1)
C. Guido, R. Phinney, ECC (2)
J. Fullerton, Curtis Memorial Library (1)

SIGNED Gina Calderone CPG, PG
Titles Project Manager/Hydrogeologist

Al Easterday, PG
Sr. Project Manager

If enclosures are not as noted, kindly notify us at once.

FINAL
SITE 17
WORK PLAN TO INVESTIGATE AND REMOVE RELOCATED SOILS
OCTOBER 2008

Naval Air Station
Brunswick, Maine

Prepared for

Department of the Navy
Naval Facilities Engineering Command
BRAC Program Management Office - Northeast
4911 South Broad Street
Philadelphia, Pennsylvania 19112-1303

Contract No. N62472-02-D-0810
Contract Task Order No. 017

October 2008

Prepared by

ECC
33 Boston Post Road West, Suite 340
Marlborough, MA 01752

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FINAL
SITE 17
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Naval Air Station
Brunswick, Maine

Prepared for

Department of the Navy
Naval Facilities Engineering Command
BRAC Program Management Office - Northeast
4911 South Broad Street
Philadelphia, Pennsylvania 19112-1303

Alexander Easterday P.G. — Date
Senior Project Manager

Gina M. Calderone P.G., C.P.G. — Date
Project Manager/Hydrogeologist

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1. INTRODUCTION

Under Contract No. N62472-02-D-0810, Naval Facilities Engineering Command issued Contract Task Order No. 017 to ECC to conduct investigation tasks at Site 17, the Former Pesticide Shop, at the Naval Air Station (NAS), Brunswick, Maine (Figure 1). This work plan has been generated to focus on conducting test pit excavations which will be accomplished at a discrete area south of Avenue B at Site 17, the former Pesticide Building. Work performed for this project will be conducted in accordance with this Work Plan and safety protocols specified in the Site Safety and Health Plan for NAS Brunswick (ECC 2008). Fixed laboratory quality control activities will be conducted as outlined in the attached tables, and in accordance with applicable sections of the Final Base-Wide Quality Assurance Project Plan for the Long-Term Monitoring Program (ECC/EA 2006), the Quality Assurance Project Plan included in the Remedial Investigation Work Plan for Site 17 (Tetra Tech NUS 2008), and in accordance with Applicable or Relevant and Appropriate Requirements (ARAR) as described in the Building 95 Action Memorandum (ABB Environmental Services, Inc. 1993a). The Building 95 Action Memorandum is included as Appendix A of this Work Plan (provided on CD). The response to comment letters submitted to the Maine Department of Environmental Protection and U.S. Environmental Protection Agency, and concurrence letters are provided in Appendix B. Following completion of removal activities, a letter report will be completed documenting removal activities completed under this Work Plan. The analytical data will be provided electronically inMEDEP EDD format and excavation location data will be provided in spreadsheet format to site stakeholders following the investigation.

1.1 Project Objectives and Goals

The objectives of executing the test pit excavations are to locate, identify, and remove an approximate 6-inch layer of soil that was previously excavated in October 1994 from an area immediately south of Avenue B and was reportedly relocated in this area, covered with a geotextile fabric, and backfilled with 2-feet of clean soil.

During the 1994 Removal Action (HLA 1998), surface soils containing total pyrethrins at a concentration greater than the Preliminary Remediation Goal (PRG) for total pyrethrins were identified during confirmation sampling. Instead of off-site removal of this material, the soil from this area was excavated and relocated to the center of the excavation area south of Avenue B. This material was placed in a 6-in. layer within the area of previously excavated material south of Avenue B and then covered with 2 ft of common fill during site restoration.

The goals of this remedial action work plan are as follows:

- Determine the location of an estimated 27 cubic yards of previously excavated soil from Site 17, which was deposited in the area immediately south of Avenue B and Site 17.

- Collect soil samples from the previously excavated soil to obtain current soil contaminant concentration data, which will allow the Navy to determine appropriate disposal methods.
- Develop a recommended plan of action to address impacted soils.
- Removal and disposal of the estimated 27 cubic yards of the previously excavated soil from Site 17.

1.2 Site Description

Site 17 is located in the north-central area of the base, one block north of Fitch Avenue at the corner of Fifth Street and Avenue B (Figure 2). The site is bounded to the northeast by the former Old Navy Fuel Farm, and to the southwest to northwest by Fifth Street. The southern boundary extends south of the former railroad tracks approximately 65 feet from Avenue B. South of Avenue B there were abandoned railroad tracks which ran parallel to Avenue B that were removed in 1994. Building 95 was used for storage, mixing, and disposal of pesticides and herbicides from the late 1940's until 1985. In 1985, pest control operations moved from Building 95 to Building 647.

Three (3) buildings were once located on the site:

Building 95 was constructed in the late 1940s and had approximate dimensions of 15 ft × 20 ft. It was a 1-story building constructed of wood on a cinder block foundation. At a later date, a heated storage shed with a plywood floor was added to the north side of Building 95 that measured approximately 8 ft × 11 ft. A drum storage rack was located outside of the building along the eastern side. Subsurface utilities consisted of potable water and steam lines that provided heat for the building. The building was served by a 500-gal, stainless steel septic tank and associated tile overflow pipe. The building and septic tank were removed from the site between January and February 1994.

Building 31 was located east of Building 95 and had approximate dimensions of 12 ft × 25 ft. The date of construction of Building 31 is unknown. The building was built on 4 concrete footings. This building was used by NAS Brunswick workers conducting asbestos abatement for changing and showering. Reportedly, shower and lavatory facilities were connected to and shared the septic system that served Building 95. Subsurface utilities consisted of potable water and steam lines that provided heat, while electricity for Building 31 was provided by overhead wires. Building 31 was removed from the site between January and February 1994.

A storage shed was located north of Building 95 that had approximate dimensions of 8 ft × 10 ft and was constructed on a cinder block foundation. The storage shed was used to store asbestos

abatement equipment. The storage shed was not used to store asbestos-contaminated materials. The storage shed was removed from the property between January and February 1994.

Currently, the ground surface at the site is grass covered and has small trees and shrubs also located within the site boundary. The site topography slopes gently downward from the west and north to the east and southeast and has no distinct surface water drainage features

Additional detailed information regarding the site description and history can be found in the following documents which are located in the NAS Brunswick Administrative Record:

- Initial Assessment Study, NAS Brunswick, June 1983 (Roy F. Weston 1983)
- Draft Final Supplemental Remedial Investigation Report, August 1991 (E.C Jordan 1991)
- Engineering Evaluation/Cost Analysis Report Building 95, November 1992 (ABB Environmental Services, Inc. 1992)
- Action Memorandum Building 95, April 1993 (ABB Environmental Services, Inc. 1993a)
- Remedial Design Summary Report, Building 95 Removal Action, June 1993 (ABB Environmental Services, Inc. 1993b)
- Closure Report, Building 95 Site (Note – this is a draft final document), August 1998 (Harding Lawson Associates 1998)
- Second Five-Year Review Report, September 2005 (ECC/EA 2005)
- Final Base-Wide Quality Assurance Project Plan for the Long-Term Monitoring Program, January 2006 (ECC/EA 2006)
- Remedial Investigation Scoping Plan for Site 17, May 2007 (ECC 2007)
- Remedial Investigation Work Plan for Site 17, January 2008 (Tetra Tech NUS 2008)

1.3 Previous Remedial Actions

The Navy has previously completed Remedial Actions at Site 17. Between January and February 1994, Buildings 31 and 95, the storage shed, septic tank, and railroad lines were demolished and removed from the site. Prior to demolition, an asbestos abatement contractor removed all asbestos-containing materials from these structures and transported 64 bags of asbestos-containing material to a disposal facility in Michigan. After the asbestos abatement was complete, the buildings were demolished and the debris transported as hazardous waste for disposal in Michigan. The septic tank was removed, cleaned, cut into pieces, and disposed of as hazardous debris. The septic tank was found to contain a black, "cake-type" sludge, which was removed and stockpiled with the excavated soil for transport and disposal. Railroad ties were removed from approximately 150 ft of abandoned rail line south of Avenue B and disposed of as hazardous debris at a disposal facility in Michigan.

From 2 February through 2 March 1994, the Navy completed the initial excavation of soils which exceeded established PRGs. A total of 1,260 yd^3 of soil was excavated from the site and transported to the Aptus, Inc. incineration facility in Aragonite, Utah for proper disposal. Confirmatory soil sampling was completed at the limits of the excavation and identified the presence of site contaminants at concentrations exceeding the established PRGs.

On 17 October 1994, an additional site excavation was conducted based on the results of the confirmatory soil samples collected in February 1994. Four areas north of Avenue B were targeted for additional excavation based on the February 1994 sample data. An additional 45 yd^3 of material was excavated from the site. In addition, an area immediately south of Avenue B was found exceeding the surface soil PRG for total pyrethrins but below the subsurface PRG. It is unknown whether these soils also contained other contaminants such as DDT. The soil from this area was excavated and placed in a 6-in. layer within the area of previously excavated material south of Avenue B. According to the Draft Final Closure Report (Harding Lawson Associates 1998) this 6-in. layer of soil was then covered with a geotextile fabric and then backfilled with 2 ft of common fill during site restoration. The identification and removal of this 6-in. layer of soil is the subject of this Work Plan.

In December 1994, an additional excavation was conducted based on sample results from confirmatory sampling conducted after the October 1994 excavation event. Two areas, around the former septic tank and leach bed, were found exceeding the PRGs. A total of 5 yd^3 was removed during December 1994 and transported to the Aptus Incineration Facility for disposal. According to the Draft Final Closure Report (Harding Lawson Associates 1998), site restoration was completed during the spring of 1995. The excavated area was covered with a geotextile fabric to provide a visible and physical separation between native soil and common backfill. After placement of the geotextile fabric, the site was backfilled to the approximate original grade with common borrow backfill and a 6-inch layer of topsoil.

2 PROJECT ORGANIZATION AND RESPONSIBILITIES

The individuals directly involved with this project and their specific responsibilities are outlined below.

Todd Bober, US Navy, BRAC PMO, Northeast, Remedial Project Manager—Provides overall project coordination for the project and is the US Navy decision-maker for this project. Coordinates all activities within the US Navy for the project. Coordinates and resolves issues with regulatory case managers.

Lisa Joy, Environmental Director, Naval Air Station Brunswick — Naval Air Station Brunswick point of contact for any environmental issues, while conducting work at Naval Air Station Brunswick.

Al Easterday, ECC Project Manager—Oversees project financials, scheduling, and technical management of the test pit excavation work plan.

Chris Troy, ECC Site Safety Officer—Provides senior review of the Site Health and Safety Plan, support to the field team, audits of Delivery Orders as necessary for health and safety, and stop work decisions. Reviews consultants' and subcontractors' health and safety programs, as they relate to work under the Delivery Order, to ensure consistency with ECC's health and safety program.

Gina Calderone, ECC Maine Certified Geologist—Provides senior review of the Field Sampling Plan and QAPP to ensure that the deliverables meet ECC's quality assurance standards. Provides technical support to the project team.

Jeff Donovan and James Gatherer, ECC Geologist/Site Manager—Coordinates and schedules field activities, directs the field team to ensure adherence Work Plan. Provides direct communication to the Project Manager.

Jackson Kiker, ECC Chemist—Coordinates analysis with laboratory chemist, ensures adherence to analytical requirements presented in the Work Plan, and conducts quality review.

3 FIELD ACTIVITIES

This section provides a summary of the field activities to be conducted as part of this investigation and removal of relocated soils south of Avenue B at Site 17. On 17 October 1994, soil within an area immediately south of Avenue B was found exceeding the soil PRG for total pyrethrins. The soil from this area was excavated and placed in a 6-in. layer within the area of previously excavated material south of Avenue B. According to the Draft Final Closure Report (Harding Lawson Associates 1998) this 6-in. layer of soil was then covered with a geotextile fabric and backfilled with 2 ft of common fill during site restoration. The identification, characterization and removal of this 6-in. layer of relocated soil is the subject of this Work Plan. MEDEP will be notified at least two weeks prior to excavation activities so MEDEP staff may be on site.

3.1 Site Visit

Prior to excavation activities, a site visit will be conducted to identify the location of the area to be investigated. Coordinates of the four corners of the area where soil was relocated will be transcribed from Figure 4-2 of the Draft Final Closure Report (Harding Lawson Associates 1998) and input into a handheld GPS. The four corners will then be marked in the field and visually compared to any congruent change of topography in the area (i.e., mounding) which would confirm the location of the relocated soils. Any physical obstructions will be noted and addressed prior to ground intrusive activities.

3.2 Base Dig Permit/Utility Clearance

Once the site visit has been completed, utility clearances will be conducted prior to any drilling or subsurface work. Clearances will include a review of as-built drawings (if available). Utility locations will be confirmed by locating manholes, poles, vaults, and other related structures. One week prior to beginning drilling and excavation activities, ECC will file for and obtain a base dig permit for the test pit excavations located south of Avenue B at Site 17. In addition, ECC will also notify and obtain a Maine DIGSAFE permit.

3.3 Relocated Soils Identification

Figure 4-2 of the Draft Final Closure Report (Harding Lawson Associates 1998) shows an approximately 90-ft x 16-ft area where soil was redistributed from the excavation that was completed south of and immediately adjacent to Avenue B. According to the closure report, the soil was placed in this area in a six-inch lift. This equates to 720 cubic feet or approximately 27 cubic yards of soil.

A back-hoe (or equivalent machinery) will be used to locate the vertical and horizontal extent of the relocated soils. It is anticipated that several elongated test pits parallel to the width of the

area where soil was relocated (as marked out during the site visit) will be excavated to a depth of approximately 3 to 4 feet bgs. During test pit excavations, care will be taken to excavate and segregate the soil in 1-ft lifts to ensure that impacted soils are separated from "clean" soils should the replacement of soil back into the test pits be necessary. If feasible, a smooth edged excavator bucket will be used during the investigative phase of this event. It is anticipated that excavating to a depth of 3 to 4 feet bgs should penetrate the two feet of common borrow, the top geotextile fabric, the 6-in lift of impacted soils, the bottom geotextile fabric, and in-situ soils below. The actual thickness of the soil cover and impacted soils will be noted, in addition to the presence/absence of the geotextile fabric. It is anticipated that the geotextile fabric will help to demarcate relocated soils from the soil cover. Test pit excavations will continue until either the vertical and horizontal extents of the relocated soil can be determined or until it is determined that the relocated soils cannot be visually identified. Geotextile fabric may be encountered at various depths depending on the location of the test pits since south of Avenue B, the general area surrounding the relocated soils was excavated down to 1-ft bgs, and another 3-ft deep excavation parallels the relocated soils four feet to the North. This phase of the project is expected to last one to two days.

If the relocated soils can be visually identified (i.e. if the geotextile fabric that was reportedly placed above and below relocated soils can be visually identified, or in the absence of a geotextile fabric, relocated soils can be visually differentiated from the common borrow above and in-situ soils below by differences in texture, color, etc.), relocated soils will be removed and placed into a lined roll-off container, covered and staged at the site. Until they are characterized, soils will be managed, handled and stored according to State and Federal hazardous waste management requirements. Care will be taken to excavate and segregate the soil in 1-ft lifts to ensure that impacted soils are separated from "clean" soils above and below impacted soils. The soil will then be sampled for hazardous waste determination and waste characterization purposes as described in Section 3.4 below. The two feet of common borrow that was used to cover the 6-in of relocated soils will be stockpiled on site on top of plastic sheeting, and then covered with plastic sheeting. It is anticipated that this material will be re-used to back-fill the excavation as part of site restoration activities. If segregating the common borrow from relocated soils is not feasible, then the common borrow will be placed into the roll-off containers along with the relocated soils and sampled for waste characterization.

If the relocated soils cannot be visually identified from either observations made during the excavation and/or a change in a topography congruent with the reported relocated soil area, then the relocated soils will be addressed under the Remedial Investigation Work Plan for Site 17 (Tetra Tech NUS 2008). All reasonable efforts will be made to replace any soil excavated during the exploratory phase of the investigation to its original location.

Since the Site is less than one acre, no Storm Water Prevention Plan is required. However, while the excavation remains open, silt fence and hay bales will be employed to prevent the accumulation of surface run-off, and to prevent the release of contaminated sediments to the environment.

Site Control

If migration of contaminants from the work area is a possibility, site control will be maintained by establishing clearly identified work zones. These will include the exclusion zone, contaminant reduction zone, and support zone, as discussed below.

Exclusion zones will be established around each hazardous waste activity location. Only persons with appropriate training and authorization will enter this perimeter while work is being conducted there. The initial level of protection in the exclusion zone will be a "modified" Level D, which will include a tyvek suit, booties, eye protection, gloves, and hearing protection. Traffic cones, barrier tapes, snow fencing, or other warning signs will be used, as necessary, to establish the zone boundary.

A contamination reduction zone will be established just outside each temporary exclusion zone to decontaminate equipment and personnel as discussed below. This zone will be clearly delineated from the exclusion zone and support zone using the means noted above. Care will be taken to prevent the spread of contamination from this area. Drums will be filled with spent decontamination fluids. The drums, after labeling, will be moved to central storage location(s) on site pending disposal.

A support zone will be established outside the contamination reduction area to stage clean equipment, don protective clothing, take rest breaks, etc. This zone will be clearly delineated from the contaminant reduction zone using the means noted above.

3.4 Soil Sampling

Soil sampling and handling will be completed in accordance with applicable sections of the: Final Base-Wide Quality Assurance Project Plan for the Long-Term Monitoring Program (ECC/EA. 2006), SOP No. 5 – *Sediment Sampling Procedures, and SOP No. 10 – Field Quality Control Procedure,* and QAPP included as Section 4 of the Remedial Investigation Work Plan for Site 17 (Tetra Tech NUS 2008). Tables 1 through 3 provide the analytical methods, analyte lists, and precision and accuracy information that pertain to this project. Table 1 is the analyte list table which identifies the analytes, project quantitation limits, and project action limits. Table 2 is the analytical methods table, and lists the analytical methods and the proposed number of samples. Table 3 is the precision and accuracy table which lists the analytical method precision and accuracy requirements.

Waste Characterization

Soil samples will be collected from the relocated soils that have been placed into the roll-off and analyzed for waste characterization purposes. The results of the soil analyses will be used to determine the waste disposal facility that will receive impacted soils. It is anticipated that between one and two composite samples will be collected and submitted for laboratory analysis. For each composite sample, soil will be composited from at least eight discrete sampling

locations. If more than one roll-off container is used, then waste characterization samples will be collected from soil in both containers. Each composite sample will be prepared by placing equal volumes of the eight discrete soil samples in a decontaminated stainless steel mixing bowl and stirring with a decontaminated stainless steel spoon for at least one minute or until the soil is thoroughly mixed. The homogenized sample will then be divided into four quadrants. The sample containers will be filled by spooning soil from one quadrant into the container and then spooning soil from the opposite quadrant into the container. This procedure will be repeated until all sample containers are full. Soil samples will be analyzed for pesticides including total pyrethrins by EPA Method 8081B modified, Resource Conservation and Recovery Act (RCRA)-8 metals by EPA Method 6010B/6020/7471A, and RCRA characteristics, including ignitability, corrosivity, and reactivity (cyanide and sulfide). Depending on the requirements of the soil disposal facility, it may be necessary to perform the analyses mentioned above following TCLP extraction by EPA Method 1311.

The selected soil disposal facility may require evidence of the presence or absence of other contaminants prior to transportation off-site. It is anticipated that one composite soil sample may be required in addition to the two composite soil samples described above. If required, this composite soil sample will be collected and analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, and PCBs by EPA Method 8082. The composite soil sample for non-VOC parameters will be collected using the procedures described above using stainless steel mixing bowls and spoons. For VOC parameters, a composite sample will be collected using EPA Methods 5035A modified for sample collection and 8260B for chemical analyses. A separate sample vial with methanol preservative (per EPA Method 5035 for high level analyses) will be collected from each of the eight discrete soil sampling locations. These separate VOC fractions will then be transported to the laboratory, and then the laboratory will generate a single composite sample from the separate, preserved VOC vials. VOC analysis is performed in the laboratory using a combined aliquot of the methanol extracts, extracted via a syringe through the septa of each vial, without exposing the contents of the vial to the atmosphere. In the laboratory a calibrated syringe will be used to remove an equal amount from each of the vials being used to generate a composite sample. Because the composite sample will be based on multiple vials, the dry weight for the composite sample will be based on the average dry weight for all the vials used to generate the composite sample.

Any Investigative Derived Waste (IDW) fluids generated during the removal action will be sampled at a frequency and for analytes to be determined by the licensed waste broker. It is anticipated that, at a minimum, the fluids will be sampled for total pyrethrins by EPA Method 8081B modified.

Since samples are being collected for waste characterization purposes only, no quality control/quality assurance samples will be collected.

3.5 Decontamination Procedures and Investigative Derived Waste

Decontamination of equipment and personnel will be performed for health and safety precautions, to avoid cross-contamination of samples subjected to chemical analysis, and to limit the migration of contaminants off-site and between work areas on the site.

Prior to the start of field activities, all excavating and sampling equipment will be initially decontaminated at a pre-designated decontamination pad (to be determined prior to arriving on-site). Final decontamination of excavating equipment will also be conducted at the decontamination pad prior to departing the site.

Equipment Decontamination

Cleaning of excavation equipment that comes in contact with site soil will consist of scraping and scrubbing to remove encrusted materials followed by a steam wash. Decontamination of equipment will be conducted at the decontamination pad or in the field, as appropriate.

Decontamination procedures for reusable sampling equipment will be decontaminated as described below before and after each use.

- Wash with potable water and laboratory-grade detergent (e.g., Alconox® detergent)
- Rinse with potable water
- Rinse with deionized water
- Rinse with methanol/isopropyl alcohol
- Rinse with deionized water
- Air dry
- Wrap in plastic or aluminum foil when practical

The decontamination pad for decontamination of large equipment will have raised sides and a water-proof liner to retain all materials generated during the decontamination process. A sump pump or other transfer device will be used to transfer collected liquids to a Department of Transportation (DOT) approved 55-gallon drums.

Personnel Decontamination

Excavation, drilling and sampling activities will be conducted in a "modified" Level D, which will include a tyvek suit, booties, eye protection, gloves, and hearing protection. Decontamination of personnel will consist of disposal of non-reusable nitrile gloves as non-hazardous solid waste. Hands and faces of personnel engaged in the intrusive activities will be washed with soap and water prior to any hand-to-mouth activity.

Management of Investigative Derived Waste

IDW water, including decontamination fluids, generated from the investigation will be containerized in DOT approved 55-gallon drums or added to impacted soils in the roll-off container pending characterization and subsequent final disposal off-site. All IDW will be

disposed of in accordance with State of Maine and federal requirements. IDW will be removed by a State of Maine licensed waste broker and hauler. IDW will be sampled at a frequency and for analytes to be determined by the licensed waste broker. Based on previous results, it is assumed that any IDW generated during the removal action will be classified as non-hazardous, non-regulated waste. The waste will be handled in accordance with RCRA regulations and in accordance with NAS Brunswick protocol for handling non-hazardous waste. If the waste is determined to be hazardous, MEDEP will be provided information on the TSDF, prior to shipping material off-site.

3.6 Site Survey

Test pit excavation and soil sampling locations will be located in the field using a Trimble Global Positioning System (GPS) Pro XRS or similar device. It is assumed that a State of Maine-licensed land surveyor will not be necessary. The horizontal control of each test pit excavation will be determined and reported based on the NAD83 UTM Zone 19 North Coordinate System. Vertical control will be reported in based on the National Geodetic Vertical Datum.

3.7 Site Restoration

Following excavation of impacted soils and waste characterization, impacted soils will be transported off-site to the selected soil disposal facility. The NASB Environmental Director or her designated representative will be present to sign the waste manifest. Disturbed areas will be re-covered with a geotextile fabric to provide a visible and physical separation between native soil and common backfill/topsoil. If necessary, after placement of the geotextile fabric, the site will be backfilled and compacted to the approximate original grade with common borrow followed by a 6-inch layer of topsoil, and re-seeded with grass. It is assumed that the common borrow will be from the same borrow pit as that used at Site 9 which has previously been approved for use at Naval Air Station Brunswick.

Project personnel will perform repairs and address damage resulting from excavation activities on NASB property, including repairs to grass ruts, tree replacement, fence repair, etc. as a result of excavation activities. Additionally, project personnel will ensure that sampling locations are left in clean condition, such that no waste materials remain following completion of daily activities. Digital photographs will be taken prior to and following the completion of site restoration activities.

REFERENCES

ABB Environmental Services, Inc. 1992. Engineering Evaluation/Cost Analysis, Building 95. August.

ABB Environmental Services, Inc. 1993a. Action Memorandum, Building 95, Naval Air Station, Brunswick, Maine. April.

ABB Environmental Services, Inc. 1993b. Remedial Design Summary Report, Building 95 Removal Action, Naval Air Station, Brunswick, Maine. June.

E.C. Jordan. 1991. Draft Final l Supplemental Remedial Investigation Report, Naval Air Station, Brunswick, Maine. U.S. Department of Navy. August.

ECC/EA. 2005. Final Second Five-Year Review Report. Naval Air Station, Brunswick, Maine. September.

ECC/EA. 2006. Final Base-Wide Quality Assurance Project Plan for the Long-Term Monitoring Program. January.

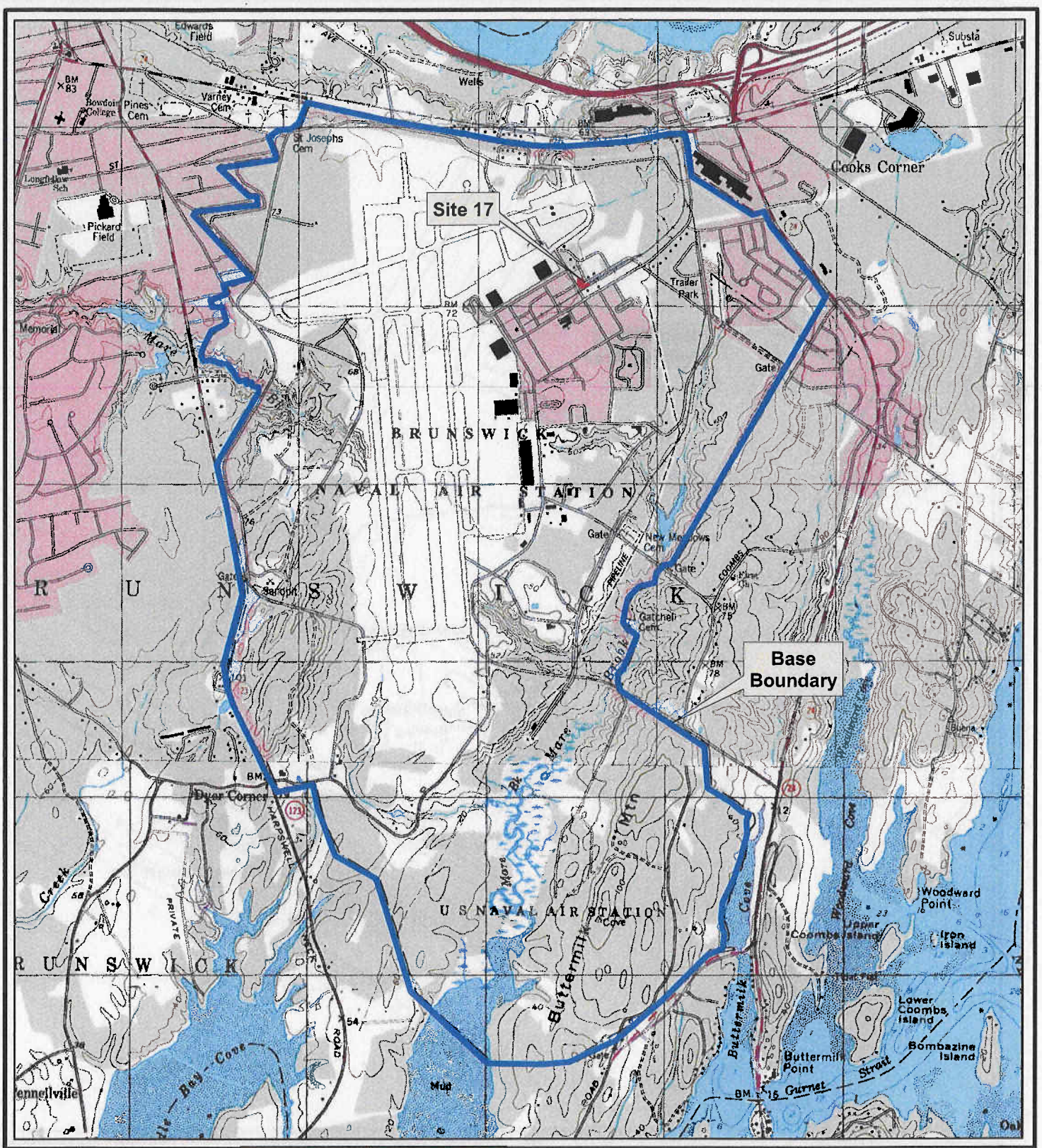
ECC/EA. 2007. Remedial Investigation Scoping Plan for Site 17. May.

ECC. 2008. Site Safety and Health plan for NAS Brunswick, Maine. September.

Harding Lawson Associates. 1998. Draft Final Closure Report, Building 95 Site. July.

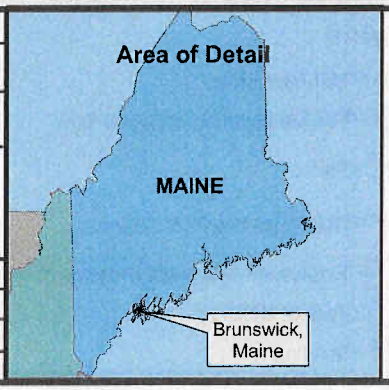
Roy F. Weston, Inc. 1983. Initial Assessment Study, Naval Air Station, Brunswick, Maine. June.

Tetra Tech NUS. 2008. Remedial Investigation Work Plan for Site 17.



Contract No.	N62472-02-D-0810
Description	Site 17 Site Location
Coordinate system	NAD 1983, UTM, Zone 19 N in meter
Sources	Naval Base Boundary provided by Navy. Orrs Island (1978) and Brunswick (1980) 7.5 minute quadrangles provided by USGS.

Date	8-APR-2008	Rev.	Date	App. By
DB	C. Guido			
CB	J. Gatherer			
AB				



Legend

- NAS Brunswick Boundary
- Site 17 Site Location

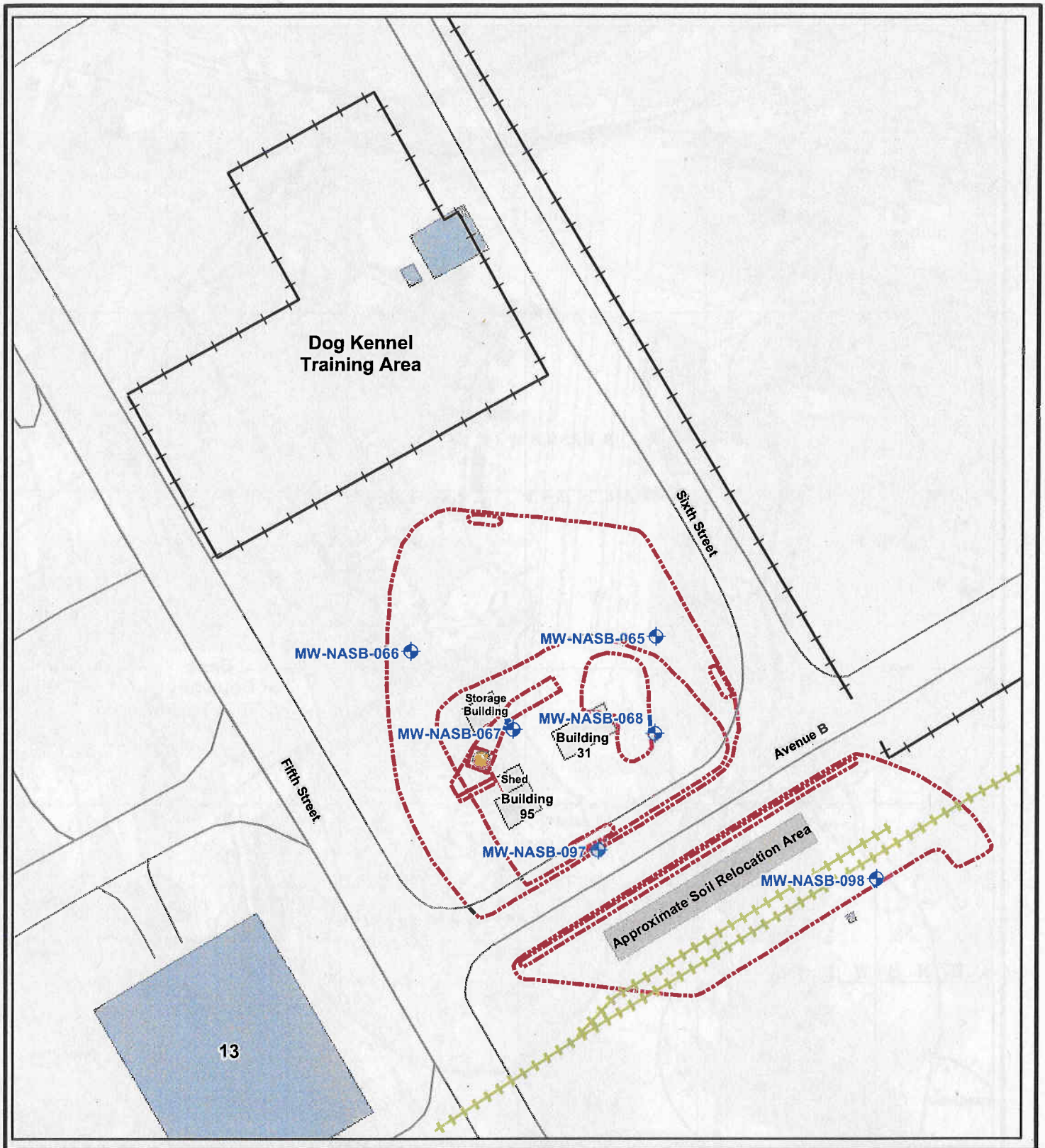
Figure 1

Site 17
Site Location Map

Naval Air Station
Brunswick, Maine

ECC GIS
C:\NAVY_GIS\TO07_Brunswick\Bldg95\MapDocuments\Fig1-1_Bldg95_SiteLocus.mxd

0 850 1,700 3,400 Feet



Contract No.	N62472-02-D-0810
Description	Site 17 Site Map
Coordinate system	NAD 1983, UTM, Zone 19 N in meter
Sources	Naval base boundary provided by Navy.

Date	8-APR-2008	Rev.	Date	App. By
DB	C. Guido			
CB	J. Gatherer			
AB				

Area of Detail

Legend

- Monitoring Well
- Former Location of Septic Tank
- Fence
- Rail Road Track (Abandoned)
- Excavation Boundary (Approximate)
- Former Building
- Building

Figure 2

Site 17
Site Plan

Naval Air Station
Brunswick, Maine

ECC Marlborough, MA
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TABLE 1 SUMMARY OF WASTE CHARACTERIZATION ANALYTES FOR THE INVESTIGATION OF RELOCATED SOILS AT SITE 17 – BUILDING 95

Analyte	CAS Number	Project Quantitation Limits[a][b] (mg/kg for soils, mg/L for TCLP and water)	Project Action Limit[c] (mg/kg for soils and mg/L for TCLP)
TCLP ANALYTE LIST METALS (SW-846 1311/6010B/7470A/6020) [d]			
Arsenic	7440-38-2	1.0 mg/L	5.0 mg/L
Barium	7440-39-3	1.0 mg/L	100 mg/L
Cadmium	7440-43-9	0.3mg/L	1.0 mg/L
Chromium	7440-47-3	1.0 mg/L	5.0 mg/L
Lead	7439-92-1	1.0 mg/L	5.0 mg/L
Mercury	7439-97-6	0.06 mg/L	0.2 mg/L
Selenium	7782-49-2	0.3 mg/L	1.0 mg/L
Silver	7440-22-4	1.0 mg/L	5.0 mg/L
TCLP ANALYTE LIST PESTICIDES (SW-846 1311/8081B Modified) [d]			
Chlordane	57-74-9	0.0006 mg/L	0.03 mg/L
Endrin	72-20-8	0.0006 mg/L	0.02 mg/L
Lindane	58-89-9	0.0006 mg/L	0.4 mg/L
Heptachlor (and its epoxide)	76-44-8	0.0006 mg/L	0.008 mg/L
Methoxychlor	72-43-5	0.0006 mg/L	10 mg/L
Toxaphene	8001-35-2	0.0006 mg/L	0.5 mg/L
Total Pyrethrins	8003-34-7	0.002 mg/L	NA
RCRA CHARACTERISTICS SW-846 7.3.3.2, 7.3.4.2, Chapter 7/1010, 9045C[e]			
Corrosivity (pH)	NA	NA	<2 or >12.5
Ignitability	NA	NA	Flashpoint < 60 °C
Reactive Sulfide	NA	NA	<10 ppm
Reactive Cyanide	NA	NA	<10 ppm
SOIL SEMIVOLATILE ORGANIC COMPOUNDS (SW-846/8270C)			
Benzoic acid	65-85-0	0.5	
2-Chlorophenol	95-57-8	0.25	
4-Chloro-3-methyl phenol	59-50-7	0.5	
2,4-Dichlorophenol	120-83-2	0.5	
2,4-Dimethylphenol	105-67-9	0.5	

Analyte	CAS Number	Project Quantitation Limits[a][b] (mg/kg for soils, mg/L for TCLP and water)	Project Action Limit[c] (mg/kg for soils and mg/L for TCLP)
2,4-Dinitrophenol	51-28-5	1.0	
4,6-Dinitro-o-cresol	534-52-1	0.5	
2-Methylphenol	95-48-7	0.5	
3&4-Methylphenol		0.5	
2-Nitrophenol	88-75-5	0.5	
4-Nitrophenol	100-02-7	1.0	
Pentachlorophenol	87-86-5	0.5	
Phenol	108-95-2	0.25	
2,4,5-Trichlorophenol	95-95-4	0.5	
2,4,6-Trichlorophenol	88-06-2	0.5	
Acenaphthene	83-32-9	0.25	
Acenaphthylene	208-96-8	0.25	
Anthracene	120-12-7	0.25	
Benzo(a)anthracene	56-55-3	0.25	
Benzo(a)pyrene	50-32-8	0.25	
Benzo(b)fluoranthene	205-99-2	0.25	
Benzo(g,h,i)perylene	191-24-2	0.25	
Benzo(k)fluoranthene	207-08-9	0.25	
4-Bromophenyl phenyl ether	101-55-3	0.25	
Butyl benzyl phthalate	85-68-7	0.25	
Benzyl Alcohol	100-51-6	0.5	
2-Chloronaphthalene	91-58-7	0.25	
4-Chloroaniline	106-47-8	0.5	
Carbazole	86-74-8	0.25	
Chrysene	218-01-9	0.25	
bis(2-Chloroethoxy)methane	111-91-1	0.25	
bis(2-Chloroethyl)ether	111-44-4	0.25	
bis(2-Chloroisopropyl)ether	108-60-1	0.25	
4-Chlorophenyl phenyl ether	7005-72-3	0.25	
1,2-Dichlorobenzene	95-50-1	0.25	
1,3-Dichlorobenzene	541-73-1	0.25	
1,4-Dichlorobenzene	106-46-7	0.25	
2,4-Dinitrotoluene	121-14-2	0.5	
2,6-Dinitrotoluene	606-20-2	0.5	

Analyte	CAS Number	Project Quantitation Limits[a][b] (mg/kg for soils, mg/L for TCLP and water)	Project Action Limit[c] (mg/kg for soils and mg/L for TCLP)
3,3'-Dichlorobenzidine	91-94-1	0.25	
Dibenzo(a,h)anthracene	53-70-3	0.25	
Dibenzofuran	132-64-9	0.25	
Di-n-butyl phthalate	84-74-2	0.25	
Di-n-octyl phthalate	117-84-0	0.25	
Diethyl phthalate	84-66-2	0.25	
Dimethyl phthalate	131-11-3	0.25	
bis(2-Ethylhexyl)phthalate	117-81-7	0.25	
Fluoranthene	206-44-0	0.25	
Fluorene	86-73-7	0.25	
Hexachlorobenzene	118-74-1	0.25	
Hexachlorobutadiene	87-68-3	0.25	
Hexachlorocyclopentadiene	77-47-4	0.5	
Hexachloroethane	67-72-1	0.25	
Indeno(1,2,3-cd)pyrene	193-39-5	0.25	
Isophorone	78-59-1	0.25	
2-Methylnaphthalene	91-57-6	0.25	
2-Nitroaniline	88-74-4	0.5	
3-Nitroaniline	99-09-2	0.5	
4-Nitroaniline	100-01-6	0.5	
Naphthalene	91-20-3	0.25	
Nitrobenzene	98-95-3	0.25	
N-Nitroso-di-n-propylamine	621-64-7	0.25	
Phenanthrene	85-01-8	0.25	
Pyrene	129-00-0	0.25	
1,2,4-Trichlorobenzene	120-82-1	0.25	
SOIL PCB (SW-846 8082)			
PCB-1016	12674-11-2	0.05	1
PCB-1221	11104-28-2	0.05	1
PCB-1232	11141-16-5	0.05	1
PCB-1242	53469-21-9	0.05	1
PCB-1248	12672-29-6	0.05	1
PCB-1254	11097-69-1	0.05	1
PCB-1260	11096-82-5	0.05	1

Analyte	CAS Number	Project Quantitation Limits[a][b] (mg/kg for soils, mg/L for TCLP and water)	Project Action Limit[c] (mg/kg for soils and mg/L for TCLP)
PCB 1016/1260 Mix	NA	0.05	1
SOIL VOLATILE ORGANIC COMPOUNDS (SW-846 5035A/8260B)			
1,2-Dichloroethene (total)	540-59-0	0.125	
1,1-Dichloroethane	75-34-3	0.125	
1,1,2-Trichloroethane	79-00-5	0.125	
1,1,2,2-Tetrachloroethane	79-34-5	0.125	
1,2-Dichloropropane	78-87-5	0.125	
1,1,1-Trichloroethane	71-55-6	0.125	
1,1-Dichloroethene	75-35-4	0.125	
1,2-Dichloroethane	107-06-2	0.125	
1,2-Dichlorobenzene	95-50-1	0.33	
1,3-Dichlorebenzene	541-73-1	0.33	
1,4-Dichlorobenzene	106-46-7	0.33	
2-Butanone	78-93-3	0.25	
2-Hexanone	591-78-6	0.25	
4-Methyl-2-pentanone	108-10-1	0.25	
Acetone	67-64-1	0.25	
Benzene	71-43-2	0.125	
Bromodichloromethane	75-27-4	0.125	
Bromoform	75-25-2	0.125	
Bromomethane	74-83-9	0.125	
Carbon Tetrachloride	56-23-5	0.125	
Carbon Disulfide	75-15-0	0.125	
Chlorobenzene	108-90-7	0.125	
Chloroethane	75-00-3	0.125	
Chloroform	67-66-3	0.125	
Chloromethane	74-87-3	0.125	
cis-1,3-Dichloropropene	10061-01-5	0.125	
Dibromochloromethane	124-48-1	0.125	
Ethylbenzene	100-41-4	0.125	
Hexachlorobutadiene	87-68-3	0.125	
Methylene Chloride	75-09-1	0.125	
Styrene	100-42-5	0.125	
Tetrachloroethene	127-18-4	0.125	

Analyte	CAS Number	Project Quantitation Limits[a][b] (mg/kg for soils, mg/L for TCLP and water)	Project Action Limit[c] (mg/kg for soils and mg/L for TCLP)
Toluene	108-88-3	0.125	
trans-1,3-Dichloropropene	10061-02-6	0.125	
Trichloroethene	79-01-6	0.125	
Vinyl Chloride	75-01-4	0.125	
Xylene (total)	1330-20-7	0.125	
SOIL METALS (SW-846 6010B/7471A/6020)			
Arsenic	7440-38-2	5	
Barium	7440-39-3	50	
Cadmium	7440-43-9	1	
Chromium	7440-47-3	3	
Lead	7439-92-1	2	
Mercury	7439-97-6	1	
Selenium	7782-49-2	2	
Silver	7440-22-4	2	
SOIL PESTICIDES 8081B Modified			
4,4-DDD	72-54-8	0.094	
4,4-DDE	72-55-9	0.019	
4,4-DDT	50-29-3	0.020	0.5
Aldrin	309-00-2	0.0094	
Alpha-BHC	319-84-6	0.0094	
Beta-BHC	319-85-7	0.0094	
Chlordane	12789-03-6	0.094	
Delta-BHC	319-86-8	0.0094	
Dieldrin	60-57-1	0.019	
Endosulfan I	959-98-8	0.0094	
Endosulfan II	33213-65-9	0.019	
Endosulfan Sulfate	1031-07-8	0.19	
Endrin	72-20-8	0.019	
Endrin Aldehyde	7421-93-4	0.094	
Endrin Ketone	53494-70-5	0.094	
Gamma-BHC (Lindane)	58-89-9	0.0094	
Heptachlor	76-44-8	0.0094	
Heptachlor Epoxide	1024-57-3	0.0094	

Analyte	CAS Number	Project Quantitation Limits[(a)(b)] (mg/kg for soils, mg/L for TCLP and water)	Project Action Limit[(c)] (mg/kg for soils and mg/L for TCLP)
Methoxychlor	72-43-5	0.094	
Total Pyrethrins	8003-34-7	1.5	5 [(f)]
WATER PESTICIDE 8081B Modified			
Total Pyrethrins	8003-34-7	1	

(a) Project quantitation limits were derived based on what are the typical achievable laboratory quantitation limits and the project quantitation limit is at least one-third the project action limit.
(b) Sediment project quantitation limits are based on dry weight (except for TCLP).
(c) The Project Action Limits used for non-TCLP soil Volatile Organic Compounds, Semivolatile Organic Compounds, pesticides and RCRA-8 Metals, are the Preliminary Remediation Goals (PRG) from the Building 95 Action Memorandum (ABB 1993). Compounds without an Action Memorandum PRG will be evaluated by comparison to the Treatment Storage and/or Disposal Facility (TSDF) permit acceptance criteria.
(d) TCLP ("D" List) Regulatory Levels.
(e) RCRA Characteristic PAL dependent upon disposal facility permit requirements.
(f) 5 mg/kg total pyretherin was the Preliminary Remediation Goal (PRG) developed for the 1993 Removal Action (ABB 1993a) that was estimated as a residual concentration that would not result in exposure does levels in excess of ecological reference toxicity values. As detailed in the Removal Action Memorandum (ABB 1993a), the total pyretherin PRG was raised to 10 mg/kg, which was then the analytical detection limit of the best available technology (high pressure liquid chromatography/UV detector). Because of improvements in pyretherin analytical methods, the 5 mg/kg total pyretherin PRG is quantifiably achievable and selected for project use.

TABLE 2 ANALYTICAL METHODS FOR THE INVESTIGATION OF RELOCATED SOILS AT SITE 17 – BUILDING 95

Sample Media	Analysis	No. of Field Samples*	No. of Quality Control Samples				Total No. of Samples
			Duplicate	Rinsate	Matrix Spike/ Matrix Spike Duplicate	Trip Blank	
Soils	Waste Characterization SW-846 TCLP 1311/8081B modified (to include total pyrethrins)/6010B/ 6020/7470A	2	0	0	0	0	2
Soil	Waste Characterization-Ignitability SW-846 Chapter 7/Method 1010	2	0	0	0	0	2
Soil	Waste Characterization-Reactive Cyanide SW-846 7.3.3.2	2	0	0	0	0	2
Soil	Waste Characterization-Reactive Sulfide SW-846 7.3.4.2	2	0	0	0	0	2
Soil	Waste Characterization-Corrosivity (pH) SW-846 9045C	2	0	0	0	0	2
Soil	Waste Characterization-SW-846 8081B modified Pesticides (to include total pyrethrins)	2	0	0	0	0	2
Soil	Waste Characterization-SW-846 6010B/ 6020/7471A RCRA-8 Metals	2	0	0	0	0	1
Soil	Waste Characterization-SW-846 8082 PCBS	1	0	0	0	0	1
Soil	Waste Characterization-SW-846 5035A/8260B VOCs	1	0	0	0	0	1

Sample Media	Analysis	No. of Field Samples*	No. of Quality Control Samples				Total No. of Samples
			Duplicate	Rinsate	Matrix Spike/ Matrix Spike Duplicate	Trip Blank	
Soil	Waste Characterization- SW-846 8270C	1	0	0	0	0	1
Water	Waste Characterization- SW-846 8081B modified (total pyrethrins)	1	0	0	0	0	1

NOTE: * = Sample numbers are estimated based upon the number of samples per roll-off containers, and the requirements of the Treatment Storage and/or Disposal Facility (TSDF) permit acceptance criteria.

TABLE 3 ACCURACY/BIAS AND ANALYTICAL PRECISION FOR THE INVESTIGATION OF RELOCATED SOILS AT SITE 17 – BUILDING 95

Analyte	Analytical Accuracy/Bias (%R)	Analytical Precision (%RPD)
TCLP PESTICIDES (SW-846 1311/8081A)		
Chlordane	64-122 (nominal)	≤40
Endrin	73-144 (nominal)	≤40
Lindane	45-139 (nominal)	≤40
Heptachlor (and its epoxide)	55-132 (nominal)	≤40
Methoxychlor	54-142 (nominal)	≤40
Toxaphene	25-140 (nominal)	≤40
Total Pyrethrins	10-190 (nominal)	≤40
TCLP METALS and SOILS (SW-846 1311/6010B/6020/7471A/7470A)		
Arsenic	75-125	≤20
Barium	75-125	≤20
Cadmium	75-125	≤20
Chromium	75-125	≤20
Lead	75-125	≤20
Mercury	75-125	≤20
Selenium	75-125	≤20
Silver	75-125	≤20
RCRA WASTE CHARACTERISTICS		
Ignitability	NA	≤40
Reactive Cyanide	NA	≤40
Reactive Sulfide	NA	≤40
Corrosivity (pH)	NA	≤40
SOIL SEMIVOLATILE ORGANIC COMPOUNDS (SW-846/8270C)		
Benzoic acid	10-130	≤30
2-Chlorophenol	25-120	≤30
4-Chloro-3-methyl phenol	10-130	≤30
2,4-Dichlorophenol	23-121	≤30
2,4-Dimethylphenol	10-122	≤30
2,4-Dinitrophenol	10-120	≤30
4,6-Dinitro-o-cresol	10-130	≤30
2-Methylphenol	10-130	≤30
3&4-Methylphenol	10-130	≤30
2-Nitrophenol	10-130	≤30
4-Nitrophenol	10-130	≤30
Pentachlorophenol	10-130	≤30
Phenol	18-123	≤30
2,4,5-Trichlorophenol	25-120	≤30
2,4,6-Trichlorophenol	23-120	≤30
Acenaphthene	40-120	≤30
Acenaphthylene	21-120	≤30
Anthracene	40-120	≤30
Benzo(a)anthracene	33-127	≤30

Analyte	Analytical Accuracy/Bias (%R)	Analytical Precision (%RPD)
Benzo(a)pyrene	20-135	≤30
Benzo(b)fluoranthene	20-137	≤30
Benzo(g,h,i)perylene	10-140	≤30
Benzo(k)fluoranthene	20-140	≤30
4-Bromophenyl phenyl ether	33-125	≤30
Butyl benzyl phthalate	40-128	≤30
Benzyl Alcohol	10-132	≤30
2-Chloronaphthalene	33-120	≤30
4-Chloroaniline	10-120	≤30
Carbazole	33-123	≤30
Chrysene	30-135	≤30
bis(2-Chloroethoxy)methane	30-120	≤30
bis(2-Chloroethyl)ether	10-131	≤30
bis(2-Chloroisopropyl)ether	14-127	≤30
4-Chlorophenyl phenyl ether	35-122	≤30
1,2-Dichlorobenzene	30-120	≤30
1,3-Dichlorobenzene	22-120	≤30
1,4-Dichlorobenzene	23-120	≤30
2,4-Dinitrotoluene	32-125	≤30
2,6-Dinitrotoluene	33-127	≤30
3,3'-Dichlorobenzidine	10-120	≤30
Dibenzo(a,h)anthracene	10-140	≤30
Dibenzofuran	30-120	≤30
Di-n-butyl phthalate	32-135	≤30
Di-n-octyl phthalate	22-140	≤30
Diethyl phthalate	36-120	≤30
Dimethyl phthalate	34-120	≤30
bis(2-Ethylhexyl)phthalate	30-128	≤30
Fluoranthene	21-123	≤30
Fluorene	40-120	≤30
Hexachlorobenzene	30-129	≤30
Hexachlorobutadiene	21-128	≤30
Hexachlorocyclopentadiene	10-127	≤30
Hexachloroethane	13-120	≤30
Indeno(1,2,3-cd)pyrene	10-140	≤30
Isophorone	30-123	≤30
2-Methylnaphthalene	20-126	≤30
2-Nitroaniline	30-123	≤30
3-Nitroaniline	20-120	≤30
4-Nitroaniline	20-120	≤30
Naphthalene	30-120	≤30
Nitrobenzene	22-120	≤30
N-Nitroso-di-n-propylamine	30-127	≤30
Phenanthrene	30-120	≤30
Pyrene	25-126	≤30
1,2,4-Trichlorobenzene	26-123	≤30

Analyte	Analytical Accuracy/Bias (%R)	Analytical Precision (%RPD)
SOIL VOLATILE ORGANIC COMPOUNDS (SW-846 5035A/8260B)		
1,1,1-Trichloroethane	65-135	≤40
1,1,2,2-Tetrachloroethane	64-135	≤40
1,1,2-Trichloroethane	64-135	≤40
1,1-Dichloroethane	62-135	≤40
1,1-Dichloroethene	65-135	≤40
1,2-Dichlorobenzene	65-135	≤40
1,2-Dichloroethane	58-137	≤40
1,2-Dichloropropane	65-135	≤40
1,3-Dichlorobenzene	65-135	≤40
1,4-Dichlorobenzene	65-135	≤40
2-Butanone	60-140	≤40
2-Hexanone	60-140	≤40
4-Methyl-2-pentanone	60-140	≤40
Acetone	60-140	≤40
Benzene	75-125	≤40
Bromodichloromethane	75-125	≤40
Bromoform	75-125	≤40
Bromomethane	72-125	≤40
Carbon Disulfide	75-125	≤40
Carbon Tetrachloride	62-125	≤40
Chlorobenzene	75-125	≤40
Chloroethane	65-125	≤40
Chloroform	74-125	≤40
Chloromethane	75-125	≤40
cis-1,3-Dichloropropene	74-125	≤40
Dibromochloromethane	73-125	≤40
Ethylbenzene	75-125	≤40
Hexachlorobutadiene	75-125	≤40
Methylene Chloride	75-125	≤40
Sytrene	75-125	≤40
Tetrachloroethene	71-125	≤40
Toluene	74-125	≤40
Total 1,2-dichloroethene	75-125	≤40
Total xylenes	75-125	≤40
trans-1,3-dichloropropene	66-125	≤40
Xylene(total)	66-125	≤40
Trichloroethene	71-125	≤40
Vinyl Chloride	46-134	≤40
SOIL and WATER PESTICIDES (SW-846 8081B Modified)		
4,4-DDD	55-132 (nominal)	≤40
4,4-DDE	55-132 (nominal)	≤40
4,4-DDT	55-132 (nominal)	≤40
Aldrin	45-125 (nominal)	≤40
Alpha-BHC	35-123 (nominal)	≤40

Analyte	Analytical Accuracy/Bias (%R)	Analytical Precision (%RPD)
Beta-BHC	45-139 (nominal)	≤40
Chlordane	64-122 (nominal)	≤40
Delta-BHC	24-140 (nominal)	≤40
Dieldrin	27-121 (nominal)	≤40
Endosulfan I	45-139 (nominal)	≤40
Endosulfan II	45-139 (nominal)	≤40
Endosulfan Sulfate	45-139 (nominal)	≤40
Endrin	73-144 (nominal)	≤40
Endrin Aldehyde	53-144 (nominal)	≤40
Endrin Ketone	53-146 (nominal)	≤40
Gamma-BHC (Lindane)	45-139 (nominal)	≤40
Heptachlor	55-132 (nominal)	≤40
Heptachlor Epoxide	55-132 (nominal)	≤40
Methoxychlor	54-142 (nominal)	≤40
Total Pyrethrins	25-140 (nominal)	≤40
SOIL PCBS (SW-846 Method 8082)		
PCB-1016	41-138	≤50
PCB-1221	45-136	≤50
PCB-1232	45-136	≤50
PCB-1242	43-150	≤50
PCB-1248	44-136	≤50
PCB-1254	41-141	≤50
PCB-1260	61.131	≤50
PCB 1016/1260 Mix	40-130	≤50

NOTE: %R = Percent recovery.
%RPD = Relative percent difference.
NA = Not Applicable

APPENDIX A

Building 95 Action Memorandum

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U.S. DEPARTMENT OF THE NAVY

INSTALLATION RESTORATION PROGRAM

NAVAL AIR STATION, BRUNSWICK

BRUNSWICK, MAINE

ACTION MEMORANDUM

BUILDING 95

APRIL 1993

ACTION MEMORANDUM
BUILDING 95

NAVAL AIR STATION BRUNSWICK, MAINE
INSTALLATION RESTORATION PROGRAM

Prepared for:

U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
Contract N62472-84-C-1108

Prepared by:

ABB Environmental Services, Inc.
Portland, Maine
Project No. 7122-02

APRIL 1993

ACTION MEMORANDUM
BUILDING 95

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I. PURPOSE

This Action Memorandum documents the U.S. Department of the Navy's (Navy) proposed removal action at Building 95 on the Naval Air Station (NAS) Brunswick in Brunswick, Maine. The 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 (CERCLA), and the Resource Conservation and Recovery Act (RCRA) closure order signed by the Maine Board of Environmental Protection. The Navy notified the USEPA of its intent to pursue a "non-time critical" removal action in accordance with Section 300.415 of the National Contingency Plan (NCP) for structures and surface soils at Building 95. The proposed removal action includes removing structures (e.g., buildings) and soil (zero to 2 feet below ground surface [bgs] in most areas and to 4 feet bgs at one location) contaminated with pesticides. This Action Memorandum describes the relevant site conditions and history and components of the removal action, and presents the rationale for selecting this alternative.

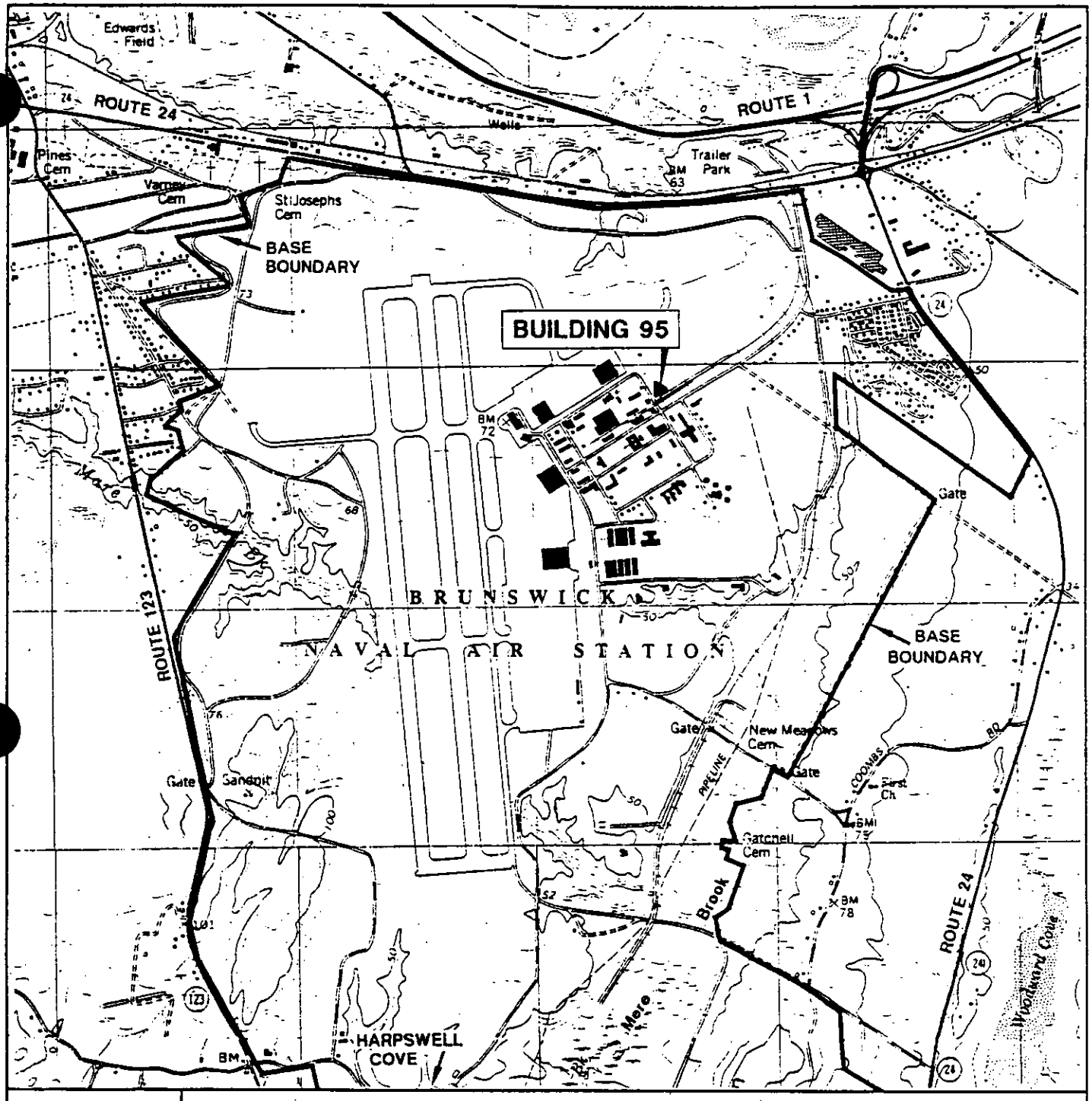
II. SITE CONDITIONS

The NCP states that a removal action may be conducted at a site where a threat to human health or welfare or the environment is established. An appropriate removal action is taken to abate, minimize, stabilize, mitigate, or eliminate the release or threat of release at a site. The following subsections describe NAS Brunswick and the conditions at the Building 95 site that support the need for a removal action.

A. SITE DESCRIPTION

1. Removal Site Evaluation

NAS Brunswick, located south of the Androscoggin River between Brunswick and Bath, Maine (Figure 1), is an active base, owned and operated by the federal government through the Department of the Navy. The facility currently participates in the Navy's Installation Restoration Program (IRP). In 1987, the USEPA placed NAS Brunswick on the National Priorities List (NPL).



SOURCE: USGS QUADRANGLE, BRUNSWICK, AND ORRS ISLAND, ME, DATED 1980, 1978. 7.5 MINUTE SERIES.

QUADRANGLE LOCATION

N

SCALE IN FEET

0 2,000 4,000

ABB Environmental Services Inc.

ASEA BROWN BOVERI

BUILDING 95
LOCATION MAP

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

BUILDING 95
ACTION MEMORANDUM

7122-02

FIGURE 1

As part of the IRP, the Navy evaluated contamination at Building 95 in accordance with a RCRA closure order signed by the Maine Board of Environmental Protection on May 22, 1991, and pursuant to 38 Maine Revised Statutes Annotated, Section 1301, and Chapter 855 of the Maine Hazardous Waste Management Rules. Past site uses, which included the storage, mixture, and disposal of pesticides and herbicides, suggested that the site could be a potential area of concern.

Building 95 housed base pest control operations from 1955 to 1985. Pesticides identified in the Initial Assessment Study (IAS) as being formerly stored and dispensed at Building 95 included malathion, diazinon, Baygon, pyrethrins, cyndgas, Sevin, esmethrin, 4,4'-dichlorodiphenyltrichloroethane (DDT) (used from 1955 to 1970), chlordane (used from 1955 to 1970), dieldrin (used in 1960), zinc phosphide (used from 1970 to 1975), arsenic lead (used from 1960 to at least 1983), rotenone (used from 1960 to at least 1983), and Avitrol (used from 1960 to 1980). Lindane and carbaryl may also have been present (R.F. Weston, Inc., 1983).

Herbicides identified in the IAS as currently or historically used at NAS Brunswick included drexel, simazine, monuron trichloroethane, 2,4-D (used from 1955 to at least 1983), 2,4,5-T (used in 1978), and maleic hydrazide (R.F. Weston, Inc., 1983).

In September 1990, four surface soil samples were collected by the Navy from the vicinity of Building 95 and analyzed for Target Compound List (TCL) pesticides and polychlorinated biphenyls (PCBs). Laboratory analysis showed these soils to be contaminated with DDT and its degradation products 4,4'-dichlorodiphenyldichloroethane (DDD) and 4,4'-dichlorodiphenyldichloroethylene (DDE). No PCBs were detected. Based on these data and the small size of the site (less than 1 acre), the Navy decided to perform an Engineering Evaluation/Cost Analysis (EE/CA) in support of a soil removal action. (NOTE: Pest control operations at NAS Brunswick moved from Building 95 to new facilities at Building 647 in 1985.)

The site evaluation, conducted in June and July of 1992 to support the EE/CA for Building 95, identified pesticides and herbicides in soils and on several structures at the site (ABB-ES, 1992). Organochlorine pesticides, nitrogen/phosphorus pesticides, and herbicides were detected in soil in the vicinity of Building 95. Pesticides detected the most frequently included DDT, DDD, DDE, pyrethrins, dieldrin, and chlordane. Analytical results from field gas chromatography detected DDT, DDD, and DDE at maximum concentrations of 310,000, 81,000, and 27,000 micrograms per kilogram (μg/kg), respectively. Dieldrin and chlordane were detected by field gas chromatography at maximum concentrations of 88,000 and 130,000 μg/kg, respectively (see Table 1-9 of the EE/CA [ABB-ES, 1992]). Pyrethrins were detected by off-site laboratory analysis at a maximum concentration of 5,000,000 μg/kg (see Appendix C of the EE/CA [ABB-ES, 1992]). DDT was detected as deep as 16 feet bgs at a concentration of 2,200 μg/kg.

Overall, the distribution patterns of individual pesticides exhibited collocation (the same spatial distribution) with DDT and pyrethrins. Additionally, DDT was detected on wipe samples collected from the surfaces of Building 95.

Six groundwater samples were collected beneath the Building 95 site. No volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), or herbicides were detected in these samples. DDT, rotenone, and certain inorganic chemicals were detected in some of the unfiltered samples at concentrations greater than background levels. Because these samples were collected from slotted rods rather than developed monitoring wells, and contained visible fine-grained material, it is not known whether the presence of pesticides and inorganics in the samples is representative of aquifer conditions (i.e., groundwater contamination) or indicate compounds associated with the fine-grained aquifer material (silt, clay, or colloidal material) entering the sampler.

Additional unfiltered groundwater samples were collected from four properly installed and developed monitoring wells in February 1993. These samples were sent off site for laboratory analysis for TCL

VOCs, SVOCs, pesticides, and herbicides, including pyrethrins and rotenone. These data are presented in Appendix A.

Six pesticides were detected in groundwater beneath Building 95: 4,4'-DDE, 4,4-DDT, endrin, alpha chlordane, gamma chlordane, and heptachlor epoxide. The well locations and detected concentrations for these pesticides are presented in Table 1. Rotenone, previously detected in groundwater beneath Building 95, was not detected during this sampling episode. No pesticide was detected at concentrations exceeding its respective federal Maximum Contaminant Level (MCL). Endrin and heptachlor epoxide were each detected once at concentrations in excess of their Maine Maximum Exposure Guidelines (MEG). One organic compound (carbon disulfide) and several inorganic compounds were also detected in the groundwater. These data are included in Table 1. None of these compounds were detected in excess of their respective MCLs or MEGs. Inorganic analytes detected but not included in Table 1 included 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).

2. Physical Location

NAS Brunswick occupies approximately 3,099 acres. The NAS includes property identified as lot 0 (zero) on tax map 40 of the Town of Brunswick property maps. The site is owned by the United States of America, Department of the Navy, and is used by the Navy for military purposes.

Building 95 is in the northern portion of the base, one block north of Fitch Avenue at the corner of Fifth Street and Avenue B (Figure 2). Currently, Building 95, Building 31, and a storage shed are located on the site. Abandoned railroad tracks run along the southern boundary of the site. Industrial areas abutting the site are the fuel tank farm to the east and buildings to the west. The northern portion of the site is

TABLE 1
ANALYTICAL GROUNDWATER DATA: FEBRUARY 1993

ACTION MEMORANDUM
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.

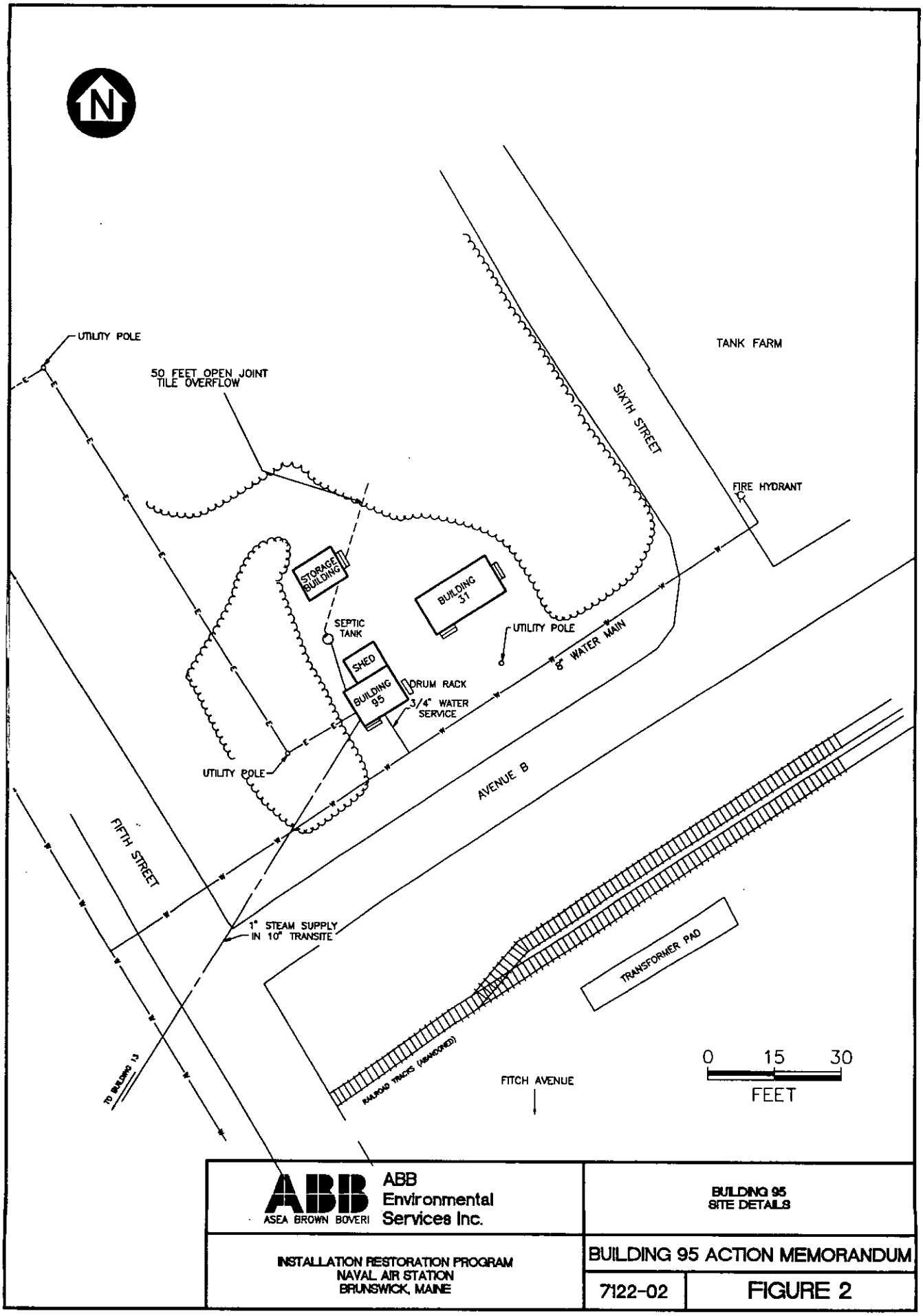


ABB Environmental Services Inc.
ASEA BROWN BOVERI

BUILDING 95
SITE DETAILS

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

BUILDING 95 ACTION MEMORANDUM

7122-02

FIGURE 2

FIG-2

forested and may provide a habitat for birds and small mammals. The nearest residential area is approximately one-quarter mile away.

3. Site Characteristics

Building 95 housed base pest control operations from 1955 until 1985. The building was used between 1945 and 1955 as an office for the fuel farm operations. In 1985, base pest control operations were moved to Building 647. A pre-construction plan drawing, dated May 5, 1945, shows Building 95 with dimensions of 15 by 12 feet and a 500-gallon septic tank and associated tile overflow pipe to the north. Building 95 has no floor drains or other piping that could have acted as a contaminant migration pathway other than the septic system. The one-story building is constructed of wood on a cinder block foundation. An 8-by-11-foot heated storage shed with a plywood floor was added to the north side of the building at a later date. A drum storage rack is outside the building along the eastern side. The site is not currently used as part of base operations.

Workers conducting asbestos abatement use Building 31 for changing and showering. The storage shed houses asbestos abatement equipment. Building 31 is approximately 25 by 12 feet, and rests on four concrete columns. Shower and lavatory facilities reportedly are connected to the same septic system serving Building 95.

To date, no removal or remedial actions have been undertaken at this site.

4. Release or Threatened Release Into the Environment of a Hazardous Substance, Pollutant, or Contaminant

Chemical analysis of soil collected in June and July of 1992 at Building 95 detected the presence of several pesticides and herbicides (ABB-ES, 1992). The most frequently detected compounds were DDT, DDD, DDE, pyrethrins, dieldrin, and chlordane. The distribution patterns of individual compounds exhibited collocation with DDT and pyrethrins.

Quantitative risk estimates were developed as part of the baseline ecological and human health risk assessment. DDT and its degradative products, DDD and DDE, were identified as the contaminants of concern at the site because of their toxicity and large areal extent of contamination. The baseline risk assessment recommends that DDT, DDD, and DDE be addressed to reduce human health and ecological risks associated with exposure to contaminated soil.

Pesticides (DDT and rotenone) were detected in unfiltered groundwater samples collected in June 1992. However, because slotted rods rather than developed monitoring wells were used to collect samples and the samples contained visible fine-grained material, it is not known if the presence of pesticides in the samples represent aquifer conditions. Additional unfiltered groundwater samples were collected from properly installed monitoring wells and analyzed for TCL VOCs, SVOCs, pesticides, and Target Analyte List (TAL) inorganics. Six pesticides were detected but at concentrations below their respective MCLs (see Table 1). Groundwater beneath the site is not used for potable purposes. No human or ecological risks were associated with the contaminants detected in this medium.

The potential for migration of contaminated surface soil at the site currently exists. Potential migration pathways include surface water runoff (including soil erosion), precipitation percolating through contaminated soil, and air (including wind erosion). However, because the site is vegetated and of the low solubility of the contaminants migration through erosion and/or precipitation is considered to be minimal.

5. National Priorities List Status

In 1987, the USEPA placed NAS Brunswick on the NPL. In 1990, the Navy entered into an FFA with the USEPA and the MEDEP. The FFA sets forth the roles and responsibilities of each agency, sets deadlines for the investigation and cleanup of hazardous waste sites at NAS Brunswick, and establishes a mechanism to resolve disputes among the agencies.

The Navy's RCRA corrective action obligations relating to the release(s) of hazardous substances, hazardous wastes, pollutants, or contaminants at NAS Brunswick are also covered in the FFA. Therefore, all actions at the base must achieve compliance with CERCLA, 42 U.S.C. Section 9601 *et. seq.*; satisfy the corrective action requirements of RCRA Sections 3004(u) and (v), 42 U.S.C. Sections 6924(u) and (v), for a RCRA permit, and RCRA Section 3008(h), 42 U.S.C. Section 6928(h), for interim status facilities; and meet or exceed all applicable or relevant and appropriate federal and state laws and regulations, to the extent required by CERCLA Section 121, 42 U.S.C. Section 9621 and applicable state laws.

Therefore, the Navy has evaluated the contamination at Building 95 as part of the IRP and in accordance with the RCRA closure order signed by the Maine Board of Environmental Protection on May 22, 1991. A summary of other actions taken by the Navy as part of the IRP is included in the following paragraphs.

In 1983, an IAS was conducted at nine sites (Sites 1 through 9) at NAS Brunswick, which recommended further investigation at seven of these sites. In 1984, the Navy performed a Pollution Abatement Confirmation (PAC) Study, and, in 1987, conducted a Remedial Investigation/Feasibility Study (RI/FS) for the seven sites (Sites 1, 2, 3, 4, 7, 8, and 9) identified during the IAS and PAC studies. Based on further information, two sites, Sites 11 and 13, were added to the RI/FS program in 1989, and two additional sites, Sites 12 and 14, were included in 1990. Sites 5 and 6, initially identified in the IAS, were brought back into the Navy's IRP in 1989. A total of 13 sites are currently part of the RI/FS program, as follows:

- Site 1 Orion Street Landfill - North
- Site 2 Orion Street Landfill - South
- Site 3 Hazardous Waste Burial Area
- Site 4 Acid/Caustic Pit
- Site 5 Orion Street Asbestos Disposal Site
- Site 6 Sandy Road Rubble and Asbestos Disposal Site
- Site 7 Old Acid/Caustic Pit

- Site 8 Perimeter Road Disposal Site
- Site 9 Neptune Drive Disposal Site
- Site 11 Fire Training Area
- Site 12 Explosive Ordnance Dump Training Area
- Site 13 Defense Reutilization and Marketing Office
- Site 14 Old Dump No. 3

Building 95 is not included as a site in the IRP because, as stated, activities at this site are being conducted in accordance with the FFA and to comply with the RCRA closure order.

B. OTHER ACTIONS TO DATE

To date, no removal or remedial actions have been taken to abate, minimize, stabilize, or eliminate the release of contamination from the Building 95 site.

C. STATE AND LOCAL AUTHORITIES ROLE

The Navy is undertaking this removal action pursuant to Executive Order 12580, the FFA and CERCLA. Executive Order 12580 designates the Navy as the lead agency and gives it the authority to sign removal action memorandums. The FFA provides USEPA and the MEDEP with the opportunity to review and comment on the Navy's proposal to undertake removal actions.

The proposed removal action for Building 95 and corresponding documents will be reviewed by USEPA Region I and the MEDEP prior to implementation. Comments received on the final EE/CA are addressed in the Responsiveness Summary, an attachment to this memorandum (see Appendix B). To date, the USEPA has not taken any emergency response actions nor have requests for USEPA assistance been made at this site.

III. THREATS TO HUMAN HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415 of the NCP outlines factors to be considered in establishing the appropriateness of a removal action. These factors are evaluated for Building 95 in this section.

A. THREATS TO PUBLIC HEALTH OR WELFARE

1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby populations or the food chain

A baseline risk assessment was conducted for Building 95. The results indicated that exposure to contaminated soil at Building 95 poses a risk to human health through direct contact and ingestion of contaminated soil. The greatest potential carcinogenic and noncarcinogenic risks to humans are associated with exposure to DDT, DDD, and DDE. No actual exposures to site contaminants have been reported to date.

Preliminary Remediation Goals (PRGs) were developed based on the results of the baseline risk assessment. Human-health-based PRGs are contaminant concentrations considered to be protective of human health based on specific exposure conditions for each medium. There are two general sources of chemical-specific PRGs: (1) concentrations based on Applicable or Relevant and Appropriate Requirements (ARARs), and (2) concentrations derived from risk-based calculations. ARARs are potential PRGs when they specify allowable concentrations of a compound in a particular medium. When ARARs are not available, risk-based PRGs are developed.

Soil. Currently, there are no specific state or federal standards addressing acceptable soil contamination concentrations. Therefore, PRGs for contaminants in soil were established using risk-based equations.

A risk-based PRG was calculated for DDT in soil because (1) it was the compound resulting in the highest risk estimates, and (2) other

compounds, both carcinogenic and noncarcinogenic, contributing to risk are collocated with the DDT and have smaller areas of contamination. Therefore, removal actions aimed at reducing risks from DDT would concurrently reduce risks from exposure to other contaminants.

PRGs for surface soil were calculated to be protective of residential exposures and are based on USEPA guidance (USEPA, 1991a). The equation and parameters for this calculation, shown in Table 8 of Appendix G of the EE/CA, assume ingestion of site soil 350 days per year for 30 years (ABB-ES, 1992). The ingestion rate is set at 200 milligrams per day (mg/day) for six years, to account for the higher soil contact rate for a young child, and decreases to 100 mg/day for the remaining 24 years of exposure.

Two different equations were used to develop a PRG for DDT in subsurface soil based on the potential future exposures that could be envisioned. The first assumes a construction worker involved in a one-time-only project of laying a foundation. The equation and parameters for this exposure are given in Table 9 of Appendix G of the EE/CA (ABB-ES, 1992). A conservative exposure duration of 12 five-day workweeks was assumed. The noncarcinogenic exposure dose is averaged over this period rather than a full year to provide a conservative estimate of exposure. Subchronic toxicity values are used because of the short-term nature of the exposure. The second equation, given in Table 10 of Appendix G of the EE/CA, is based on a worker installing utility lines, pipes, and so forth, and returning annually for maintenance (ABB-ES, 1992). Both exposures use the soil ingestion rate of 480 mg/day recommended in *Standard Default Exposure Factors* (USEPA, 1991b) and include dermal contact as well as ingestion. Inhalation of particulates is an additional exposure route for both construction scenarios but was shown in the risk assessment calculations to make a negligible contribution to overall risk.

The target risk levels used to develop PRGs are those established in the NCP. For carcinogenic effects, a concentration is calculated that corresponds to a 10^{-6} incremental risk of an individual developing

cancer over a lifetime. The 10^{-6} is used as the "point of departure;" however, the NCP states that the final PRG may be set to correspond to a different risk level (i.e., 10^{-5} or 10^{-4}). For noncarcinogenic effects, a concentration is calculated that corresponds to a Hazard Index (HI) of 1.0, which is the level of exposure to a chemical below which it is unlikely for even sensitive populations to experience adverse health effects. Tables 8, 9, and 10 in Appendix G of the EE/CA present the concentrations of DDT corresponding to both 10^{-6} and the HI of 1.0 based on residential land use and the two construction worker scenarios (ABB-ES, 1992). Chemical concentrations are derived for both carcinogenic and noncarcinogenic effects of a chemical if toxicity values are available to do so. These calculations resulted in proposed human-health-based PRGs of 1,880 μg/kg of DDT for residential exposure to surface soil (e.g., zero to 2 feet bgs) and 135,000 μg/kg of DDT for construction worker exposure to subsurface soil (2 to 15 feet bgs).

2. Actual or potential contamination of drinking water supplies

One unfiltered groundwater sample collected in June 1992 contained DDT at a concentration exceeding the Maine MEG, and another sample contained aluminum at a concentration exceeding the Maine MEG. Contaminants were not detected in filtered groundwater samples at levels exceeding federal MCLs or MEGs. Unfiltered samples collected in February 1993 from properly installed monitoring wells did not contain pesticides at concentrations in excess of their MCLs. Two pesticides, endrin and heptachlor epoxide, were each detected once at concentrations in excess of their Maine MEG (see Table 1). Groundwater beneath the site is not used for potable purposes.

This area of Brunswick is serviced by a public water supply drawn from the Jordan Avenue Wellfield located approximately 2,500 feet north and upgradient of the site. Groundwater flow in this area of the air station is to the southeast. Therefore, groundwater at Building 95 is not impacting this water supply.

3. **Hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release**

All containers of pesticides and herbicides were removed from the site when pest control operations were relocated to another portion of the base in 1985. A 500-gallon septic tank containing detectable levels of pesticides will be emptied and excavated as part of the proposed removal action.

4. **High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate**

DDT was detected in the top 2 feet of soil at concentrations up to 17,000 milligrams per kilogram (mg/kg). DDT was also detected in one sampling location 2 to 4 feet bgs at levels above the human health PRG of 135 mg/kg. Other organochlorine pesticides, nitrogen/ phosphorus pesticides, and herbicides were detected. The potential for migration of contaminated surface soil at the site currently exists, most probably via surface soil erosion. Based on topography, the likely route of migration is to the southeast toward Avenue B and the railroad tracks.

5. **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released**

Periods of heavy rain could increase the migration of contamination by eroding DDT-contaminated surface soil.

6. **Threat of fire or explosion**

None identified.

B. THREATS TO THE ENVIRONMENT

1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby animals or the food chain

The ecological risk assessment identified the potential for exposure to site-related contaminants by terrestrial receptors. Exposure to DDT, DDD, and DDE in the surface soil was identified as presenting the greatest risk. Possible receptors at the site were identified as: short-tailed shrew, American woodcock, garter snake, red fox, and red-tailed hawk.

Ecological PRGs for terrestrial receptors were developed based on the results of the baseline risk assessment. These PRGs are surface soil concentrations considered to be protective of the types of species that could be exposed at the site. No PRGs were calculated for subsurface soil (i.e., greater than 2 feet bgs) because terrestrial organisms are not expected to come into contact with subsurface constituents and no prey items exist in subsurface media. Because there are no surface soil guidelines or standards, these PRGs were developed using the food-web model for risk calculations. The process entails making the same exposure assumptions as presented in Subsection 2.2 of the EE/CA and deriving a soil concentration that would result in an HI of 1.0 for each soil constituent.

Because DDT (and its breakdown products DDE and DDD) were the most widespread contaminants and accounted for the majority of risk to the indicator ecological species modeled, DDT was selected as the contaminant of concern. A PRG for DDT was calculated and used to establish soil remediation objectives. Remediation objectives were also developed for exposure to total pyrethrins by ecological receptors. (Pyrethrins are not a contaminant of concern for human health because of their relatively low toxicity.) Sampling results indicated that pyrethrins were detected in the outermost sampling locations to the north (H12), south (E27) and east (LX3 and LX5) of Building 95, and, therefore, might not be remediated based only on the distribution of DDT-contaminated soils.

The PRG for pyrethrin was developed using the same methodology for estimating DDT PRGs. A preliminary PRG of 5 mg/kg total pyrethrin was estimated as a residual concentration that would not result in exposure dose levels in excess of ecological reference toxicity values (e.g., result in HIs greater than 1.0). However, because of technical limitations in analyzing for pyrethrins, the final PRG is proposed as 10 mg/kg. The analytical detection limit for the modified USEPA standard method for analysis of pyrethrins (using High Pressure Liquid Chromatography) is 10 mg/kg. The NCP recognizes technical factors, such as detection/quantification limits, in establishing final PRGs. Therefore, the PRG for pyrethrins is 10 mg/kg.

Small mammals (e.g., short-tailed shrew) were established as being the most sensitive ecological organisms to DDT contamination and the estimated protective soil concentration for this taxonomic group, 340 μg/kg, was established as the ecological PRG for DDT in surface soil.

However, a soil cleanup level of 500 μg/kg is recommended as the final PRG for DDT in surface soil. This concentration is a level protective of human health exposures although slightly above the ecological PRG developed to be protective of the most sensitive receptor (e.g., short-tailed shrew). Soil cleanup to the ecological PRG of 340 μg/kg would destroy the forested habitat along the northern section of the site, and the incremental reduction in estimated risk to ecological organisms must be counterbalanced by the habitat destruction necessitated by increasing the scope of soil remediation.

The habitat in the vicinity of Building 95 is described in Section 2.2 of the EE/CA (ABB-ES, 1992). The forested area located immediately north of the buildings is a white pine-dominated stand with trees in excess of 24 inches in diameter at breast height and a closed canopy at 50 to 60 feet above the ground. Individual trees are fairly evenly spaced (perhaps 15 feet apart). Subcanopy vegetation is minimal and consists of grasses and annual weeds. Although not a complex community, the individual pines that grow here provide habitat and food for various invertebrates, small mammals (such as squirrels),

insect-gleaning avifauna (and passerines, in general). Destruction of this area would adversely impact the habitat in the vicinity of Building 95.

In addition, following the established risk methodology, HIs for the 500 and 340 μg/kg DDT PRGs are established to be 1.5 and 1.0, respectively. Consequently, if a 340 μg/kg cleanup level was achieved rather than the 500 μg/kg level that has been recommended, the estimated HI would decrease by approximately 30 percent. Because a quantitative uncertainty analysis was not conducted as part of this risk assessment, it is not possible to estimate a percentage decrease in potential risk between these two alternatives. However, given that the large uncertainties are typically measured in terms of order of magnitude, it is unlikely that a difference in soil concentrations as small as this would result in any difference in measurable impact to these receptors. Therefore, the Navy concludes that a PRG of 500 μg/kg DDT represents the best balance of risk reduction and habitat protection for this site.

Twelve surface soil samples were collected in January 1993 and sent off site for laboratory analysis for TCL VOCs, SVOCs, pesticides and herbicides, and TAL inorganics. This sampling program was conducted to support the design of the removal action, in particular, to better delineate the 500 μg/kg DDT contour. The analytical data are presented in Appendix A, and summarized in Table 2. Sampling locations are identified in Figure 3. Total DDT, DDD, and DDE concentrations at 11 of the 12 sampling locations were below the PRG of 500 μg/kg (see Table 2). The total DDT, DDD, and DDE concentration at sampling location SS-9 was 1,620 μg/kg. No samples collected in the forested area north of Building 95 exceeded 500 μg/kg.

Total pyrethrin concentrations were also evaluated to confirm that the removal action included areas of pyrethrin contamination in excess of 10,000 μg/kg (10 mg/kg). Total pyrethrin concentrations of 54,000 μg/kg and 970,000 μg/kg were detected at SS-9 and SS-11, respectively. The proposed extent of excavation was expanded to include these sampling locations.

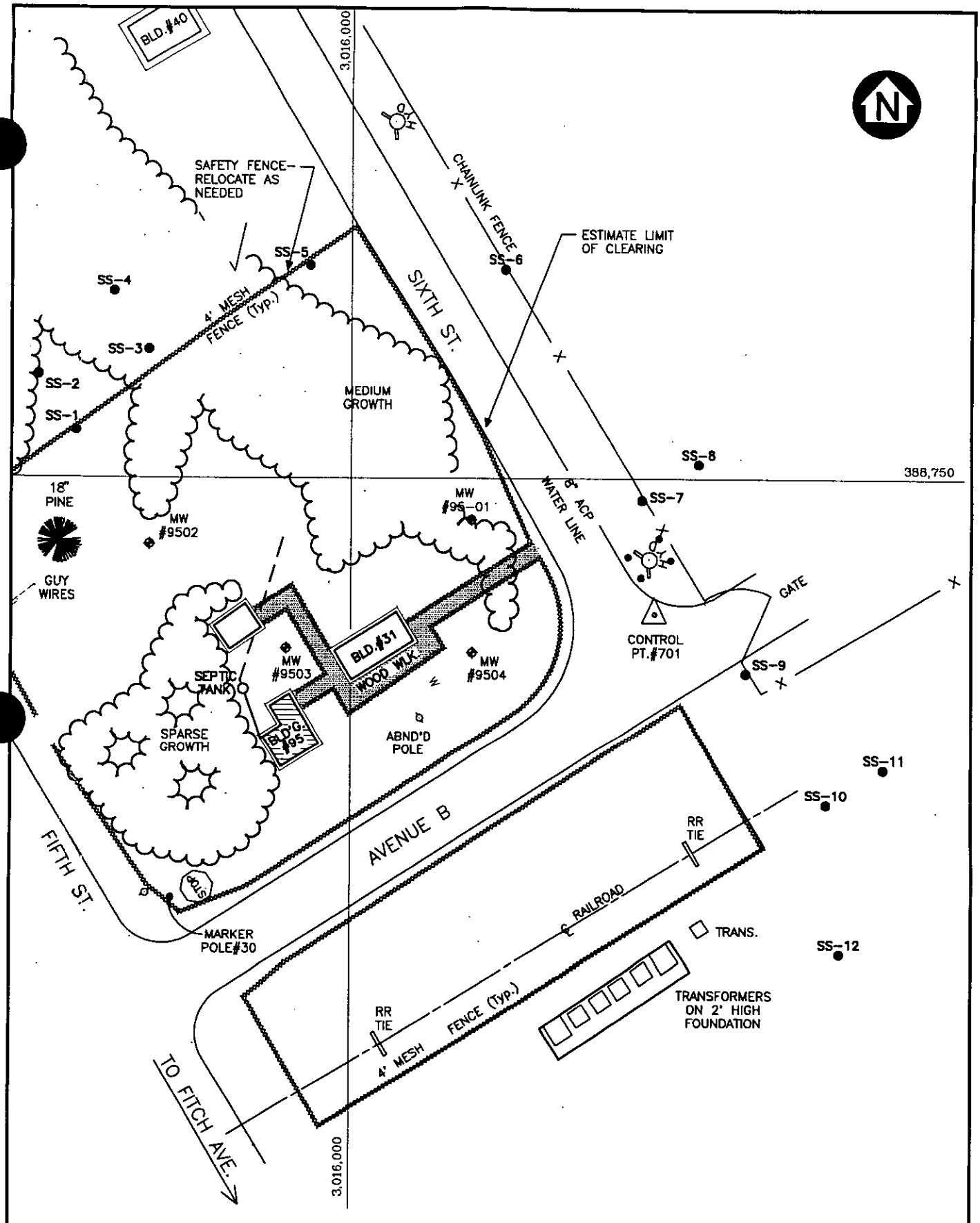
TABLE 2
ANALYTICAL SOIL DATA: JANUARY 1993

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

CONTAMINANT	SAMPLING LOCATION											
	SS-1 (µg/kg)	SS-2 (µg/kg)	SS-3 (µg/kg)	SS-4 (µg/kg)	SS-5 (µg/kg)	SS-6 (µg/kg)	SS-7 (µg/kg)	SS-8 (µg/kg)	SS-9 (µg/kg)	SS-10 (µg/kg)	SS-11 (µg/kg)	SS-12 (µg/kg)
delta BHC	--	--	1.3J	--	--	--	--	--	--	--	--	--
Heptachlor Epoxide	6.7J	4.5J	6J	4J	1.2J	2J	4.1J	13J	46J	20J	130J	--
4,4'-DDE	38J	38J	28J	8.1J	17J	73J	110J	9.9J	420J	58J	39J	--
4,4'-DDD	16J	16J	9.6J	--	1.6J	10J	18J	--	99J	20J	--	--
4,4'-DDT	130J	140J	40J	15J	15J	100J	120J	21J	1,100J	250J	73J	--
Methoxychlor	--	--	--	--	--	--	--	--	--	--	55J	--
alpha-Chlordane	1.7J	1.6J	2.9J	--	--	2.3J	5.3J	--	29J	6.6J	16J	--
gamma-Chlordane	--	0.97J	2.7J	--	--	0.33J	3.2J	--	42J	--	--	--
Heptachlor	--	--	--	--	--	--	0.63J	--	--	--	--	--
Rotenone	400	--	--	--	--	--	--	--	--	--	1,800	--
Pyrethrins (Total)	--	--	--	--	--	--	--	--	54,000	--	97,000	--
Total DDT, DDD, and DDE	184J	194	178	231	34	183	248	31	1,619	328	112	--

Notes:

µg/kg = micrograms per kilogram
J = estimated value
-- = not detected


BLD.#40
3,016,000
SAFETY FENCE-RELOCATE AS NEEDED
CHAINLINK FENCE
ESTIMATE LIMIT OF CLEARING
SS-5
SS-6
SS-4
4' MESH FENCE (Typ.)
SIXTH ST.
SS-3
SS-2
SS-1
MEDIUM GROWTH
SS-8
388,750
18" PINE
MW #9502
MW #95-01
6" ACP WATER LINE
SS-7
GUY WIRES
GATE
CONTROL PT.#701
MW #9503
BLD.#31
WOOD, MUL.
MW #9504
SEPTIC TANK
SS-9
SPARSE GROWTH
BLDG. #95
ABND'D POLE
SS-11
SS-10
AVENUE B
RR TIE
FIFTH ST.
STOP
RAILROAD
MARKER POLE#30
TRANS.
SS-12
TRANSFORMERS ON 2' HIGH FOUNDATION
RR TIE
4' MESH FENCE (Typ.)
TO FITCH AVE.
3,016,000
N
0 20 40 80
SCALE: 1"=40'
ABB Environmental Services Inc.
BUIDLING 95 SURFACE SOIL SAMPLE LOCATIONS (JAN. 1993)
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, ME
BUILDING 95 ACTION MEMORANDUM
7122-02
FIGURE 3

2. **Actual or potential contamination of sensitive ecosystem**

No sensitive ecosystems were identified near the site.

3. **Hazardous substances, pollutants, or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release**

All containers of pesticides and herbicides were removed from the site when pest control operations were relocated to another portion of the base in 1985. A 500-gallon septic tank containing detectable levels of pesticides will be emptied and excavated as part of the proposed removal action.

4. **High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate**

DDT was detected in the top 2 feet of soil at concentrations up to 17,000 mg/kg. Other organochlorine pesticides, nitrogen/phosphorus pesticides, and herbicides were also detected above background concentrations. The potential for migration of contaminated surface soil at the site currently exists, with surface soil erosion the most probable form of migration. Based on the site topography, the likely route of migration is to the southeast toward Avenue B and the railroad tracks. However, no wetlands or other protected or endangered habitats have been identified in this area.

5. **Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released**

Surface soil erosion is the most probable form of migration. Periods of heavy rain would increase the migration of contamination.

6. **Threat of fire or explosion**

None identified.

IV. ENDANGERMENT DETERMINATION

A non-time critical removal action to facilitate the rapid cleanup of contaminated soil has been identified for Building 95. Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, could present an imminent and substantial endangerment to public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

This section briefly describes the proposed and alternative removal actions and associated costs. A more detailed description of each alternative is presented in the EE/CA (ABB-ES, 1992).

A. PROPOSED ACTION DESCRIPTION

Because the proposed removal action alternative includes excavating RCRA-listed pesticide-contaminated soil exceeding PRGs, it must comply with RCRA Land Disposal Restrictions (LDRs). The treatment standards specified for these pesticides in 40 CFR Part 268.43 were developed using incineration, the proposed treatment method for this alternative. The proposed removal action consists of the following components:

- site preparation
- removal of structures
- excavation
- transportation and incineration
- site restoration
- groundwater monitoring
- site inspections and maintenance
- five-year reviews

Each component is described in the following paragraphs.

Site Preparation. Site preparation for the removal action would include mobilization of all necessary equipment and construction trailers, installation

of sediment control measures (i.e., hay bales, siltation fencing, or earthen berms), and construction of a decontamination pad. Given the relatively small size of the site, it might be necessary to use space from adjacent facilities for staging equipment. The specific area to be used for staging equipment would depend on space availability at the time of the removal action and would require approval by NAS Brunswick. Fencing would be installed around the site to restrict access during construction. Traffic would be rerouted around the site during the removal action.

There are no plans to excavate beneath either Avenue B or Sixth Street. Construction drawings dated 1945 show these roadways, indicating they were placed over the soils before the site was used as a pesticide storage area. In addition, given the limited subsurface horizontal migration of pesticide contaminated soils it is unlikely that the area beneath the roadways are contaminated.

Removal of Structures. The first part of the removal action would be to displace the three existing buildings, a portion of the railroad tracks, and the septic tank and associated materials from the site. Underground utilities would be capped at the building connection and abandoned in place, except for the septic system connection. Pipes from Buildings 95 and 31 to the septic tank would be removed with the tank. Contents of the tank would be pumped out and disposed of as hazardous waste before removing the tank. Demolition debris (e.g., Building 95 and concrete foundations), railroad ties, piping, open joint tile, and any other material greater than 2.5 inches (any dimension) intended for disposal would be considered contaminated with RCRA-listed waste, and would 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) (USEPA, 1992). Once treated to prescribed treatment standards, the debris would no longer be considered hazardous and could be disposed of at a construction/demolition debris landfill.

Nonporous surfaces would be cleaned using a steam-cleaner to remove soil. Porous materials would be sandblasted or scoured before disposal. Because site contaminants (i.e., pesticides) do not readily dissolve in water, fluids generated during steam-cleaning would be allowed to infiltrate within the area

exceeding PRGs. To keep the fluids from flowing outside the area, earthen berms may need to be constructed.

The contents of the septic tank would be containerized and disposed of as a hazardous waste at an approved facility. The septic tank would be emptied and the steel structure would be excavated, steam-cleaned, and disposed of in a local construction debris landfill. Other material associated with the septic tank (i.e., open-joint tile) would be cleaned and disposed of as debris.

Railroad ties remain along the abandoned right-of-way south of Building 95. These ties are considered to be contaminated with a listed hazardous waste. Therefore, they would be treated as contaminated debris and disposed of accordingly.

Excavation. Excavation involves the removal of soil exceeding 500 μg/kg DDT from zero to 2 feet bgs and soil exceeding 135,000 μg/kg DDT from 2 to 4 feet bgs as shown on Figure 4. These areas have been preliminarily identified as the areas exceeding the soil PRGs, based on surface soil data collected in June and July 1992 and in January 1993. Excavated soils would be staged on site, screened to remove large debris, and loaded into dump trucks for transport to a hazardous waste incinerator. An estimated 1,250 cubic yards of soil would be excavated and transported off site for incineration (this volume includes sampling locations SS-9 and SS-11) (see Appendix D). Debris would be separated, steam-cleaned, and disposed of in accordance with the treatment standards for hazardous debris (USEPA, 1992).

Samples would also be collected as part of the excavation activities to confirm removal of soils contaminated with pesticides greater than the PRGs. Samples would be collected from the sidewalls at 50-foot intervals and from the bottom of the excavation. Areas in which samples exceed PRGs would require additional excavation.

At least one soil sample would be collected from beneath the septic tank and from each sidewall following removal of the tank. A minimum of three soil samples would be collected from below the joint tile overflow. These samples would be sent off site for laboratory analysis to evaluate if pesticides have

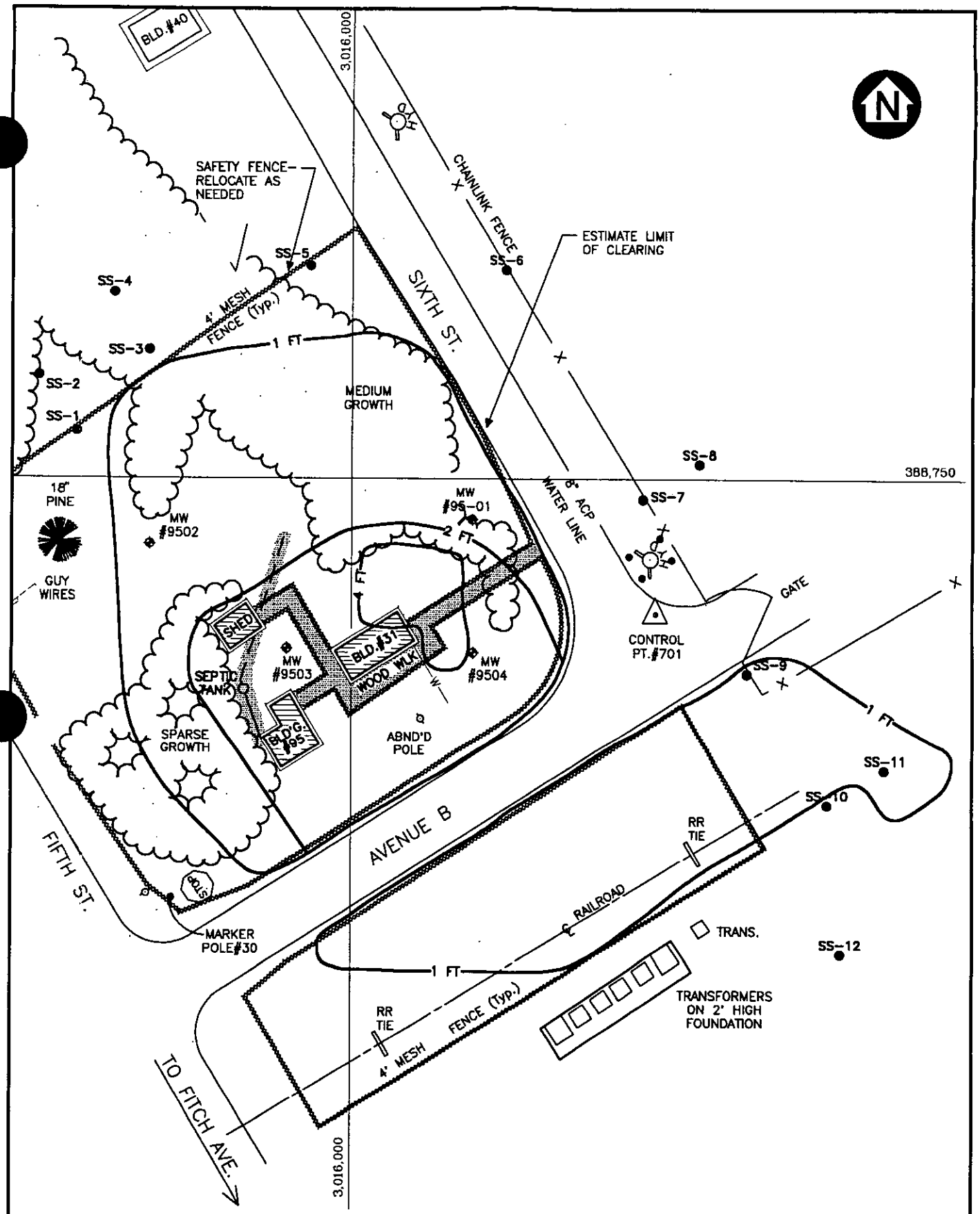


ABB Environmental Services Inc.	AREA EXCEEDING PRELIMINARY REMEDIATION GOALS
INSTALLATION RESTORATION PROGRAM NAVAL AIR STATION BRUNSWICK, ME	BUILDING 95 ACTION MEMORANDUM
7122-02	FIGURE 4

entered the soil from subsurface disposal at concentrations in excess of the 135,000 μg/kg DDT PRG.

Transportation and Incineration. Excavated soil would be transported by a licensed hazardous waste hauler to a permitted off-site hazardous waste incinerator. The Navy will notify the USEPA of the selected incinerator facility prior to transporting soils off site. Incineration technologies destroy organic contaminants in soils by subjecting them to temperatures as high as 2,600°F in the presence of oxygen. This causes the organic contaminants to volatilize and oxidize, yielding destruction percentages greater than 99 percent. This technology is applicable for treating a wide range of organic contaminants, including VOCs, SVOCs, pesticides, and PCBs.

Site Restoration. Following excavation and off-site transport of contaminated soils, the site would be restored and returned to a natural condition. A geotextile fabric would be placed in the excavated area and fill would be placed and compacted to replace the contaminated soils that were removed. 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 would be placed over the fill material and seeded to establish a vegetated cover.

Groundwater Monitoring. A two-phase groundwater monitoring program is proposed as part of this alternative. The first phase has been conducted as part of predesign activities to more fully evaluate groundwater quality at the site. The second phase would include long-term groundwater monitoring and evaluation to establish the need for additional remedial activities at this site. These monitoring programs are described below.

Four monitoring wells were installed during predesign field activities and groundwater samples were be collected from each well for analysis for TCL VOCs, SVOCs, pesticides, and TAL inorganics. These data were compared to regulatory standards and health-based criteria to evaluate groundwater quality (see Table 1 and Appendix A). Based on this evaluation, additional groundwater monitoring is proposed.

After the soil removal action is completed, the four monitoring wells or replacement wells if any of the original wells are damaged during soil

removal, would be used for long-term groundwater monitoring. Samples collected from these wells would be analyzed for TCL VOCs, SVOCs, pesticides, and TAL inorganics. These data would be evaluated and formally reported during five-year reviews. A quantitative risk assessment may also be performed using these data to assist in evaluating groundwater quality and the need for additional remedial actions. The long-term monitoring plan will be submitted for agency review and comment.

Site Inspection and Maintenance. Quarterly site inspections and maintenance would be conducted to assess the integrity of the monitoring wells and the continued protection of human health and the environment.

Five-Year Reviews. Because soils contaminated with pesticides will remain in the ground, five-year reviews will be required for this site. The purpose of the five-year reviews would be to organize, analyze, and present the data gathered during site inspections and sampling episodes and results of a revised risk assessment in a report. The review would recommend future activities at the site as appropriate. Recommendations could be to continue or suspend site inspections and five-year reviews, or to implement additional actions.

Although a long-term monitoring program has not yet been developed for the site, a program will be proposed and presented to the regulatory agencies for review and approval. Five-year reviews of the site will summarize the data collected during the long-term monitoring program. In addition, the data will be evaluated and reported when collected to allow the site characteristics to be evaluated more frequently. If data show that groundwater has been adversely impacted, the need for additional action will be evaluated. The five-year review process will follow the procedures stated in the FFA and USEPA guidance (USEPA, 1991c).

B. CONTRIBUTION TO REMEDIAL PERFORMANCE

The removal and treatment of soil at this site would mitigate the potential risks to human and ecological receptors posed by DDT-contaminated soil. Based upon available information, the removal action would not hinder any other action that could be required as part of the long-term remedy for the site. The groundwater monitoring component of the removal action would

evaluate groundwater quality and the need for additional remedial action at the site.

C. DESCRIPTION OF ALTERNATIVE TECHNOLOGIES

Other alternatives evaluated for this removal action included placement of a cap over the site and excavation and treatment of contaminated soil by solvent extraction. The following paragraphs compare these removal action alternatives with the proposed alternative using effectiveness, implementability, and cost as evaluation criteria.

Effectiveness. Treatment by solvent extraction and the proposed removal action alternative (excavation and incineration) would both remove contaminants from the soil. The cover system alternative would not treat the soil, but would reduce the potential for contact with the soil and migration of contaminants. Treatment by solvent extraction would require a treatability variance for LDRs before implementation. In addition, treatment by solvent extraction would require a treatability study to establish the effectiveness of this technology in removing DDT from the soil. Treatment by incineration is the Best Demonstrated Available Technology (BDAT) for RCRA-listed pesticides such as those found in the soil at Building 95, and would not require a treatability variance. Installation of the proposed cover system would require that an ARAR waiver be obtained prior to construction because the proposed cover system differs from the cover systems required under RCRA.

Implementability. Soil excavation at the site would be implemented easily because the excavation would be shallow (zero to 2 feet bgs in most areas and to 4 feet bgs at one location). Treatment by incineration is the BDAT for the site contaminants and has been used extensively for treating pesticide-contaminated soil. Treatment by solvent extraction would require a treatability study to establish the effectiveness of removing contaminants from the soil and to define equipment operating parameters. Use of solvent extraction for full-scale treatment of pesticides has not been demonstrated. A cover system could be installed easily at the site, once an ARAR waiver was obtained. However, a cover system may not be consistent with the long-term

remedy for the site. Land-use restrictions would need to be established after the cover system is constructed because the material would remain on site.

Cost. Capital costs are estimated at $140,000 for the cover system, $2,618,000 for excavation and incineration, and $1,815,000 for excavation and solvent extraction. The total present worth costs of the alternatives are estimated at $328,000 for the cover system, $3,773,000 for excavation and incineration, and $3,089,000 for excavation and solvent extraction.

D. ENGINEERING EVALUATION/COST ANALYSIS

The EE/CA discusses in more detail the other alternatives evaluated for this removal action. The Responsiveness Summary is included as Appendix C of this report and contains written responses to significant comments on the EE/CA received during the public comment period.

E. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

ARARs are federal and state human health and environmental requirements used to (1) evaluate the appropriate extent of site cleanup, (2) scope and formulate removal action alternatives, and (3) govern the implementation and operation of a selected removal action. CERCLA and the NCP require that removal actions attain ARARs to the greatest extent practicable.

Under the description of ARARs in the NCP and the Superfund Amendments and Reauthorization Act, state and federal environmental requirements must be considered that are:

- chemical-specific (i.e., govern the extent of site remediation);
- location-specific (i.e., pertain to site-specific features); and
- action-specific (i.e., pertain to proposed site remedies and govern implementation of the selected site remedy).

Those ARARs are described in the following paragraphs:

Chemical-specific ARARs. Chemical-specific ARARs are usually health- or risk-based standards limiting the concentration of a chemical found in or discharged to the environment. Chemical-specific ARARs govern the extent of site cleanup and provide either actual cleanup levels or a basis for calculating such levels. The chemical-specific ARARs for Building 95 are presented in Table B-1 of Appendix B.

Location-specific ARARs. Location-specific ARARs govern natural site features (e.g., wetlands, floodplains, sensitive ecosystems) and special man-made features such as special places of historical or archeological significance. These ARARs generally restrict the concentration of hazardous substances or the conduct of activities based solely on the site's particular characteristics or location. Table B-2 in Appendix B is a synopsis of potential location-specific standards listed by site feature. Location-specific ARARs for Building 95 consist of general natural resources and groundwater protection regulations. There are no regulated natural features, such as wetlands or floodplains, in the vicinity of Building 95.

Action-specific ARARs. Action-specific ARARs usually set performance or design standards, controls, or restrictions on actions at hazardous waste sites. Applicable performance or design standards must be considered to develop technically feasible alternatives. Table B-3 in Appendix B is a synopsis of potential action-specific ARARs identified for the removal alternatives developed as part of the EE/CA.

RCRA Land Disposal Restrictions. RCRA LDRs could be applicable to the removal action. As set forth under 40 CFR Part 268, LDRs may be invoked for removal actions involving the disposal of certain hazardous wastes. LDRs prohibit land disposal of hazardous wastes not meeting specified treatment standards. LDRs establish treatment standards based on the BDAT for a specific waste. A BDAT treatment standard can be either a concentration level to be achieved or a specified technology that must be used. If the standard is concentration-based, any treatment technology that can achieve the standard may be used. Wastes treated according to the specified treatment standard may be land-disposed in a RCRA-permitted (i.e., Subtitle C) facility following treatment.

Table B-4 in Appendix B lists a number of chemicals detected during the Building 95 site evaluation and associated waste codes, as set forth under 40 CFR Part 261. This table also includes the concentration-treatment standards for wastes that have been promulgated under 40 CFR Part 268 as well as the technology used to develop each treatment standard.

Soils containing these contaminants are considered hazardous under the contained-in policy. This policy states that when any material contains a listed hazardous waste, that material carries the waste code and must be managed as a hazardous waste until it no longer contains the waste. Because the soils at Building 95 are contaminated with RCRA-regulated wastes that have promulgated treatment standards, LDRs would apply to proposed actions involving placement.

Building 95 soils are also prohibited from land disposal under the California List Prohibitions. California List wastes include soil that contains total halogenated organic compounds (e.g., DDT) at concentrations greater than or equal to 1,000 parts per million. California List wastes must be incinerated, in accordance with 40 CFR 264, Subpart O, before land disposal.

However, when a treatment standard has been promulgated for a listed waste, the waste-specific treatment standard takes precedence over the California List standard or prohibition.

F. PROJECT SCHEDULE

The proposed removal action would take approximately two months to implement. This includes all activities associated with site preparation, excavation, and site restoration.

G. ESTIMATED COSTS

The removal action for Building 95 will be funded entirely by the Navy. This removal action alternative is estimated to cost $3,773,000. This cost is accurate to +50 to -30 percent of the estimated cost.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD NO ACTION BE TAKEN OR THE ACTION DELAYED

Should the action be delayed or not be implemented, the contaminated soil would continue to pose elevated risks to human and environmental receptors from ingestion and direct contact exposures. Access to the site is currently controlled by fencing and posted signs. The potential for migration of the contaminants from the site would exist until the removal action is implemented.

VII. OUTSTANDING POLICY ISSUES

None identified.

VIII. ENFORCEMENT

The U.S. Department of the Navy is the lead agency for NAS Brunswick and is responsible for funding this removal action. Because all money will be provided by the U.S. Department of the Navy, enforcement strategies do not apply to this removal action.

IX. RECOMMENDATION

This document presents the selected removal action for Building 95 contaminated structures and soil at NAS Brunswick, in Brunswick, Maine, developed in accordance with CERCLA as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Building 95 site.

Conditions at Building 95 meet the NCP Section 300.416(b)(2) criteria for a removal action and therefore a removal action is recommended for Building 95 contaminated structures and soil.

The foregoing represents the selection of the removal action by the Department of the Navy. Concur and Recommend for immediate implementation:

By: _____ Date: _____
Robert L. Rachor, Jr.

Title: Captain, U.S. Navy
Commanding Officer
Naval Air Station
Brunswick, Maine

ARAR	Applicable or Relevant and Appropriate Requirement
BDAT	Best Demonstrated Available Technology
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DDD	dichlorodiphenyl dichloroethane
DDE	dichlorodiphenyl dichloroethylene
DDT	dichlorodiphenyl trichloroethane
EE/CA	Engineering Evaluation/Cost Analysis
FFA	Federal Facility Agreement
HI	hazard index
IAS	Initial Assessment Study
IRP	Installation Restoration Program
LDR	Land Disposal Restriction
MCL	Maximum Contaminant Level
MEDEP	Maine Department of Environmental Protection
MEG	Maximum Exposure Guideline
mg/day	milligrams per day
mg/kg	milligrams per kilogram
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Contingency Plan
NPL	National Priorities List
PAC	Pollutant Abatement Confirmation
PCB	polychlorinated biphenyl
PRG	Preliminary Remediation Goal

RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
SVOC	semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
USEPA	U.S. Environmental Protection Agency
VOC	volatile organic compound
μg/kg	micrograms per kilogram

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

R.F. Weston, Inc., 1983. "Initial Assessment Study of Naval Air Station, Brunswick, Maine"; West Chester, Pennsylvania; June 1983.

U.S. Environmental Protection Agency (USEPA), 1991a. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part B, Development of Risk-based Preliminary Remediation Goals)*; PB92-963343; December 1991.

U.S. Environmental Protection Agency (USEPA), 1991b. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual, Supplemental Guidance, Standard Default Exposure Factors*; Interim Final; Office of Emergency and Remedial Response; U.S. Environmental Protection Agency; OSWER Directive 9285.6-03; March 25, 1991.

U.S. Environmental Protection Agency (USEPA), 1991c. "Structure and Components of Five-Year Reviews". Office of Solid Waste and Emergency Response Directive 9355.7-02; May 23, 1991.

U.S. Environmental Protection Agency (USEPA), 1992. "Treatment Standards for Hazardous Debris"; Federal Register, Vol. 57, No. 160, 37226, August 18, 1992.

ANALYTICAL DATA - FEBRUARY 1993 PREDESIGN SAMPLING PROGRAM

Table 1
Laboratory Report of Analysis

SAMPLE LOCATION: 95QSXX1XXX93XX
LAB NUMBER: 71693
DATE SAMPLED: 02/03/93
DATE EXTRACTED: 02/08/93
DATE ANALYZED: 02/16/93

ANALYTE	SOW-3/90 - II CRQL		
alpha-BHC	0.05	0.056	U
beta-BHC	0.05	0.056	U
delta-BHC	0.05	0.056	U
gamma-BHC (Lindane)	0.05	0.056	U
Heptachlor	0.05	0.056	U
Aldrin	0.05	0.056	U
Heptachlor Epoxide	0.05	0.056	U
Endosulfan I	0.05	0.056	U
Dieldrin	0.1	0.11	U
4,4'-DDE	0.1	0.11	U
Endrin	0.1	0.11	U
Endosulfan II	0.1	0.11	U
4,4'-DDD	0.1	0.11	U
Endrin Aldehyde	0.1	0.11	U
Endosulfan Sulfate	0.1	0.11	U
4,4'-DDT	0.1	0.11	U
Methoxychlor	0.5	0.56	U
Endrin Ketone	0.1	0.11	U
alpha-Chlordane	0.05	0.056	U
gamma-Chlordane	0.05	0.056	U
Toxaphene	5	5.6	U
Aroclor-1016	1	1.1	U
Aroclor-1221	2	2.2	U
Aroclor-1232	1	1.1	U
Aroclor-1242	1	1.1	U
Aroclor-1248	1	1.1	U
Aroclor-1254	1	1.1	U
Aroclor-1260	1	1.1	U
Dilution Factor:		1.00	

Associated Method Blank: PBLK20208AA
Associated Equipment Blank: -
Associated Field Blank: -

Site: EQUIPMENT RINSATE

A-1

Table 1
Laboratory Report of Analysis

SAMPLE LOCATION: 95QSXX1XXX93XX
LAB NUMBER: 71693
DATE SAMPLED: 02/03/93
DATE ANALYZED: 02/08/93

ANALYTE	SOW-3/90 - II CRQL		
Chloromethane	10	10	U
Bromomethane	10	10	U
Vinyl Chloride	10	10	U
Chloroethane	10	10	U
Methylene Chloride	10	10	U
Acetone	10	14	
Carbon Disulfide	10	10	U
1,1-Dichloroethene	10	10	U
1,1-Dichloroethane	10	10	U
1,2-Dichloroethene (total)	10	10	U
Chloroform	10	2	J
1,2-Dichloroethane	10	10	U
2-Butanone	10	10	U
1,1,1-Trichloroethane	10	10	U
Carbon Tetrachloride	10	10	U
Bromodichloromethane	10	10	U
1,2-Dichloropropane	10	10	U
cis-1,3-Dichloropropene	10	10	U
Trichloroethene	10	10	U
Dibromochloromethane	10	10	U
1,1,2-Trichloroethane	10	10	U
Benzene	10	10	U
trans-1,3-Dichloropropene	10	10	U
Bromoform	10	10	U
4-Methyl-2-Pentanone	10	10	U
2-Hexanone	10	10	U
Tetrachloroethene	10	10	U
1,1,2,2-Tetrachloroethane	10	10	U
Toluene	10	10	U
Chlorobenzene	10	10	U
Ethylbenzene	10	10	U
Styrene	10	10	U
Total Xylenes	10	10	U
Dilution Factor:		1.00	

Associated Method Blank: K7164
Associated Equipment Blank: -
Associated Field Blank: -
Associated Trip Blank: -

Site: EQUIPMENT RINSATE

A-2

Table 1
Laboratory Report of Analysis

SAMPLE LOCATION: 95QSXX1XXX93XX
LAB NUMBER: 71693S
DATE SAMPLED: 02/03/93

ANALYTE	SOW-3/90 - II CRDL		
Aluminum	200	47.2	B*
Antimony	60	50.0	U
Arsenic	10	2.0	UW
Barium	200	3.0	U
Beryllium	5	1.0	U
Cadmium	5	4.0	U
Calcium	5000	106	B
Chromium	10	4.0	U
Cobalt	50	5.0	U
Copper	25	7.1	B
Iron	100	54.8	B*
Lead	3	2.4	B
Magnesium	5000	20.0	U
Manganese	15	3.0	U
Mercury	0.2	0.20	U
Nickel	40	14.0	U
Potassium	5000	250	U
Selenium	5	1.0	U
Silver	10	4.0	U
Sodium	5000	432	B
Thallium	10	2.0	U
Vanadium	50	5.0	U
Zinc	20	6.0	U
Cyanide	10	10.0	U

Associated Method Blank: PB4046CW
Associated Equipment Blank: -
Associated Field Blank: -

Site: EQUIPMENT RINSATE

Table 1
Laboratory Report of Analysis

SAMPLE LOCATION: 95QSXX1XXX93XX
LAB NUMBER: BNASW4*2
DATE SAMPLED: 02/03/93
DATE ANALYZED: 02/22/93

ANALYTE	RL	
ROTENONE	0.71	0.71 U
PYRETHRINS, TOTAL	20.0	20 U

Associated Method Blank: PBG35281
Associated Equipment Blank: -
Associated Field Blank: -

Site: EQUIPMENT RINSATE

Table 1
Laboratory Report of Analysis

SAMPLE LOCATION:	95QSXX1XXX93XX
LAB NUMBER:	71693
DATE SAMPLED:	02/03/93
DATE EXTRACTED:	02/10/93
DATE ANALYZED:	02/27/93

ANALYTE	RL	
Methyl Azinphos	2.5	2.5 U
Bolstar	2.5	2.5 U
Cholorpyrifos	2.5	2.5 U
Coumaphos	2.5	2.5 U
O-Demeton	2.5	2.5 U
S-Demeton	2.5	2.5 U
Diazinon	2.5	2.5 U
Dichlorvos	2.5	2.5 U
Dimethoate	2.5	2.5 U
Disulfoton	2.5	2.5 U
EPN	2.5	2.5 U
Ethoprop	2.5	2.5 U
Fensulfothion	2.5	2.5 U
Fenthion	2.5	2.5 U
Malathion	2.5	2.5 U
Merphos	2.5	2.5 U
Mevinphos	2.5	2.5 U
Monocrotophos	2.5	2.5 U
Naled	2.5	2.5 U
Ethyl Parathion	2.5	2.5 U
Methyl Parathion	2.5	2.5 U
Phorate	2.5	2.5 U
Ronnel	2.5	2.5 U
Sulfotep	2.5	2.5 U
TEPP	2.5	2.5 U
Tetrachlorovinphos	2.5	2.5 U
Tokuthion	2.5	2.5 U
Trichloronate	2.5	2.5 U

Associated Method Blank:	PBLK10210A
Associated Equipment Blank:	-
Associated Field Blank:	-

Site: EQUIPMENT RINSATE

Table 1
Laboratory Report of Analysis

SAMPLE LOCATION:		95GWX01XXX93XX	95GWX02XXX93XX	95GWX03XXX93XD	95GWX03XXX93XX	95GWX04XXX93XX
LAB NUMBER:		BNASW4*4	BNASW4*3	BNASW4*7	BNASW4*6	BNASW4*5
DATE SAMPLED:		02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
DATE EXTRACTED:		02/19/93	02/19/93	02/19/93	02/19/93	02/19/93
DATE ANALYZED:		02/22/93	02/22/93	02/22/93	02/22/93	02/22/93
ANALYTE	RL					
ROTENONE	0.71	0.76 U	0.72 U	1.6 U	0.70 U	0.76 U
PYRETHRINS, TOTAL	20.0	21 U	20 U	46 U	19 U	21 U
Associated Method Blank:		PBG35281	PBG35281	PBG35281	PBG35281	PBG35281
Associated Equipment Blank:		95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX
Associated Field Blank:		-	-	-	-	-

Site: GROUNDWATER

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Table 2
Validation / Summary Table

	SAMPLE LOCATION:	95GWX01XXX93XX	95GWX02XXX93XX	95GWX03XXX93XD	95GWX03XXX93XX	95GWX04XXX93XX
	LAB NUMBER:	BNASW4*4	BNASW4*3	BNASW4*7	BNASW4*6	BNASW4*5
	DATE SAMPLED:	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
	DATE EXTRACTED:	02/19/93	02/19/93	02/19/93	02/19/93	02/19/93
	DATE ANALYZED:	02/22/93	02/22/93	02/22/93	02/22/93	02/22/93
ANALYTE	RL					
ROTENONE	0.71	0.76 UJ	0.72 UJ	1.6 UJ	0.70 UJ	0.76 UJ
PYRETHRINS, TOTAL	20.0	21 UJ	20 UJ	46 UJ	19 UJ	21 UJ
Associated Method Blank:		PBG35281	PBG35281	PBG35281	PBG35281	PBG35281
Associated Equipment Blank:		95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX
Associated Field Blank:		-	-	-	-	-

Site: GROUNDWATER

Table 2
Validation / Summary Table

SAMPLE LOCATION:		95GWX01XXX93XX	95GWX02XXX93XX	95GWX03XXX93XD	95GWX03XXX93XX	95GWX04XXX93XX
LAB NUMBER:		71695	71694	71698	71697	71696
DATE SAMPLED:		02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
DATE EXTRACTED:		02/10/93	02/10/93	02/10/93	02/10/93	02/10/93
DATE ANALYZED:		02/27/93	02/27/93	02/27/93	02/27/93	02/27/93
ANALYTE	RL					
Methyl Azinphos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Bolstar	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Cholorpyrifos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Coumaphos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
O-Demeton	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
S-Demeton	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Diazinon	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Dichlorvos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Dimethoate	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Disulfoton	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
EPN	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Ethoprop	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Fensulfothion	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Fenthion	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Malathion	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Merphos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Mevinphos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Monocrotophos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Naled	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Ethyl Parathion	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Methyl Parathion	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Phorate	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Ronnel	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Sulfotep	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
TEPP	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Tetrachlorovinphos	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Tokuthion	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Trichloronate	2.5	2.5 UJ	2.5 UJ	2.5 UJ	2.5 UJ	2.6 U
Associated Method Blank:		PBLK10210A	PBLK10210A	PBLK10210A	PBLK10210A	PBLK10210A
Associated Equipment Blank:		95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX
Associated Field Blank:		-	-	-	-	-

Site: GROUNDWATER

Table 2
Validation / Summary Table

	SAMPLE LOCATION:	95GWX01XXX93XX	95GWX02XXX93XX	95GWX03XXX93XD	95GWX03XXX93XX	95GWX04XXX93XX
	LAB NUMBER:	71695 #	71694 #	71698 #	71697 #	71696 #
	DATE SAMPLED:	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
	DATE ANALYZED:	02/08/93	02/09/93	02/09/93	02/09/93	02/09/93
ANALYTE	SOW-3/90 - II CRQL					
Chloromethane	10	10 U	10 U	10 U	10 U	10 U
Bromomethane	10	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride	10	10 U	10 U	10 U	10 U	10 U
Chloroethane	10	10 U	10 U	10 U	10 U	10 U
Methylene Chloride	10	10 U	10 U	10 U	10 U	10 U
Acetone	10	20 U	10 U	10 U	10 U	16 U
Carbon Disulfide	10	10 U	3 J	10 U	10 U	10 U
1,1-Dichloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethene (total)	10	10 U	10 U	10 U	10 U	10 U
Chloroform	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloroethane	10	10 U	10 U	10 U	10 U	10 U
2-Butanone	10	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Carbon Tetrachloride	10	10 U	10 U	10 U	10 U	10 U
Bromodichloromethane	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichloropropane	10	10 U	10 U	10 U	10 U	10 U
cis-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Trichloroethene	10	10 U	10 U	10 U	10 U	10 U
Dibromochloromethane	10	10 U	10 U	10 U	10 U	10 U
1,1,2-Trichloroethane	10	10 U	10 U	10 U	10 U	10 U
Benzene	10	10 U	10 U	10 U	10 U	10 U
trans-1,3-Dichloropropene	10	10 U	10 U	10 U	10 U	10 U
Bromoform	10	10 U	10 U	10 U	10 U	10 U
4-Methyl-2-Pentanone	10	10 U	10 U	10 U	10 U	10 U
2-Hexanone	10	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene	10	10 U	10 U	10 U	10 U	10 U
1,1,2,2-Tetrachloroethane	10	10 U	10 U	10 U	10 U	10 U
Toluene	10	10 U	10 U	10 U	10 U	10 U
Chlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Ethylbenzene	10	10 U	10 U	10 U	10 U	10 U
Styrene	10	10 U	10 U	10 U	10 U	10 U
Total Xylenes	10	10 U	10 U	10 U	10 U	10 U
Dilution Factor:		1.00	1.00	1.00	1.00	1.00
Associated Method Blank:		K7164	K7207	K7192	K7207	K7192
Associated Equipment Blank:		95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX	95QSXX1XXX93XX
Associated Field Blank:		-	-	-	-	-
Associated Trip Blank:		BSQTXX1XXX93XX	BSQTXX1XXX93XX	BSQTXX1XXX93XX	BSQTXX1XXX93XX	BSQTXX1XXX93XX

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Table 2
Validation / Summary Table

SAMPLE LOCATION:		95GWX01XXX93XX	95GWX02XXX93XX	95GWX03XXX93XD	95GWX03XXX93XX	95GWX04XXX93XX
LAB NUMBER:		71695 #	71694 #	71698 #	71697 #	71696 #
DATE SAMPLED:		02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
DATE EXTRACTED:		02/08/93	02/08/93	02/08/93	02/08/93	02/08/93
DATE ANALYZED:		02/10/93	02/10/93	02/23/93	02/10/93	02/10/93
ANALYTE	SOW-3/90 - II CRQL					
Phenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethyl)ether	10	10 U	10 U	10 U	10 U	10 U
2-Chlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,3-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,4-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
1,2-Dichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
2-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
2,2'-oxybis(1-Chloropropane)	10	10 U	10 U	10 U	10 U	10 U
4-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
N-Nitroso-di-n-propylamine	10	10 U	10 U	10 U	10 U	10 U
Hexachloroethane	10	10 U	10 U	10 U	10 U	10 U
Nitrobenzene	10	10 U	10 U	10 U	10 U	10 U
Isophorone	10	10 U	10 U	10 U	10 U	10 U
2-Nitrophenol	10	10 U	10 U	10 U	10 U	10 U
2,4-Dimethylphenol	10	10 U	10 U	10 U	10 U	10 U
bis(2-Chloroethoxy)methane	10	10 U	10 U	10 U	10 U	10 U
2,4-Dichlorophenol	10	10 U	10 U	10 U	10 U	10 U
1,2,4-Trichlorobenzene	10	10 U	10 U	10 U	10 U	10 U
Naphthalene	10	10 U	10 U	10 U	10 U	10 U
4-Chloroaniline	10	10 U	10 U	10 U	10 U	10 U
Hexachlorobutadiene	10	10 U	10 U	10 U	10 U	10 U
4-Chloro-3-Methylphenol	10	10 U	10 U	10 U	10 U	10 U
2-Methylnaphthalene	10	10 U	10 U	10 U	10 U	10 U
Hexachlorocyclopentadiene	10	10 U	10 U	10 U	10 U	10 U
2,4,6-Trichlorophenol	10	10 U	10 U	10 U	10 U	10 U
2,4,5-Trichlorophenol	25	26 U	25 U	25 U	25 U	25 U
2-Chloronaphthalene	10	10 U	10 U	10 U	10 U	10 U
2-Nitroaniline	25	26 U	25 U	25 U	25 U	25 U
Dimethylphthalate	10	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	10	10 U	10 U	10 U	10 U	10 U
2,6-Dinitrotoluene	10	10 U	10 U	10 U	10 U	10 U

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Table 2
Validation / Summary Table

SAMPLE LOCATION:	95GWX01XXX93XX	95GWX02XXX93XX	95GWX03XXX93XD	95GWX03XXX93XX	95GWX04XXX93XX
LAB NUMBER:	71695 #	71694 #	71698 #	71697 #	71696 #
DATE SAMPLED:	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
DATE EXTRACTED:	02/08/93	02/08/93	02/08/93	02/08/93	02/08/93
DATE ANALYZED:	02/10/93	02/10/93	02/23/93	02/10/93	02/10/93

ANALYTE	SOW-3/90 - II CRQL									
3-Nitroaniline	25	26	U	25	U	25	U	25	U	25	U
Acenaphthene	10	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrophenol	25	26	U	25	U	25	UJ	25	U	25	U
4-Nitrophenol	25	26	U	25	U	25	U	25	U	25	U
Dibenzofuran	10	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	10	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	10	10	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenylether	10	10	U	10	U	10	U	10	U	10	U
Fluorene	10	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline	25	26	U	25	U	25	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	26	U	25	U	25	U	25	U	25	U
N-Nitrosodiphenylamine	10	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	10	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	10	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	25	26	U	25	U	25	U	25	U	25	U
Phenanthrene	10	10	U	10	U	10	U	10	U	10	U
Anthracene	10	10	U	10	U	10	U	10	U	10	U
Carbazole	10	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	10	10	U	10	U	10	U	10	U	10	U
Fluoranthene	10	10	U	10	U	10	U	10	U	10	U
Pyrene	10	10	U	10	U	10	U	10	U	10	U
Butylbenzylphthalate	10	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	10	10	U	10	U	10	U	10	U	10	U
Benzo(a)Anthracene	10	10	U	10	U	10	U	10	U	10	U
Chrysene	10	10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	10	10	U	10	U	10	U	10	U	10	U
Di-n-octylphthalate	10	10	U	10	U	10	U	10	U	10	U
Benzo(b)Fluoranthene	10	10	U	10	U	10	U	10	U	10	U
Benzo(k)Fluoranthene	10	10	U	10	U	10	U	10	U	10	U
Benzo(a)Pyrene	10	10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-c,d)Pyrene	10	10	U	10	U	10	U	10	U	10	U
Dibenz(a,h)Anthracene	10	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	10	10	U	10	U	10	U	10	U	10	U
Dilution Factor:		1.00		1.00		1.00		1.00		1.00	
Associated Method Blank:		J7609		J7609		J7609		J7609		J7609	
Associated Equipment Blank:		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX	
Associated Field Blank:		-		-		-		-		-	

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Table 2
Validation / Summary Table

SAMPLE LOCATION:		95GWX01XXX93XX		95GWX02XXX93XX		95GWX03XXX93XD		95GWX03XXX93XX		95GWX04XXX93XX	
LAB NUMBER:		71695 #		71694 #		71698_100 #		71697_100 #		71696 #	
DATE SAMPLED:		02/03/93		02/03/93		02/03/93		02/03/93		02/03/93	
DATE EXTRACTED:		02/08/93		02/08/93		02/08/93		02/08/93		02/08/93	
DATE ANALYZED:		02/16/93		02/16/93		02/17/93		02/17/93		02/16/93	
ANALYTE	SOW-3/90 - II CRQL										
alpha-BHC	0.05	0.05	U	0.053	U	5	U	5	U	0.52	U
beta-BHC	0.05	0.05	UJ	0.053	UJ	5	UJ	5	UJ	0.053	UJ
delta-BHC	0.05	0.05	U	0.053	U	5	U	5	U	0.053	U
gamma-BHC (Lindane)	0.05	0.05	UJ	0.053	UJ	5	U	5	U	0.053	UJ
Heptachlor	0.05	0.05	U	0.053	U	5	U	5	U	0.053	U
Aldrin	0.05	0.05	U	0.053	U	5	U	5	U	0.053	U
Heptachlor Epoxide	0.05	0.05	U	0.053	U	5	U	5	U	0.048	J
Endosulfan I	0.05	0.05	U	0.053	U	5	U	5	U	0.053	U
Dieldrin	0.1	0.1	U	0.11	U	10	U	10	U	0.11	U
4,4'-DDE	0.1	0.031	J	0.11	U	10	U	10	U	0.062	J
Endrin	0.1	0.39	J	0.11	U	10	U	10	U	0.1	U
Endosulfan II	0.1	0.1	U	0.11	U	10	U	10	U	0.11	U
4,4'-DDD	0.1	0.1	U	0.11	U	10	U	10	U	0.1	U
Endrin Aldehyde	0.1	0.1	U	0.11	U	10	U	10	U	0.11	U
Endosulfan Sulfate	0.1	0.1	U	0.1	U	10	U	10	U	0.1	U
4,4'-DDT	0.1	0.34	J	0.11	U	47	J	78	J	0.14	J
Methoxychlor	0.5	0.5	U	0.53	U	50	U	50	U	0.53	U
Endrin Ketone	0.1	0.1	U	0.11	U	10	U	10	U	0.11	U
alpha-Chlordane	0.05	0.051		0.053	U	5	U	5	U	0.052	U
gamma-Chlordane	0.05	0.061	J	0.053	U	5	U	5	U	0.053	U
Toxaphene	5	5	U	5.3	U	500	U	500	U	5.3	U
Aroclor-1016	1	1	U	1.1	U	100	U	100	U	1.1	U
Aroclor-1221	2	2	U	2.1	U	200	U	200	U	2.1	U
Aroclor-1232	1	1	U	1.1	U	100	U	100	U	1.1	U
Aroclor-1242	1	1	U	1.1	U	100	U	100	U	1.1	U
Aroclor-1248	1	1	U	1.1	U	100	U	100	U	1.1	U
Aroclor-1254	1	1	U	1.1	U	100	U	100	U	1.1	U
Aroclor-1260	1	1	U	1.1	U	100	U	100	U	1.1	U
Dilution Factor:		1.00		1.00		100		100		1.00	
Associated Method Blank:		PBLK20208AA		PBLK20208AA		PBLK20208AA		PBLK20208AA		PBLK20208AA	
Associated Equipment Blank:		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX	
Associated Field Blank:		-		-		-		-		-	

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Table 2
Validation / Summary Table

SAMPLE LOCATION:		95GWX01XXX93XX		95GWX02XXX93XX		95GWX03XXX93XD		95GWX03XXX93XX		95GWX04XXX93XX
LAB NUMBER:		71695S #		71694S #		71698S #		71697S #		71696S #
DATE SAMPLED:		02/03/93		02/03/93		02/03/93		02/03/93		02/03/93
ANALYTE	SOW-3/90 - II CRDL									
Aluminum	200	474	J	339	J	1060	J	785	J	313 J
Antimony	60	50.0	U	50.0	U	50.0	U	50.0	U	50.0 U
Arsenic	10	2.0	U	2.0	U	2.0	J	2.0	U	2.0 U
Barium	200	25.0	U	75.0	J	59.1	J	54.9	J	65.4 J
Beryllium	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0 U
Cadmium	5	4.0	U	4.0	U	4.0	U	4.0	U	4.0 U
Calcium	5000	5900		9950		11400		10800		11200
Chromium	10	4.0	U	4.0	U	4.0	U	4.0	U	4.0 U
Cobalt	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0 U
Copper	25	6.1	U	5.0	U	6.1	U	5.0	U	5.1 U
Iron	100	740	J	1530	J	6470	J	6040	J	172 U
Lead	3	2.0	U	2.0	U	2.4	U	2.3	U	2.0 U
Magnesium	5000	1360	J	1580	J	2120	J	2020	J	1200 J
Manganese	15	61.5		86.2		211		197		54.2
Mercury	0.2	0.20	U	0.20	U	0.20	U	0.20	U	0.20 U
Nickel	40	14.0	U	14.0	U	14.0	U	14.0	U	14.0 U
Potassium	5000	917	U	2200	J	2900	J	2700	J	3110 J
Selenium	5	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0 U
Silver	10	4.0	U	4.0	U	4.0	U	4.0	U	4.0 U
Sodium	5000	29300		73100		59000		55900		43600
Thallium	10	2.0	U	2.0	UJ	2.0	UJ	2.0	UJ	2.0 U
Vanadium	50	5.1	J	5.0	U	5.0	U	5.0	U	5.0 U
Zinc	20	11.8	J	42.9	J	116	J	89.7	J	6.4 J
Cyanide	10	10.0	U	10.0	U	10.0	U	10.0	U	10.0 U
Associated Method Blank:		PB4046CW		PB4046CW		PB4046CW		PB4046CW		PB4046CW
Associated Equipment Blank:		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX
Associated Field Blank:		-		-		-		-		-

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Table 3
Summary Table

	SAMPLE LOCATION:	95GWX01XXX93XX		95GWX02XXX93XX		95GWX03XXX93XD		95GWX03XXX93XX		95GWX04XXX93XX	
	LAB NUMBER:	71695S #		71694S #		71698S #		71697S #		71696S #	
	DATE SAMPLED:	02/03/93		02/03/93		02/03/93		02/03/93		02/03/93	
ANALYTE	SOW-3/90 - II CRDL										
Aluminum	200	474	J	339	J	1060	J	785	J	313	J
Antimony	60	-		-		-		-		-	
Arsenic	10	-		-		2.0	J	-		-	
Barium	200	-		75.0	J	59.1	J	54.9	J	65.4	J
Beryllium	5	-		-		-		-		-	
Cadmium	5	-		-		-		-		-	
Calcium	5000	5900		9950		11400		10800		11200	
Chromium	10	-		-		-		-		-	
Cobalt	50	-		-		-		-		-	
Copper	25	-		-		-		-		-	
Iron	100	740	J	1530	J	6470	J	6040	J	-	
Lead	3	-		-		-		-		-	
Magnesium	5000	1360	J	1580	J	2120	J	2020	J	1200	J
Manganese	15	61.5		86.2		211		197		54.2	
Mercury	0.2	-		-		-		-		-	
Nickel	40	-		-		-		-		-	
Potassium	5000	-		2200	J	2900	J	2700	J	3110	J
Selenium	5	-		-		-		-		-	
Silver	10	-		-		-		-		-	
Sodium	5000	29300		73100		59000		55900		43600	
Thallium	10	-		-		-		-		-	
Vanadium	50	5.1	J	-		-		-		-	
Zinc	20	11.8	J	42.9	J	116	J	89.7	J	6.4	J
Cyanide	10	-		-		-		-		-	
Associated Method Blank:		PB4046CW		PB4046CW		PB4046CW		PB4046CW		PB4046CW	
Associated Equipment Blank:		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX		95QSXX1XXX93XX	
Associated Field Blank:		-		-		-		-		-	

Site: GROUNDWATER
#: Level D Validation

Table 2
Validation / Summary Table

ANALYTE	SOW-3/90 - II CRQL	SAMPLE LOCATION: 95SSX10XXX93XX	95SSX11XXX93XX	95SSX12XXX93XX	95SSXX1XXX93XD	95SSXX1XXX93XX	95SSXX2XXX93XX	95SSXX3XXX93XX	95SSXX4XXX93XD
		LAB NUMBER: 71250 #	71251 #	71252 #	71239 #	71238 #	71240 #	71241 #	71243 #
		DATE SAMPLED: 01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
		DATE ANALYZED: 01/27/93	01/27/93	01/27/93	01/26/93	01/27/93	01/26/93	01/26/93	01/26/93
Chloromethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Bromomethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Vinyl Chloride	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Chloroethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Methylene Chloride	10	2 J	11 U	2 J	11 U	12 U	11 U	11 U	11 U
Acetone	10	3 J	11 U	12 U	11 U	13 U	11 U	3 J	11 U
Carbon Disulfide	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,1-Dichloroethene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,1-Dichloroethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Chloroform	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,2-Dichloroethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
2-Butanone	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Carbon Tetrachloride	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Bromodichloromethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,2-Dichloropropane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Trichloroethene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Dibromochloromethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Benzene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
trans-1,3-Dichloropropene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Bromoform	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
2-Hexanone	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Tetrachloroethene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Toluene	10	12 U	11 U	1 J	11 U	12 U	11 U	11 U	11 U
Chlorobenzene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Ethylbenzene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Styrene	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Total Xylenes	10	12 U	11 U	12 U	11 U	12 U	11 U	11 U	11 U
Dilution Factor:		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Solids:		83	90	86	87	81	89	87	88
Associated Method Blank:		L4781	L4797	L4781	K6902	L4738	K6902	L4750	K6902
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-	-	-
Associated Trip Blank:		-	-	-	-	-	-	-	-

Site: SURFACE SOILS
#: Level D Validation

PROJECT: NASB

Volatile Organic Soil Analysis (ug/kg)

03/30/93

Table 2
Validation / Summary Table

ANALYTE	SOW-3/90 - II CRQL	SAMPLE LOCATION: 95SSXX4XXX93XX LAB NUMBER: 71242 # DATE SAMPLED: 01/20/93 DATE ANALYZED: 01/26/93	SAMPLE LOCATION: 95SSXX5XXX93XX LAB NUMBER: 71244 # DATE SAMPLED: 01/20/93 DATE ANALYZED: 01/26/93	SAMPLE LOCATION: 95SSXX6XXX93XX LAB NUMBER: 71245 # DATE SAMPLED: 01/20/93 DATE ANALYZED: 01/27/93	SAMPLE LOCATION: 95SSXX7XXX93XX LAB NUMBER: 71246 # DATE SAMPLED: 01/20/93 DATE ANALYZED: 01/28/93	SAMPLE LOCATION: 95SSXX8XXX93XX LAB NUMBER: 71247 # DATE SAMPLED: 01/20/93 DATE ANALYZED: 01/26/93	SAMPLE LOCATION: 95SSXX9XXX93XD LAB NUMBER: 71249 # DATE SAMPLED: 01/20/93 DATE ANALYZED: 01/26/93	SAMPLE LOCATION: 95SSXX9XXX93XX LAB NUMBER: 71248 # DATE SAMPLED: 01/20/93 DATE ANALYZED: 01/26/93
Chloromethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Bromomethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Vinyl Chloride	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Chloroethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Methylene Chloride	10	1 J	12 U	4 J	12 U	11 U	1 J	11 U
Acetone	10	8 J	12 U	13 U	12 U	11 U	11 U	11 U
Carbon Disulfide	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,1-Dichloroethene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,1-Dichloroethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,2-Dichloroethene (total)	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Chloroform	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,2-Dichloroethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
2-Butanone	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,1,1-Trichloroethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Carbon Tetrachloride	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Bromodichloromethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,2-Dichloropropane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
cis-1,3-Dichloropropene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Trichloroethene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Dibromochloromethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,1,2-Trichloroethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Benzene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
trans-1,3-Dichloropropene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Bromoform	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
4-Methyl-2-Pentanone	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
2-Hexanone	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Tetrachloroethene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
1,1,2,2-Tetrachloroethane	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Toluene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Chlorobenzene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Ethylbenzene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Styrene	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Total Xylenes	10	11 U	12 U	13 U	12 U	11 U	11 U	11 U
Dilution Factor:		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Solids:		87	85	76	84	93	93	94
Associated Method Blank:		L4753	K6902	K6925	K6942	K6902	L4781	K6902
Associated Equipment Blank:		-	-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-	-
Associated Trip Blank:		-	-	-	-	-	-	-

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

SAMPLE LOCATION:	95SSX10XXX93XX	95SSX11XXX93XX	95SSX12XXX93XX	95SSXX1XXX93XD	95SSXX1XXX93XX	95SSXX2XXX93XX	95SSXX3XXX93XX	95SSXX4XXX93XD
LAB NUMBER:	71250 #	71251 R #	71252 #	71239 #	71238 #	71240 #	71241 #	71243 #
DATE SAMPLED:	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93
DATE ANALYZED:	02/04/93	02/05/93	02/04/93	02/03/93	02/03/93	02/03/93	02/05/93	02/04/93

ANALYTE	SOW-3/90 - II CRQL																	
Phenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
bis(2-Chloroethyl)ether	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2-Chlorophenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
1,3-Dichlorobenzene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
1,4-Dichlorobenzene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
1,2-Dichlorobenzene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2-Methylphenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2,2'-oxybis(1-Chloropropane)	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
4-Methylphenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
N-Nitroso-di-n-propylamine	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Hexachloroethane	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Nitrobenzene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Isophorone	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2-Nitrophenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2,4-Dimethylphenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
bis(2-Chloroethoxy)methane	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2,4-Dichlorophenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
1,2,4-Trichlorobenzene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Naphthalene	330	400	U	44	J	380	U	390	U	72	J	360	U	390	U	380	U
4-Chloroaniline	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Hexachlorobutadiene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
4-Chloro-3-Methylphenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2-Methylnaphthalene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Hexachlorocyclopentadiene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2,4,6-Trichlorophenol	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2,4,5-Trichlorophenol	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
2-Chloronaphthalene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
2-Nitroaniline	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
Dimethylphthalate	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Acenaphthylene	330	53	J	98	J	380	U	390	U	390	U	360	U	390	U	380	U
2,6-Dinitrotoluene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

SAMPLE LOCATION:	95SSX10XXX93XX	95SSX11XXX93XX	95SSX12XXX93XX	95SSXX1XXX93XD	95SSXX1XXX93XX	95SSXX2XXX93XX	95SSXX3XXX93XX	95SSXX4XXX93XD
LAB NUMBER:	71250 #	71251 R #	71252 #	71239 #	71238 #	71240 #	71241 #	71243 #
DATE SAMPLED:	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93
DATE ANALYZED:	02/04/93	02/05/93	02/04/93	02/03/93	02/03/93	02/03/93	02/05/93	02/04/93

ANALYTE	SOW-3/90 - II CRQL															
3-Nitroaniline	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
Acenaphthene	330	45	J	190	J	380	U	390	U	150	J	360	U	390	U	380	U
2,4-Dinitrophenol	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
4-Nitrophenol	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
Dibenzofuran	330	400	U	130	J	380	U	390	U	43	J	360	U	390	U	380	U
2,4-Dinitrotoluene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Diethylphthalate	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
4-Chlorophenyl-phenylether	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Fluorene	330	41	J	240	J	380	U	390	U	80	J	360	U	390	U	380	U
4-Nitroaniline	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
4,6-Dinitro-2-methylphenol	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
N-Nitrosodiphenylamine	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
4-Bromophenyl-phenylether	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Hexachlorobenzene	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Pentachlorophenol	800	960	U	920	U	920	U	940	U	940	U	870	U	940	U	920	U
Phenanthrene	330	490		2400		120	J	340	J	650	J	260	J	240	J	130	J
Anthracene	330	100	J	460		380	U	62	J	120	J	37	J	390	U	380	U
Carbazole	330	61	J	460		380	U	45	J	93	J	360	U	390	U	380	U
Di-n-butylphthalate	330	92	J	37	J	94	J	91	J	50	J	88	J	120	J	170	J
Fluoranthene	330	860		3200		280	J	600		900		410		370	J	240	J
Pyrene	330	690		3000		220	J	450		720		320	J	270	J	210	J
Butylbenzylphthalate	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
3,3'-Dichlorobenzidine	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Benzo(a)Anthracene	330	340	J	1300		110	J	210	J	330	J	130	J	120	J	77	J
Chrysene	330	500		1800		180	J	300	J	450		200	J	180	J	120	J
bis(2-Ethylhexyl)phthalate	330	54	J	64	J	380	U	42	J	39	J	38	J	47	J	380	U
Di-n-octylphthalate	330	400	U	380	U	380	U	390	U	390	U	360	U	390	U	380	U
Benzo(b)Fluoranthene	330	420		1900		140	J	260	J	400		160	J	160	J	100	J
Benzo(k)Fluoranthene	330	370	J	1500		130	J	230	J	370	J	170	J	140	J	100	J
Benzo(a)Pyrene	330	360	J	1300		120	J	210	J	350	J	150	J	130	J	82	J
Indeno(1,2,3-c,d)Pyrene	330	240	J	510		85	J	140	J	230	J	100	J	93	J	56	J
Dibenz(a,h)Anthracene	330	64	J	210	J	380	U	390	U	390	U	360	U	390	U	380	U
Benzo(g,h,i)perylene	330	220	J	430		77	J	120	J	210	J	93	J	90	J	51	J

Dilution Factor:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Solids:	84	89	87	85	85	93	86	88
Associated Method Blank:	J7565	J7565	J7565	J7565	J7565	J7565	J7565	F4442
Associated Equipment Blank:	-	-	-	-	-	-	-	-
Associated Field Blank:	-	-	-	-	-	-	-	-

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

SAMPLE LOCATION:	95SSXX4XXX93XX	95SSXX5XXX93XX	95SSXX6XXX93XX	95SSXX7XXX93XX	95SSXX8XXX93XX	95SSXX9XXX93XX
LAB NUMBER:	71242 #	71244 #	71245 #	71246 #	71247 #	71248 #
DATE SAMPLED:	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93	01/28/93
DATE ANALYZED:	02/04/93	02/04/93	02/04/93	02/04/93	02/04/93	02/04/93

ANALYTE	SOW-3/90 - II CRQL											
Phenol	330	380	U	380	U	430	U	400	U	360	U	350	U
bis(2-Chloroethyl)ether	330	380	U	380	U	430	U	400	U	360	U	350	U
2-Chlorophenol	330	380	U	380	U	430	U	400	U	360	U	350	U
1,3-Dichlorobenzene	330	380	U	380	U	430	U	400	U	360	U	350	U
1,4-Dichlorobenzene	330	380	U	380	U	430	U	400	U	360	U	350	U
1,2-Dichlorobenzene	330	380	U	380	U	430	U	400	U	360	U	350	U
2-Methylphenol	330	380	U	380	U	430	U	400	U	360	U	350	U
2,2'-oxybis(1-Chloropropane)	330	380	U	380	U	430	U	400	U	360	U	350	U
4-Methylphenol	330	380	U	380	U	430	U	400	U	360	U	350	U
N-Nitroso-di-n-propylamine	330	380	U	380	U	430	U	400	U	360	U	350	U
Hexachloroethane	330	380	U	380	U	430	U	400	U	360	U	350	U
Nitrobenzene	330	380	U	380	U	430	U	400	U	360	U	350	U
Isophorone	330	380	U	380	U	430	U	400	U	360	U	350	U
2-Nitrophenol	330	380	U	380	U	430	U	400	U	360	U	350	U
2,4-Dimethylphenol	330	380	U	380	U	430	U	400	U	360	U	350	U
bis(2-Chloroethoxy)methane	330	380	U	380	U	430	U	400	U	360	U	350	U
2,4-Dichlorophenol	330	380	U	380	U	430	U	400	U	360	U	350	U
1,2,4-Trichlorobenzene	330	380	U	380	U	430	U	400	U	360	U	350	U
Naphthalene	330	380	U	380	U	63	J	400	U	360	U	350	U
4-Chloroaniline	330	380	U	380	U	430	U	400	U	360	U	350	U
Hexachlorobutadiene	330	380	U	380	U	430	U	400	U	360	U	350	U
4-Chloro-3-Methylphenol	330	380	U	380	U	430	U	400	U	360	U	350	U
2-Methylnaphthalene	330	380	U	380	U	430	U	400	U	360	U	350	U
Hexachlorocyclopentadiene	330	380	U	380	U	430	U	400	U	360	U	350	U
2,4,6-Trichlorophenol	330	380	U	380	U	430	U	400	U	360	U	350	U
2,4,5-Trichlorophenol	800	920	U	920	U	1000	U	960	U	870	U	850	U
2-Chloronaphthalene	330	380	U	380	U	430	U	400	U	360	U	350	U
2-Nitroaniline	800	920	U	920	U	1000	U	960	U	870	U	850	U
Dimethylphthalate	330	380	U	380	U	430	U	400	U	360	U	350	U
Acenaphthylene	330	380	U	380	U	430	U	400	U	360	U	96	J
2,6-Dinitrotoluene	330	380	U	380	U	430	U	400	U	360	U	350	U

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

ANALYTE	SOW-3/90 - II CRQL	SAMPLE LOCATION: 95SSXX4XXX93XX		95SSXX5XXX93XX		95SSXX6XXX93XX		95SSXX7XXX93XX		95SSXX8XXX93XX		95SSXX9XXX93XX	
		LAB NUMBER: 71242 #		71244 #		71245 #		71246 #		71247 #		71248 #	
		DATE SAMPLED: 01/20/93		01/20/93		01/20/93		01/20/93		01/20/93		01/20/93	
		DATE EXTRACTED: 01/28/93		01/28/93		01/28/93		01/28/93		01/28/93		01/28/93	
		DATE ANALYZED: 02/04/93		02/04/93		02/04/93		02/04/93		02/04/93		02/04/93	
3-Nitroaniline	800	920	U	920	U	1000	U	960	U	870	U	850	U
Acenaphthene	330	380	U	380	U	150	J	400	U	360	U	350	U
2,4-Dinitrophenol	800	920	U	920	U	1000	U	960	U	870	U	850	U
4-Nitrophenol	800	920	U	920	U	1000	U	960	U	870	U	850	U
Dibenzofuran	330	380	U	380	U	66	J	400	U	360	U	350	U
2,4-Dinitrotoluene	330	380	U	380	U	430	U	400	U	360	U	350	U
Diethylphthalate	330	380	U	380	U	430	U	400	U	360	U	350	U
4-Chlorophenyl-phenylether	330	380	U	380	U	430	U	400	U	360	U	350	U
Fluorene	330	380	U	380	U	100	J	400	U	360	U	38	J
4-Nitroaniline	800	920	U	920	U	1000	U	960	U	870	U	850	U
4,6-Dinitro-2-methylphenol	800	920	U	920	U	1000	U	960	U	870	U	850	U
N-Nitrosodiphenylamine	330	380	U	380	U	430	U	400	U	360	U	350	U
4-Bromophenyl-phenylether	330	380	U	380	U	430	U	400	U	360	U	350	U
Hexachlorobenzene	330	380	U	380	U	430	U	400	U	360	U	350	U
Pentachlorophenol	800	920	U	920	U	1000	U	960	U	870	U	850	U
Phenanthrene	330	160	J	380	U	910		84	J	110	J	640	
Anthracene	330	380	U	380	U	160	J	400	U	360	U	100	J
Carbazole	330	380	U	380	U	110	J	400	U	360	U	69	J
Di-n-butylphthalate	330	170	J	98	J	96	J	55	J	42	J	42	J
Fluoranthene	330	280	J	36	J	890		140	J	140	J	1100	
Pyrene	330	260	J	380	U	810		130	J	130	J	920	
Butylbenzylphthalate	330	380	U	190	J	430	U	400	U	360	U	350	U
3,3'-Dichlorobenzidine	330	380	U	380	U	430	U	400	U	360	U	350	U
Benzo(a)Anthracene	330	95	J	380	U	340	J	45	J	50	J	350	J
Chrysene	330	160	J	380	U	410	J	87	J	76	J	600	
bis(2-Ethylhexyl)phthalate	330	380	U	380	U	430	U	400	U	360	U	350	U
Di-n-octylphthalate	330	380	U	380	U	430	U	400	U	360	U	350	U
Benzo(b)Fluoranthene	330	120	J	380	U	360	J	77	J	73	J	470	
Benzo(k)Fluoranthene	330	110	J	380	U	270	J	75	J	58	J	510	
Benzo(a)Pyrene	330	100	J	380	U	270	J	58	J	54	J	390	
Indeno(1,2,3-c,d)Pyrene	330	65	J	380	U	120	J	400	U	360	U	200	J
Dibenz(a,h)Anthracene	330	380	U	380	U	430	U	400	U	360	U	350	U
Benzo(g,h,i)perylene	330	68	J	380	U	110	J	400	U	360	U	170	J
Dilution Factor:		1.00		1.00		1.00		1.00		1.00		1.00	
Percent Solids:		88		88		77		84		92		94	
Associated Method Blank:		F4442		F4442		F4442		F4442		F4442		J7565	
Associated Equipment Blank:		-		-		-		-		-		-	
Associated Field Blank:		-		-		-		-		-		-	

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

SAMPLE LOCATION:		95SSX10XXX93XX	95SSX11XXX93XX	95SSX12XXX93XX	95SSXX1XXX93XD	95SSXX1XXX93XX	95SSXX2XXX93XX	95SSXX3XXX93XX	95SSXX4XXX93XD
LAB NUMBER:		71250_5_D #	71251_10_D #	71252_2_D #	71239_10_D #	71238 #	71240 #	71241 #	71243 #
DATE SAMPLED:		01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:		01/26/93	01/26/93	01/26/93	01/26/93	01/26/93	01/26/93	01/26/93	01/26/93
DATE ANALYZED:		02/13/93	02/13/93	02/13/93	02/13/93	02/13/93	02/13/93	02/13/93	02/13/93
ANALYTE	SOW-3/90 - II CRQL								
alpha-BHC	1.7	10 UJ	19 UJ	3.9 UJ	20 UJ	2 UJ	1.8 UJ	2 UJ	1.9 UJ
beta-BHC	1.7	10 U	19 U	3.9 U	20 U	2 UJ	1.8 U	2 U	1.9 UJ
delta-BHC	1.7	10 UJ	19 UJ	3.9 UJ	20 UJ	2 UJ	1.8 UJ	1.3 J	1.9 UJ
gamma-BHC (Lindane)	1.7	10 U	19 U	3.9 U	20 U	2 U	1.8 U	2 U	1.9 UJ
Heptachlor	1.7	10 U	19 UJ	3.9 U	20 U	2 UJ	1.8 UJ	2 UJ	1.9 UJ
Aldrin	1.7	10 UJ	19 UJ	3.9 UJ	20 UJ	2 UJ	1.8 UJ	2 UJ	1.9 UJ
Heptachlor Epoxide	1.7	20 J	130 J	3.9 UJ	95 J	6.7 J	4.5 J	6 J	2.5 J
Endosulfan I	1.7	10 U	19 U	3.9 U	20 U	2 U	1.8 U	2 U	1.9 UJ
Dieldrin	3.3	20 U	37 U	7.6 U	39 U	3.9 U	3.5 U	3.8 U	3.7 UJ
4,4'-DDE	3.3	58 J	39 J	7.6 U	94 J	38 J	38 J	28 J	2.8 J
Endrin	3.3	20 U	37 U	7.6 U	39 U	3.9 U	3.5 U	3.8 U	3.7 UJ
Endosulfan II	3.3	20 UJ	37 UJ	7.6 UJ	39 UJ	3.9 UJ	3.5 UJ	3.8 UJ	3.7 UJ
4,4'-DDD	3.3	20 J	37 UJ	7.6 U	28 J	16 J	16 J	9.6 J	3.7 UJ
Endrin Aldehyde	3.3	20 UJ	37 UJ	7.6 UJ	39 UJ	3.9 UJ	3.5 UJ	3.8 UJ	3.8 UJ
Endosulfan Sulfate	3.3	20 UJ	37 UJ	7.6 UJ	39 UJ	3.9 UJ	3.5 UJ	3.8 UJ	3.7 UJ
4,4'-DDT	3.3	250 J	73 J	7.6 UJ	360 J	130 J	140 J	140 J	6.7 J
Methoxychlor	17	100 U	55 J	39 U	50 J	20 UJ	18 U	20 UJ	19 UJ
Endrin Ketone	3.3	20 UJ	37 UJ	7.6 U	39 UJ	3.9 UJ	3.5 UJ	3.8 UJ	3.7 UJ
alpha-Chlordane	1.7	6.6 J	16 J	3.9 UJ	6 J	1.7 J	1.6 J	2.9 J	1.9 UJ
gamma-Chlordane	1.7	10 UJ	19 UJ	3.9 UJ	20 UJ	2 UJ	0.97 J	2.7 J	1.9 UJ
Toxaphene	170	1000 U	1900 U	390 UJ	2000 U	200 U	180 U	200 U	190 UJ
Aroclor-1016	33	200 U	370 U	76 U	390 U	39 U	35 U	38 U	37 UJ
Aroclor-1221	67	400 U	750 U	150 U	790 U	79 U	72 U	78 U	76 UJ
Aroclor-1232	33	200 U	370 U	76 U	390 U	39 U	35 U	38 U	37 UJ
Aroclor-1242	33	200 U	370 U	76 U	390 U	39 U	35 U	38 U	37 UJ
Aroclor-1248	33	200 U	370 U	76 U	390 U	39 U	35 U	38 U	37 UJ
Aroclor-1254	33	200 U	370 U	76 U	390 U	39 U	35 U	38 U	37 UJ
Aroclor-1260	33	200 U	370 U	76 U	390 U	39 U	35 U	38 U	37 UJ
Dilution Factor:		5.00	10.0	2.00	10.0	1.00	1.00	1.00	1.00
Percent Solids:		84	89	87	85	85	93	86	88
Associated Method Blank:		PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA
Associated Equipment Blank:		-	-	-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-	-	-

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

	SAMPLE LOCATION:	95SSXX4XXX93XX	95SSXX5XXX93XX	95SSXX6XXX93XX	95SSXX7XXX93XX	95SSXX8XXX93XX	95SSXX9XXX93XX
	LAB NUMBER:	71242 #	71244 #	71245 #	71246 #	71247_5 D #	71248_5 D #
	DATE SAMPLED:	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
	DATE EXTRACTED:	01/26/93	01/26/93	01/26/93	01/26/93	01/26/93	01/26/93
	DATE ANALYZED:	02/13/93	02/13/93	02/13/93	02/13/93	02/13/93	02/13/93
ANALYTE	SOW-3/90 - II CRQL						
alpha-BHC	1.7	1.9 UJ	1.9 UJ	2.2 UJ	2 UJ	9.2 UJ	9 UJ
beta-BHC	1.7	1.9 U	1.9 U	2.2 U	2 U	9.2 U	9 U
delta-BHC	1.7	1.9 UJ	1.9 UJ	2.2 UJ	2 UJ	9.2 UJ	9 UJ
gamma-BHC (Lindane)	1.7	1.9 U	1.9 U	2.2 U	2 U	9.2 U	9 U
Heptachlor	1.7	1.9 UJ	1.9 U	2.2 U	0.63 J	9.2 U	9 UJ
Aldrin	1.7	1.9 UJ	1.9 UJ	2.2 UJ	2 UJ	9.2 UJ	9 UJ
Heptachlor Epoxide	1.7	4 J	1.2 J	2 J	4.1 J	13 J	46 J
Endosulfan I	1.7	1.9 U	1.9 U	2.2 U	2 U	9.2 U	9 U
Dieldrin	3.3	3.7 U	3.7 U	4.3 U	3.9 U	18 U	18 U
4,4'-DDE	3.3	8.1 J	17 J	73 J	110 J	9.9 J	420 J
Endrin	3.3	3.7 U	3.7 U	4.3 U	3.9 U	18 U	18 U
Endosulfan II	3.3	3.7 UJ	3.7 UJ	4.3 UJ	3.9 UJ	18 UJ	18 UJ
4,4'-DDD	3.3	3.7 UJ	1.6 J	10 J	18 J	18 U	99 J
Endrin Aldehyde	3.3	3.8 UJ	3.8 UJ	4.3 UJ	3.9 UJ	18 UJ	18 UJ
Endosulfan Sulfate	3.3	3.7 UJ	3.7 UJ	4.3 UJ	3.9 UJ	18 UJ	18 UJ
4,4'-DDT	3.3	15 J	15 J	100 J	120 J	21 J	1100 J
Methoxychlor	17	19 U	19 U	22 U	20 U	92 U	90 UJ
Endrin Ketone	3.3	3.7 UJ	3.7 UJ	4.3 UJ	3.9 UJ	18 UJ	18 UJ
alpha-Chlordane	1.7	1.9 UJ	1.9 UJ	2.3 J	5.3 J	9.2 UJ	29 J
gamma-Chlordane	1.7	1.9 UJ	1.9 UJ	0.33 J	3.2 J	9.2 UJ	42 J
Toxaphene	170	190 U	190 U	220 U	200 U	920 U	900 U
Aroclor-1016	33	37 U	37 U	43 U	39 U	180 U	180 U
Aroclor-1221	67	76 U	76 U	87 U	80 U	360 U	360 U
Aroclor-1232	33	37 U	37 U	43 U	39 U	180 U	180 U
Aroclor-1242	33	37 U	37 U	43 U	39 U	180 U	180 U
Aroclor-1248	33	37 U	37 U	43 U	39 U	180 U	180 U
Aroclor-1254	33	37 U	37 U	43 U	39 U	180 U	180 U
Aroclor-1260	33	37 U	37 U	43 U	39 U	180 U	180 U
Dilution Factor:		1.00	1.00	1.00	1.00	5.00	5.00
Percent Solids:		88	88	77	84	92	94
Associated Method Blank:		PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA	PBLK10126SA
Associated Equipment Blank:		-	-	-	-	-	-
Associated Field Blank:		-	-	-	-	-	-

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

SAMPLE LOCATION:	95SSX10XXX93XX	95SSX11XXX93XX	95SSX12XXX93XX	95SSXX1XXX93XD	95SSXX1XXX93XX	95SSXX2XXX93XX	95SSXX3XXX93XX	95SSXX4XXX93XD
LAB NUMBER:	71250S #	71251S #	71252S #	71239S #	71238S #	71240S #	71241S #	71243S #
DATE SAMPLED:	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93

ANALYTE	SOW-3/90 - II CRDL															
Aluminum	40	6820		6930		7530		6050		5040		4090		4990		6530	
Antimony	12		R		R		R		R		R		R		R		R
Arsenic	2	3.5		12.2		5.4		2.1	J	2.1	J	1.5	J	1.8	J	1.1	J
Barium	40	25.2	J	26.1	J	22.7	J	14.3	J	12.4	J	9.9	U	13.7	J	8.0	U
Beryllium	1	0.31	J	0.35	J	0.33	J	0.32	J	0.27	J	0.22	U	0.28	J	0.32	J
Cadmium	1	1.4		1.9		1.1	J	1.0	U	0.93	U	0.89	J	1.1	J	0.91	U
Calcium	1000	1610		1720		1520		541	J	522	J	399	J	559	J	239	J
Chromium	2	18.9		31.0		15.6		10.3		8.0		6.4		9.4		6.5	
Cobalt	10	4.0	J	6.3	J	4.8	J	3.9	J	3.0	J	2.6	J	3.7	J	2.6	J
Copper	5	18.5		14.5		12.0		7.2		6.0		5.1	J	6.7		4.7	J
Iron	20	9870		10800		9250		7510		6050		5450		7090		5630	
Lead	0.6	21.7	J	35.0	J	14.5	J	19.1	J	13.2	J	17.3	J	18.4	J	5.8	J
Magnesium	1000	2520		3620		2210		1620		1310		1090		1660		852	J
Manganese	3	116		177		138		108		92.4		82.3		90.5		61.5	
Mercury	0.04	0.12	U	0.11	U	0.12	U	0.12	U	0.12	U	0.11	U	0.12	U	0.11	U
Nickel	8	14.4	U	18.5		12.6	U	9.5	U	8.8	U	6.7	U	10.1	U	6.5	U
Potassium	1000	1120	J	1480		1160	J	726	J	629	J	532	J	820	J	293	J
Selenium	1	0.24	UJ	0.21	UJ	0.24	UJ	0.25	UJ	0.23	UJ	0.22	UJ	0.23	UJ	0.23	UJ
Silver	2	1.3	U	0.85	U	1.4	U	1.0	U	0.93	U	0.87	U	0.92	U	1.2	U
Sodium	1000	127	J	158	J	166	J	52.4	J	42.8	J	43.1	J	46.1	J	41.3	J
Thallium	2	0.48	U	0.42	U	0.49	U	0.50	U	0.46	U	0.44	U	0.46	U	0.46	U
Vanadium	10	17.6		31.9		15.2		15.7		14.6		13.5		14.6		10.1	J
Zinc	4	36.1		40.0		30.9		23.5		20.5		15.8		19.4		14.7	
Cyanide	2	0.60	U	0.52	U	0.57	U	0.62	U	0.58	U	0.55	U	0.55	U	0.57	U
Percent Solids:		83		94		82		80		86		92		87		88	
Associated Method Blank:		PB2714CS		PB2714CS		PB2714CS		PB2714CS		PB2714CS		PB2714CS		PB2714CS		PB2714CS	
Associated Equipment Blank:		-		-		-		-		-		-		-		-	
Associated Field Blank:		-		-		-		-		-		-		-		-	

Site: SURFACE SOILS
#: Level D Validation

PROJECT: NASB

Inorganic Soil Analysis (mg/kg)

03/31/93

Table 2
Validation / Summary Table

	SAMPLE LOCATION:	95SSXX4XXX93XX		95SSXX5XXX93XX		95SSXX6XXX93XX		95SSXX7XXX93XX		95SSXX8XXX93XX		95SSXX9XXX93XX	
	LAB NUMBER:	71242S #		71244S #		71245S #		71246S #		71247S #		71248S #	
	DATE SAMPLED:	01/20/93		01/20/93		01/20/93		01/20/93		01/20/93		01/20/93	
ANALYTE	SOW-3/90 - II CRDL												
Aluminum	40	5930		8930		16100		9470		3690		3320	
Antimony	12		R		R		R		R		R		R
Arsenic	2	1.2	J	3.2		5.6		4.2		1.6	J	2.5	
Barium	40	8.0	U	18.8	J	42.5	J	22.9	J	8.5	J	15.0	J
Beryllium	1	0.33	J	0.42	J	0.70	J	0.47	J	0.24	J	0.22	U
Cadmium	1	0.93	U	1.5		3.1		1.6		0.88	U	0.88	J
Calcium	1000	230	J	364	J	700	J	700	J	510	J	683	J
Chromium	2	6.5		12.6		25.0		15.3		5.8		6.0	
Cobalt	10	2.7	J	4.2	J	7.9	J	5.4	J	3.7	J	1.9	J
Copper	5	4.6	J	7.7		14.0		9.1		5.8		5.8	
Iron	20	5090		10800		20100		11100		4480		3940	
Lead	0.6	10.4	J	6.8	J	12.9	J	11.3	J	11.9	J	20.0	J
Magnesium	1000	804	J	2070		3870		2060		1030	J	895	J
Manganese	3	63.0		120		265		128		89.7		68.5	
Mercury	0.04	0.12	U	0.11	U	0.13	U	0.12	U	0.11	U	0.11	U
Nickel	8	7.9	U	10.6	U	17.0	U	14.0	U	5.0	U	5.8	U
Potassium	1000	300	J	819	J	1460		910	J	508	J	460	J
Selenium	1	0.23	UJ	0.23	UJ	0.26	UJ	0.24	UJ	0.22	UJ	0.22	UJ
Silver	2	0.93	U	0.90	U	1.0	U	1.1	U	0.88	U	0.87	U
Sodium	1000	38.2	J	44.1	J	125	J	72.9	J	37.4	J	41.5	J
Thallium	2	0.46	U	0.45	U	0.51	U	0.48	U	0.44	U	0.43	U
Vanadium	10	9.4	J	17.9		36.2		20.7		8.7	J	8.6	J
Zinc	4	13.7		29.2		67.7		41.3		16.3		63.0	
Cyanide	2	0.58	U	0.57	U	0.62	U	0.60	U	0.54	U	0.54	U
	Percent Solids:	86		88		78		84		91		92	
	Associated Method Blank:	PB2714CS		PB2714CS		PB2714CS		PB2714CS		PB2714CS		PB2714CS	
	Associated Equipment Blank:	-		-		-		-		-		-	
	Associated Field Blank:	-		-		-		-		-		-	

Site: SURFACE SOILS
#: Level D Validation

Table 2
Validation / Summary Table

SAMPLE LOCATION:	95SSX10XXX93XX	95SSX11XXX93XX	95SSX12XXX93XX	95SSXX1XXX93XD	95SSXX1XXX93XX	95SSXX2XXX93XX	95SSXX3XXX93XX	95SSXX4XXX93XD
LAB NUMBER:	BNASS3*11	BNASS3*12	BNASS3*13	BNASS3*2	BNASS3*1	BNASS3*3	BNASS3*4	BNASS3*14
DATE SAMPLED:	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
DATE ANALYZED:	02/05/93	02/05/93	02/05/93	02/04/93	02/04/93	02/04/93	02/04/93	02/05/93
ANALYTE RL								
ROTENONE 350	420 U	1800	400 U	410 U	400 U	380 U	400 U	390 U
PYRETHRINS, TOTAL 9700	12000 U	97000	11000 U	11000 U	11000 U	10000 U	11000 U	11000 U
Percent Solids:	84	92	88	86	88	92	87	89
Associated Method Blank:	PBG34808	PBG34808	PBG34808	PBG34808	PBG34808	PBG34808	PBG34808	PBG34808
Associated Equipment Blank:	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX
Associated Field Blank:	-	-	-	-	-	-	-	-

Site: SURFACE SOILS

Table 2
Validation / Summary Table

SAMPLE LOCATION:		95SSXX4XXX93XX	95SSXX5XXX93XX	95SSXX6XXX93XX	95SSXX7XXX93XX	95SSXX8XXX93XX	95SSXX9XXX93XX
LAB NUMBER:		BNASS3*5	BNASS3*6	BNASS3*7	BNASS3*8	BNASS3*9	BNASS3*10
DATE SAMPLED:		01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:		02/03/93	02/03/93	02/03/93	02/03/93	02/03/93	02/03/93
DATE ANALYZED:		02/04/93	02/04/93	02/04/93	02/05/93	02/05/93	02/05/93
ANALYTE	RL						
ROTENONE	350	400 U	390 U	460 U	430 U	380 U	370 U
PYRETHRINS, TOTAL	9700	11000 U	11000 U	13000 U	12000 U	11000 U	54000
Percent Solids:		88	89	76	82	91	94
Associated Method Blank:		PBG34808	PBG34808	PBG34808	PBG34808	PBG34808	PBG34808
Associated Equipment Blank:		95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX
Associated Field Blank:		-	-	-	-	-	-

Site: SURFACE SOILS

Table 2
Validation / Summary Table

SAMPLE LOCATION:		95SSXX4XXX93XD	95SSX10XXX93XX	95SSX11XXX93XX	95SSX12XXX93XX	95SSXX1XXX93XD	95SSXX1XXX93XX	95SSXX2XXX93XX	95SSXXX3XXX93XX
LAB NUMBER:		71243	71250	71251	71252	71239	71238	71240	71241
DATE SAMPLED:		01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:		01/27/93	01/27/93	01/27/93	01/27/93	01/27/93	01/27/93	01/27/93	01/27/93
DATE ANALYZED:		02/25/93	02/27/93	02/27/93	02/27/93	03/08/93	03/08/93	02/25/93	02/25/93
ANALYTE	RL								
Azinphosmethyl	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Bolstar	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Cholorpyrifos	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Coumaphos	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
O-Demeton	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
S-Demeton	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Diazinon	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Dichlorvos	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Dimethoate	83.0	470.0 U	990.0 U	570.0 J	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Disulfoton	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
EPN	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Ethoprop	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Fensulfothion	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Fenthion	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Malathion	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Merphos	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Mevinphos	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Monocrotophos	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Naled	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Ethyl Parathion	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Methyl Parathion	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Phorate	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Ronnel	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Sulfotep	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
TEPP	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Tetrachlorovinphos	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Tokuthion	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Trichloronate	83.0	470.0 U	990.0 U	1900.0 U	490.0 U	97.0 U	97.0 U	900.0 U	960.0 U
Dilution Factor:		5.0	10.0	20.0	5.0	1.0	1.0	10.0	10.0
Percent Solids:		89	84	90	85	86	86	93	87
Associated Method Blank:		PBLK20127S	PBLK1027S	PBLK1027S	PBLK1027S	PBLK10127S	PBLK10127S	PBLK20127S	PBLK20127S
Associated Equipment Blank:		95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX
Associated Field Blank:		-	-	-	-	-	-	-	-

Site: SURFACE SOILS

Table 2
Validation / Summary Table

SAMPLE LOCATION:		95SSXX4XXX93XX	95SSXX5XXX93XX	95SSXX6XXX93XX	95SSXX7XXX93XX	95SSXX8XXX93XX	95SSXX9XXX93XX
LAB NUMBER:		71242	71244	71245	71246	71247	71248
DATE SAMPLED:		01/20/93	01/20/93	01/20/93	01/20/93	01/20/93	01/20/93
DATE EXTRACTED:		01/27/93	01/27/93	01/27/93	01/27/93	01/27/93	01/27/93
DATE ANALYZED:		02/25/93	02/25/93	03/08/93	02/26/93	03/08/93	03/08/93
ANALYTE	RL						
Azinphosmethyl	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Bolstar	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Cholorpyrifos	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Coumaphos	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
O-Demeton	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
S-Demeton	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Diazinon	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Dichlorvos	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Dimethoate	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Disulfoton	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
EPN	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Ethoprop	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Fensulfothion	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Fenthion	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Malathion	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Merphos	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Mevinphos	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Monocrotophos	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Naled	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Ethyl Parathion	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Methyl Parathion	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Phorate	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Ronnel	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Sulfotep	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
TEPP	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Tetrachlorovinphos	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Tokuthion	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Trichloronate	83.0	470.0 U	94.0 U	110.0 U	R	450.0 U	440.00 U
Dilution Factor:		5.0	1.0	1.0	5.0	5.0	5.0
Percent Solids:		89	89	77	82	92	95
Associated Method Blank:		PBLK20127S	PBLK20127S	PBLK10127S	PBLK1027S	PBLK1027S	PBLK1027S
Associated Equipment Blank:		95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX	95QSXX2XXX93XX
Associated Field Blank:		-	-	-	-	-	-

Site: SURFACE SOILS

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

TABLE B-1

POTENTIAL CHEMICAL-SPECIFIC ARARs, CRITERIA, ADVISORIES, AND GUIDANCE

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE EE/CA
AIR				
Federal	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 $\mu g/m^3$, 24-hour average concentration.
State	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.
	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 $\mu g/m^3$, 24-hour average concentration; (2) hydrocarbons - 160 $\mu g/m^3$, 3-hour period.
GROUNDWATER/ SURFACE WATER				
Federal	SDWA - MCLs (40 CFR 141.11 - 141.16)	Relevant and Appropriate	MCLs have been promulgated for several common organic and inorganic contaminants. These levels regulate the concentration of contaminants in public drinking water supplies, but may also be considered relevant and appropriate for groundwater aquifers used for drinking water.	During groundwater monitoring, analytical data will be compared to MCLs.
	SDWA - MCLGs (40 CFR 141.50 - 141.51)	Relevant and Appropriate	MCLGs are health-based criteria. As promulgated under SARA, MCLGs are to be to be considered for drinking water sources. MCLGs are available for several organic and inorganic contaminants.	The 1990 National Contingency Plan states that non-zero MCLGs are to be used as goals. During groundwater monitoring, analytical data will be compared to MCLGs.
	RCRA - Subpart F Groundwater Protection Standards, Alternative Concentration Limits (40 CFR 264.94)	Relevant and Appropriate	This requirement outlines standards, in addition to background concentrations and MCLs, to be used in establishing clean-up levels for remediating groundwater contamination.	These requirements may be relevant and appropriate if certain conditions relating to transport and exposure are met.

continue

TABLE B-1
POTENTIAL CHEMICAL-SPECIFIC ARARs, CRITERIA, ADVISORIES, AND GUIDANCE

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE EE/CA
State	Maine Drinking Water Rules (10-144A CMR Chapters 231-233)	Relevant and Appropriate	Maine's Primary Drinking Water Standards are equivalent to federal MCLs. When state levels are more stringent than federal levels, the state levels may be used.	During groundwater modeling, analytical data will be compared to drinking water standards.
SOIL				
Federal Guidance and Advisories To Be Considered	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.
	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.

Notes:

ARAR = Applicable or Relevant and Appropriate Requirement
AWQC = Ambient Water Quality Criteria
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CFR = Code of Federal Regulations
CMR = Code of Maine Rules
CSF = cancer slope factor
EE/CA = Engineering Evaluation/Cost Analysis
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
MEDEP = Maine Department of Environmental Protection
MEG = Maximum Exposure Guidelines
mg/kg = milligrams per kilogram
MRSA = Maine Revised Statutes Annotated
NAS = Naval Air Station
OSWER = Office of Solid Waste and Emergency Response
ppm = parts per million
RCRA = Resource Conservation and Recovery Act
RfD = reference dose
SARA = Superfund Amendments and Reauthorization Act
SDWA = Safe Drinking Water Act
USEPA = U.S. Environmental Protection Agency
$\mu g/m^3$ = micrograms per cubic meter

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

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

MEDIA	REQUIREMENT	STATUS	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE EE/CA
NATURAL RESOURCES				
State	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.
	Maine Solid Waste Management Rules: Landfill Disposal Facilities (38 MRSA, Section 1301 et seq.; MEDEP Regs, Chapters 400-406)	Applicable	These regulations outline landfill siting requirements including minimum distances to aquifers, bedrock, and geologic faults.	The standards outlined in this requirement will be incorporated into the design of any removal action proposing construction of a land disposal facility.
	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:
EE/CA = Engineering Evaluation/Cost Analysis
MEDEP = Maine Department of Environmental Protection
MRSA = Maine Revised Statutes Annotated
NAS = Naval Air Station

TABLE B-3
POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE EE/CA
Federal		
RCRA - General Facility Standards (40 CFR 264.10-264.18)	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)	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)	This regulation outlines the requirements for emergency procedures to be used following explosions, fires, etc.	Plans will be developed and implemented during site work including installation of monitoring wells, and implementation of site remedies. Copies of the plans will be kept on site.
RCRA - Releases from Solid Waste Management Units (40 CFR 264.90-264.109)	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 any proposed alternative. The need for any of the specific monitoring programs will depend on whether source materials are removed, treated, or left in place.
RCRA - Closure and Post-closure (40 CFR 264.110-264.120)	This regulation details general requirements for closure and post-closure of hazardous waste facilities, including installation of a groundwater monitoring program.	Those parts of the regulation concerned with long-term monitoring and maintenance of the site will be considered during remedial design.
RCRA - Waste Piles (40 CFR 264.250-264.269)	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.	According to RCRA, waste piles used for treatment or storage of noncontainerized accumulation of solid, nonflowing hazardous waste may comply with either the waste pile or landfill requirements. The temporary storage of solid waste on site, therefore, must comply with one or the other subpart.
RCRA - Landfills (40 CFR 264.300-264.339)	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)	This regulation specifies the performance standards, operating requirements and monitoring, inspection, and closure guidelines of any incinerator burning hazardous waste.	On-site thermal treatment must comply with the appropriate requirements specified in this subpart of RCRA.

continued

TABLE B-3
POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE EE/CA
RCRA - Miscellaneous Units (40 CFR 264.600-264.999)	These standards are applicable to miscellaneous units not previously defined under existing RCRA regulations. Subpart X outlines performance requirements that miscellaneous units be designed, constructed, operated, and maintained to prevent releases to the subsurface, groundwater, surface water, and wetlands that may have adverse effects on human health and the environment.	The design of proposed treatment alternatives, not specifically regulated under other subparts of RCRA, will address the means of preventing the release of hazardous constituents and prevent further impact on the environment.
RCRA Land Disposal Restrictions (40 CFR 268)	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.	If soils are excavated for treatment, they will be considered wastes subject to LDRs and alternatives will be designed to handle and treat the soils in compliance with these regulations.
OSHA - General Industry Standards (29 CFR Part 1910)	These regulations specify the 8-hour time-weighted average concentration for various organic compounds. Training requirements for workers at hazardous wastes 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 would be required to have completed specific training requirements.
OSHA - Safety and Health Standards (29 CFR Part 1926)	This regulation specifies the type of safety equipment and procedures to be followed during site remediation.	All appropriate safety equipment will be on site. In addition, safety procedures would be followed during on site activities.
OSHA - Recordkeeping, Reporting, and Related Regulations (29 CFR 1904)	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 of Hazardous Waste (40 CFR Part 262)	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.	If any alternative proposes shipping wastes off site, the material 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.
DOT Rules for Transportation of Hazardous Materials (49 CFR Parts 107, 171.1-172.558)	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.

continued

TABLE B-3
POTENTIAL ACTION-SPECIFIC APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

REQUIREMENT	REQUIREMENT SYNOPSIS	CONSIDERATION IN THE EE/CA
Federal Insecticide, Fungicide, and Rodenticide Act Regulations (FIFRA) (40 CFR Part 165)	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.
State		
Maine Landfill Disposal Regulations (MEDEP Regs, Chapter 401)	These regulations outline the permitting requirements for waste disposal by landfill. Chapter 401 specifies closure and post-closure maintenance requirements.	Design of a cover system would have to meet minimum standards and specifications (401.7[c]). Institutional controls would need to include providing appropriate record information to the Registry of Deeds (401.7[f]).
Maine Hazardous Waste Management Rules (MEDEP Regs, Chapters 800-802, 850, 851, 853-857)	The rules provide a comprehensive program for handling, storage, and recordkeeping at hazardous waste facilities. They supplement the RCRA regulations.	Because these requirements supplement RCRA hazardous waste regulations, they must also be considered.
Maine Emission License Regulations (38 MRSA, Section 585, 590; MEDEP Regs, Chapter 115)	These requirements specify who must obtain an air emissions license, application information, and standards and criteria that must be met.	New sources must be in compliance with all applicable emissions limitations under the Clean Air Act. Emissions of pollutants with no standards should not exceed interim guideline values.
Incinerator Particulate Emission Standard (38 MRSA Section 600; MEDEP Regs, Chapter 104)	Establishes limitations on the amount of particulate matter allowed to be emitted from several categories and sizes of incinerators, as well as a limitation on the capacity of emission from all incinerators.	These limits will be addressed if an on-site incinerator is proposed.
Maine Growth Offset Regulations (38 MRSA, Section 590; MEDEP Regs, Chapter 113)	This rule applies to new licenses for facilities in non-attainment areas. They require RACT or better for the base case emission, and offset reductions from other facilities.	RACT will be considered for air treatment if applicable.

Notes:

CFR	=	Code of Federal Regulations	NAS	=	Naval Air Station
CWA	=	Clean Water Act	OSHA	=	Occupational Safety and Health Administration
DOT	=	Department of Transportation (U.S.)	POTW	=	publicly owned treatment works
EE/CA	=	Engineering Evaluation/Cost Analysis	RACT	=	Reasonably Available Control Technology
FIFRA	=	Federal Insecticide, Fungicide, and Rodenticide Act	RCRA	=	Resource Conservation and Recovery Act
LDR	=	Land Disposal Restrictions	SDWA	=	Safe Drinking Water Act
MEDEP	=	Maine Department of Environmental Protection	MRSA	=	Maine Revised Statutes Annotated

TABLE B-4
LAND DISPOSAL RESTRICTIONS FOR BUILDING 95 CONTAMINANTS

ACTION MEMORANDUM
BUILDING 95
NAS BRUNSWICK

CONTAMINANT	CODE	TREATMENT STANDARD (mg/kg)	TECHNOLOGY
alpha-BHC	F039	0.066	Incineration
Lindane	D013, U129	0.066	Incineration
beta-BHC	F039	0.066	Incineration
Heptachlor	F039, P059	0.066	Incineration
delta-BHC	F039	0.066	Incineration
Aldrin	F039	0.066	Incineration
Heptachlor Epoxide	F039, P050	0.066	Incineration
Endosulfan I	F039, P050	0.066	Incineration
4,4'-DDE	F039, U061	0.087	Incineration
Dieldrin	F039, P037	0.13	Incineration
Endrin	F039, P051	0.13	Incineration
4,4'-DDD	F039, U060	0.087	Incineration
Endosulfan II	F039, P050	0.13	Incineration
4,4'-DDT	F039, U061	0.087	Incineration
Endrin Aldehyde	F039, P050	0.13	Incineration
Endosulfan Sulfate	F039	0.13	Incineration
Methoxychlor	F039, D014, U247	0.018	Incineration
Chlordane	F039, U036	0.13	Incineration

Notes:

F039 wastes are for multisource leachate.
mg/kg = milligrams per kilogram

002931T/7

RESPONSIVENESS SUMMARY

RESPONSE TO USEPA COMMENTS

1. Comment (written): General: Pursuant to §300.820 of the NCP, an administrative record is required for all removal actions. In the case of a non-time critical removal action the administrative record should have been made available when the EE/CA was made available to the public (i.e., start of the public comment period). Please provide a copy of the administrative record index to EPA.

Response: The Administrative Record for NAS Brunswick has been established and is available for public review at the Curtis Memorial Library located at 23 Pleasant Street, Brunswick, Maine. The following documents have been placed in the Administrative Record to support the removal action at Building 95 and constitute the Index for this removal action:

Federal Facility Agreement under CERCLA Section 120, as amended. U.S. Department of the Navy and the U.S. Environmental Protection Agency Region I and the State of Maine. In the matter of: The U.S. Department of the Navy; Naval Air Station, Brunswick, Maine.

Closure Order
Memorandum
To: Board of Environmental Protection
From: Joel Farley BHMSWC
RE: Naval Air Station Brunswick
Date: May 22, 1991

Site Evaluation Work Plan; Building 95; Naval Air Station Brunswick, Brunswick Maine; November 1991 prepared for: U.S. Department of the Navy; Northern Division, Naval Facilities Engineering Command Contract N62472-84-C-1108 prepared by: ABB Environmental Services, Inc., Portland, Maine

Engineering Evaluation/Cost Analysis; Building 95; Naval Air Station Brunswick, Brunswick, Maine Volume I and II. November 1992, prepared for: U.S. Department of the Navy; Northern Division, Naval

Facilities Engineering Command Contract N62472-84-C-1108 prepared by: ABB Environmental Services, Inc., Portland, Maine

The Administrative Record is currently being updated to ensure completeness and ease of public access.

2. Comment (written): General: The Navy has indicated that the goal of the proposed subsurface soil Preliminary Remediation Goals (PRGs) is to be protective of groundwater. However, the subsurface soil PRG presented in the EE/CA was based on protection of human health as calculated in the risk assessment. The Navy submitted to EPA (under separate cover from the EE/CA) a copy of New Jersey Proposed Rule which includes soil cleanup levels that are meant to be protective of groundwater. This rule is not promulgated and the state of New Jersey is currently reviewing public comments received on the proposed rule. The subsurface soil cleanup levels included in this proposed rule are based on a model which has not been reviewed or approved by EPA Region I. The technical information regarding the model was not submitted to EPA by the Navy.

It is our understanding that the purpose of referencing the NJ soil cleanup levels was to compare them with the risk-based PRG proposed in the EE/CA. The risk-based PRG for DDT in subsurface soil as proposed in this EE/CA 135,000 ppb. The NJ level for DDT is subsurface soil, which they claim is protective of groundwater, is 100,000 ppb.

EPA cannot assess how the NJ cleanup level was derived and therefore cannot comment on whether attaining this level will result in no future impact to groundwater. In addition since the proposed PRG for subsurface soils presented in the EE/CA is a risk-based number there is no data to indicate that this number will result in no future impact to groundwater either. However, long-term groundwater monitoring is included as a component of the proposed removal action. Results of groundwater monitoring and five-year reviews (which will include risk assessments) will indicate whether additional action to address potential groundwater contamination or residual soil contamination which may contribute to groundwater contamination is warranted.

Response: The Navy acknowledges USEPA's general comment. As stated in the comment, groundwater monitoring and five-year reviews are part of the removal action. Four groundwater monitoring wells were installed at Building 95 in January 1993. Unfiltered groundwater samples from these wells were collected on February 4, 1993 and analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides/herbicides, and Target Analyte List (TAL) inorganics. These data are presented in Appendix A and summarized in Table 1 of the Action Memorandum

3. Comment (written): General: As indicated in the page specific comments below, EPA does not feel that sufficient information is available to justify using 500 ppb as a Preliminary Remediation Goal (PRG) for DDT in surface soils. Calculations in the ecological risk assessment indicate that the PRG should be 340 ppb. Should the Navy undertake a removal using 500 ppb as the PRG, the required confirmatory sampling (which must include the "forested" area) must show that all unacceptable risks (both human health and ecological) have been eliminated prior to approval of any closeout activities at the site.

Response: Predesign soil sampling was conducted to verify the extent of contamination in the forested area located to the north of Building 95. Twelve additional soil samples were collected on January 20, 1993 to further confirm the distribution of contamination. These include six samples north of Building 95 in the wooded area, three east of Sixth Street (unnamed road), and three samples south of Avenue B along the abandoned railroad tracks. These data are presented in Appendix A and summarized in Table 2 of the Action Memorandum. Data from these samples were used to modify the area requiring remediation. Included in the excavation are sampling locations SS-9 and SS-11. The intent of the removal action is to excavate surface soils containing greater than 500 μg/kg DDT and subsurface soils containing greater than 135,000 μg/kg DDT for off-site incineration.

As indicated in the response to USEPA's Comment #45 on the Draft EE/CA report (see Appendix K), the Navy does not feel that the potential risk associated with ecological exposures to

soils containing 500 μg/kg DDT (Hazard Index [HI] = 1.5) and 340 μg/kg (HI = 1.0) are significantly different given the considerable uncertainties associated with conducting ecological risk assessments as well as the generally conservative approach used in risk estimation. As mentioned in the report (see Subsection 2.2.4), soil remediation to meet a goal of 340 μg/kg DDT would negatively impact the additional habitat directly affected. This direct impact should be considered in evaluating the benefit associated with the potential incremental degree of risk reduction in reducing the PRG from 500 to 340 μg/kg.

The purpose of confirmatory sampling is to determine whether the cleanup standards have been met. It is not possible to "show" through confirmatory sampling that "all unacceptable risks have been eliminated." USEPA has taken the conservative approach in its guidance on evaluating risk that exposure to any amount of a carcinogenic compound results in some finite incremental risk. The residual contamination, based on the ecological PRG of 500 μg/kg is considered by the Navy to provide an adequate level of protection to both human and ecological receptors. The confirmatory sampling will be conducted to ensure that residual concentrations of DDT in the surface soils and subsurface soils do not exceed 500 μg/kg and 135,000 μg/kg, respectively.

4. Comment (written): Page ES-4, 1st bullet: It should be noted that groundwater samples taken from properly designed and developed monitoring wells must be unfiltered for risk assessment purposes.

   Response: Comment noted. The groundwater samples collected from Building 95 on February 4, 1993 were unfiltered.

5. Comment (written): Page 1-3: Additional information has been included in the paragraph, but Administrative Record requirements for a non-time critical removal have not been identified explicitly as requested in EPA's comment #4. Include a more detailed account of the Administrative Record requirements for a non-time critical removal in the Responsiveness Summary.

Response: The Administrative Record requirements for a removal action, including a non-time critical removal action are presented in the following table:

Type of Removal Action	Activities
Emergency: Cleanup begins within hours of the decision to act. Effort lasts less than 30 days.	Public notice in local paper notifies affected citizens, identifies the action, a spokesperson, and the location of the Administrative Record.
Time Critical: (Effort lasts less than 120 days) Cleanup begins within six months of the decision to act.	Public notice in local papers, 60 days before action is scheduled to begin, notifies affected citizens, identifies the action, a spokesperson, and the locatio of the Administrative Record, and provides a 45-day public comment period with instructions for comments. A Responsiveness Summary is prepared.
Time Critical: (Effort lasts more than 120 days	All activities listed for time-critical actions above plus further community interviews and a revision or addendum to the Community Relations Plan.
Non-Time Critical: Cleanup begins six months or more after the decision to act.	All activities listed above, including an Engineering Evaluation/Cost Analysis, are made available for public review for the public comment period.

6. Comment (written): Page 1-24, 1st paragraph: The text does not indicate how the appropriate depth for collection of groundwater samples was determined. Information included in the latest draft of the EE/CA stated that the bottom of the sampling device was within 1-3 feet of the static water level (Comment #14). In addition, the text does not state why only six locations (instead of eight) were sampled. This information should be included in the Responsiveness Summary.

Response: The appropriate depth for the collection of groundwater samples (1 to 3 feet below the static water level) was

determined based on the requirements of the sampling device used. The goal of the groundwater sampling was to collect samples as close to the water table as possible. To obtain samples using the mini-bailer or the peristaltic pump, the tip of the sampling device had to extend between 1 and 3 feet into the water, depending on recharge. This was the case for samples collected using either the open TerraProbe rods or slotted sampling point.

The number of groundwater samples collected using the TerraProbe was reduced from eight to six. A decision was made during the field program to reduce the number of groundwater sampling points because (1) the field screening results did not detect the presence of target compounds in the groundwater samples analyzed; and (2) the close grid spacing of the water sampling points (20 to 40 feet) directly beneath the most contaminated soil was considered sufficient to determine presence or absence of contaminants in the groundwater. The results of the field program, as described on pages 1-65 through 1-68 of the EE/CA), were interpreted during the field program to indicate that either (1) the field laboratory methods could not detect the presence of the traces of pesticide-related contamination that might be present; or (2) there was no significant groundwater contamination to be delineated. Off-site laboratory results were not available during the field program to influence the decision process. The EE/CA recommended that properly designed monitoring wells be installed at the site and sampled to better evaluate the nature and distribution of possible groundwater contamination by pesticides and inorganics detected in samples submitted for off-site laboratory analysis. Four monitoring wells were installed in January 1993 and sampled on February 4, 1993 to address this recommendation. These data are presented in Appendix A and summarized in Table 1 of the Action Memorandum.

7. Comment (written): Page 1-43, Contamination Assessment: Comparison of the effectiveness of field screening versus off-site laboratory analyses for VOCs and pesticides does not appear to have been included in Section 1.3.2 (as requested in EPA's comment #16). Discuss this in the Responsiveness Summary.

Response: The response to USEPA's Comment #16 (see Appendix K of the EE/CA) should have noted the text to be inserted is located on Page 1-27 in Subsection 1.3.1.1, not on page 1-43, Subsection 1.3.2. This response notes that comparison of the field laboratory organochlorine pesticide results to off-site laboratory TCL pesticide results is included in Appendix D (page D-20) of the EE/CA. Comparison of VOC, herbicide, organophosphorus pesticide, and metals results were not conducted because significant detection of these compounds were not reported by the field or off-site laboratories.

8. Comment (written): Page 1-43, Fifth Paragraph: EPA's Comment #17 appears to have been partially addressed; it was mentioned that SVOCs were not detected, but no reference is made to analyses for TPH. Refer to this analysis in the Responsiveness Summary.

Response: USEPA's comment #17 asked whether the Navy considered analyzing wipe samples for SVOCs or total petroleum hydrocarbon (TPH). The response to this comment (see Appendix K of the EE/CA) indicates that wipe samples were analyzed only for pesticides. The non-detection of SVOCs referred to in the above comment refers to septic tank sludge sample CLXX1, not the wipe samples. To clarify the Navy's response to USEPA's Comment #17, the possibility of analyzing wipe samples for SVOCs and TPH was considered early in pre-draft development and scoping of the sampling and analysis program, however, because (1) building surfaces appeared dry and dusty and not oily or greasy, and (2) analyses for SVOCs and TPH were not required to evaluate disposal options for the building materials, it was decided that these analyses would not provide meaningful information and were not proposed.

9. Comment (written): Page 1-68, last sentence: This sentence (which continues on to page 1-69) indicates that inorganics are not considered to be associated with storage or disposal practices at Building 95. However, page 1-65 states that lead may be a site-related contaminant of concern. Since lead could be associated with the carrier liquid it should be considered as a COC.

Response: Lead was included as a contaminant of concern (COC) and was evaluated in the human health and ecological risk assessments.

10. Comment (written): Page 2-27, Table 2-8: The chronic RfD for anthracene is $3x10^{-1}$. Changes should be made in Table 2-8.

Response: Although Table 2-8 will not be reissued, it should be noted that it shows the incorrect chronic RfD for anthracene. The correct chronic RfD for anthracene is 3E-01. The calculations in Appendix G were based on the appropriate RfD and, therefore, are correct.

11. Comment (written): Pages 2-35, 2-36, and 2-37: In Table 2-10 (p. 2-35) and the corresponding text (pp. 2-36 and 2-37), the HI values for Residential Adult (24 years), Total Residential, and Worker (current) no longer correspond to the values in Appendix G, Tables 1-7. It appears that this is a result of having corrected the concentration for malathion in Appendix G, but not making the corresponding changes in the table and text. These errors should be noted and corrections discussed in the Responsiveness Summary.

Response: Changes should be noted for the following HI values in Table 2-10 on page 2-35:

HI for Residential (future) 24 years - 26
HI for Total Residential - 216
HI for Worker (current) - 14

The values calculated in Appendix G (Tables 2 and 4) are correct and were not transferred to Table 2-10 when the concentration of malathion was corrected. Text on page 2-36 paragraph 4 should read "The noncarcinogenic HIs associated with contaminant exposure under each scenario exceeded 1.0 and ranged from 3 to 216.... Exposure to malathion exceeded 1.0 for the residential scenario."

12. Comment (written): Page 2-36, 4th Paragraph: With the recalculation of the risks for malathion, the malathion hazard index no longer exceeds 1.0 for the worker. This should be noted and discussed in the Responsiveness Summary.

Response: The HI for malathion, using the corrected maximum concentration, is now well below 1.0 for the worker scenario.

The HI for malathion exceeds 1.0 only in the 30-year residential scenario.

13. Comment (written): Page 2-54, Table 2-14: The table indicates that no subsurface soil concentration detected exceed the proposed subsurface soil PRG of 135,000 ppb. However, according to Figure 1-13, 230,000 ppb of DDT was detected at HX4 at a depth of 3 feet below ground surface. Therefore some subsurface soil will require excavation and incineration. This must be addressed in the Responsiveness Summary.

Response: As noted in the comment, 230,000 μg/kg DDT was detected in subsurface soils at sampling location HX4. Therefore, Table 2-14 on page 2-54 should be modified to exclude the statement that "No subsurface DDT concentrations exceeded 135,000 μg/kg."

The subsurface soils in the vicinity of HX4 will be included as part of the removal action. The soils exceeding 135,000 μg/kg DDT below 2 feet bgs will be excavated and included for off-site incineration. Based on field screening and off-site laboratory analytic results from soil sampling, the area exceeding a subsurface PRG of 135,000 μg/kg is limited to HX4 at 3 foot depth. Surrounding sampling location (at 3 foot depth) had the following DDT concentrations: less than 220 μg/kg DDT at HX0; 330 μg/kg DDT at JX4; less than 220 μg/kg DDT at GX3; 2,500 μg/kg DDT at EX5 and less than 225 μg/kg DDT at EX7.

The additional soil volume to be excavated and incinerated is 45 cubic yards and is based on a surface area of 615 square feet and depth of 2 feet (see Appendix D). The additional costs for including this volume in the removal action is estimated using the same cost assumptions stated in the EE/CA and includes: $1,500 for excavation, $15,000 for transportation, and $90,000 for incineration for a total additional cost of $106,500. This represents a 3 percent increase in the original cost estimate of $3,431,000. These revised costs are reflected in the cost estimates provided in Section C, "Description of Alternative Technologies" of the Action Memorandum.

14. Comment (written): Page 2-55, §2.2.4.3: Insufficient data has been provided to support a surface soil PRG of 500 ppb instead of the 340 ppb which was calculated in the ecological risk assessment. The EE/CA indicates that 500 ppb is warranted because "soil cleanup to the ecological PRG of 340 ppb would destroy the forested habitat along the northern section of the site." However, the Navy's response to EPA comments on the draft EE/CA states that no sampling was done in the forested area. If no sampling has been done in this area, what information does the Navy have to indicate that a PRG of 340 ppb would require any cleanup (and therefore destruction) in the forested area?

The response to EPA's comments also indicates that the PRG of 340 ppb is below the field screening method detection limit. Was 500 ppb selected as the alternative PRG because it is the field screening method detection limit? If so this is not justification for using a cleanup level higher than the number calculated in the risk assessment.

Response: No soil sampling was conducted during the June-July 1992 field program in the forested area north of Building 95. Therefore, no analytical data are available to estimate either the 500 μg/kg DDT or 340 μg/kg DDT contour in this area. To address this data gap, additional soil sampling at Building 95 was conducted in January, 1993. One objective of this sampling effort was to verify the extent of contamination in the forested area located north of Building 95. Six soil samples were collected from this area and analyzed for TCL VOCs, SVOCs, pesticides and TAL inorganics. Total DDT, DDD, and DOE concentrations were all below 500 μg/kg and 340 μg/kg. Those data are presented in Appendix A and summarized in Table 2 of the Action Memorandum.

As indicated in the response to USEPA's Comment #45 on the draft EE/CA report, the Navy does not feel that the potential risk associated with ecological exposures to soils containing 500 μg/kg DDT (Hazard Index [HI] = 1.5) and 340 μg/kg (HI = 1.0) are significantly different given the considerable uncertainties associated with conducting ecological risk assessments as well as the generally conservative approach used in risk estimation. As mentioned in the report, soil remediation

to meet a performance goal of 340 μg/kg DDT, would negatively impact the additional habitat affected directly. This direct impact should be considered in evaluating the benefit associated with the potential incremental degree of risk reduction in reducing the PRG from 500 to 340 μg/kg DDT.

The surface soil PRG of 500 μg/kg DDT was selected consistent with the guidance presented in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The NCP states "In selecting the appropriate extent of remedy, the lead agency considers cost, technology, reliability, administrative and other concerns, and their relevant effects on public health and welfare and the environment." The selection of 500 μg/kg DDT over 340 μg/kg DDT addresses both the concern over increased habitat destruction at the lower PRG of 340 μg/kg DDT and the technical factors (including detection and quantification limits) that govern the reliability of achieving the proposed PRG.

15. Comment (written): Page 2-56, Paragraph 2: As stated previously, the data presented indicates that there is subsurface soil which exceeds the proposed subsurface PRG. This issue must be addressed.

Response: As stated in response to Comment 13, subsurface soils containing DDT in excess of 135,000 μg/kg will be included in the removal action.

16. Comment (written): Page 3-2, 2nd full paragraph, 4th sentence: It is not clear as to what is meant by this sentence. If the fluids generated during cleaning of Building 95 are not collected, how will they be prevented from flowing off site? What is meant by off site? Is it beyond the boundary of the building, or is it beyond the boundary of the proposed soil cover, or something else. The sentence leaves the reader hanging on the important issue of residuals management, and should be addressed in an appropriate fashion by providing more details on the actions that will be implemented for managing the residuals.

Response: Fluids and other materials (e.g., sand from sand blasting) generated or used to clean structures prior to removal from the site would be contained inside the area exceeding the surface soil PRG (e.g. the area to be excavated). Because site

contaminants do not readily dissolve in water, water used for cleaning would be allowed to infiltrate the soils within the area exceeding the PRG. These soils would be excavated during the removal action and incinerated. To keep the water from flowing outside of the area, engineering controls such as hay bales or earthen berms may be required.

17. Comment (written): Page 3-2, 2nd full paragraph: According to the text, Building 31 and the storage shed will be steam cleaned and moved to another location, or steam cleaned and dismantled. Indicate on what basis this decision will be made.

Response: The decision to relocate or dismantle the storage shed and Building 31 will be made by NAS Brunswick personnel. These buildings were never used for pesticide storage or mixing. Wipe samples will be collected as part of the predesign sampling program and analyzed for asbestos. Based on the results of this sampling, NAS Brunswick will decide if the structures should be moved. If the NAS Brunswick does not identify uses for the structures, the structures would be dismantled and disposed of in a debris landfill.

18. Comment (written): Page 3-3, Paragraph 4: Comment #47 was addressed only with reference to treatment standards for hazardous debris, Federal Register, USEPA 1992. A treatability variance is not discussed. Discussion of testing and disposal should be included in the Responsiveness Summary.

Response: Prior to removal or disposal, three wipe samples will be collected from Building 31 and the storage shed for asbestos analysis.

19. Comment (written): Page 3-7, 1st paragraph, 4th sentence: A reference should be provided for this statement, e.g., EPA document or other regulatory guidance where the treatment standards are specified.

Response: The reference for this statement is 40 CFR Part 268.43.

20. Comment (written): Page 3-7, Paragraph Excavation: Define an appropriate size for the large debris (e.g., greater than 2-inch diameter or

appropriate) that would be segregated from the remainder of the soils for treatment.

Response: Debris, as defined in Federal Register August 18, 1992, is "solid material exceeding 60 mm (2.5 inch) particle size that is: (1) A manufactured object; or (2) plant or animal matter; or (3) natural geologic material (e.g., cobbles or boulders), except that any material for which a specific treatment standard is provided in Subpart D of 40 CFR Part 268, is not debris."

21. Comment (written): Page 3-8, 1st line on top of the page: Provide some details on the treatment standards for hazardous debris.

Response: Treatment technologies for hazardous debris as discussed in the August 18, 1992 Federal Register consist of three general categories; extraction technologies, destruction technologies, and immobilization technologies. The rule as written requires "...hazardous debris to be treated by one of the specified technologies for each contaminant subject to treatment..." For more information on the treatment of hazardous debris see August 18, 1992 Federal Register or the USEPA Quick Reference Fact Sheet for Hazardous Debris and Containment Buildings.

22. Comment (written): Page 3-8, Paragraph 1: The text indicates that "...pre-design activities may include collecting additional surface soil samples to better define the limits of the excavation..." At the December 10, 1992 TRC meeting the Navy indicated that these samples would be taken. The Responsiveness Summary should confirm that additional sampling will be performed during the pre-design phase.

Response: Twelve surface soil samples were collected from the Building 95 site on January 20, 1993 and sent for off-site laboratory analysis for TCL VOCs, SVOCs, pesticides and TAL inorganics. These data are included in Appendix A of the Action Memorandum.

23. Comment (written): Page 3-10, 2nd Paragraph: Describe briefly, the approximate quantities of the waste streams that would be generated from the incineration process. It should be possible to determine this knowing the quantity of soils that requires treatment, characteristics of the soils, and the treatment efficiency that can

be expected from incineration. Knowing the quantities of waste streams that would be generated, will help in better evaluating the alternatives in section 4.

Response: Incineration substantially oxidizes organic matter in the feed stream to gases, while the remainder is left as inert ash or organic free soil. Soil at the site consists mainly of sand, with limited amounts of natural organic matter so minimal reduction in volume is anticipated.

Off-site incineration facilities typically combine feed materials to obtain the required thermal value necessary for operation, and to meet air emission standards. Performance of a mass balance at this time on the material from the site would not be representative of the actual operating conditions at the incineration facility. However, based upon the anticipated destruction efficiency of 99.9 percent that incineration is capable of attaining, levels of contaminants in the soil from Building 95 are expected to be reduced to below the analytical detection limit for the contaminants in the soil.

24. Comment (written): Page 3-10, Paragraph 2: The Responsiveness Summary should include a discussion of the air emissions from the incinerator and the APC system. Also, indicate what controls may be necessary to treat this air stream.

Response: Permitted off-site incinerators must meet stringent waste stream emission requirements established in the facilities operating permit. These requirements are set for all waste streams (liquid, gas, and solid) discharged by a facility. Typical methods of treating air streams prior to discharge at incineration facilities include a caustic scrubber and baghouse. However, special treatment methods are dependent upon the facility.

25. Comment (written): Page 3-10, Groundwater Monitoring: Please explain why a similar comprehensive monitoring program was not described for Alternative 1.

Response: The section for groundwater monitoring for Alternative 1 was inadvertently removed from the text. A program similar to that described in Alternative 3 would be implemented.

26. Comment (written): Section 3: Comment #53 was not addressed, and was not explicitly covered in Tables 4-2, 4-3, or 4-4. Include a response to this comment in the Responsiveness Summary.

Response: Time constraints that would impact the removal action schedule of one year are presented in the following discussion.

Alternative 1: An ARAR waiver would be required prior to implementing any actions because the proposed cap would not meet RCRA requirements. The existing structures at the site would need to be removed prior to construction of the cap. Construction of a cap would be more difficult during freezing conditions (November to March).

Alternative 2: An incineration facility with available capacity would need to be identified. The existing structures at the site would need to be removed prior to excavation of the soil. Site activities would be more difficult during freezing conditions (November to March).

Alternative 3: A treatability variance would be required prior to taking any actions because solvent extraction is not the BDAT for soil contaminated with a RCRA listed pesticide. A treatability study would need to be completed prior to full scale treatment to determine operating parameters. Solvent extraction has not been used extensively at full scale operation, processing delays are likely. Site activities would be more difficult during freezing conditions (November to March).

27. Comment (written): Page 4-8, Table 4-3: It is stated that since the volume of soils to be treated is small, there would be no problem in the finding an incinerator to treat the soils. Indicate whether the Navy knows where the soils would be incinerated, i.e., the actual location of the incinerator. Considering that this is a fast-track EE/CA, the specific details on implementation of the alternative should be known. Discuss this in the Responsiveness Summary.

Response: To date, the incineration facility has not been identified. Acceptance of waste at an incinerator and arrangement of contracts with a facility would likely require a minimum of 2-3 weeks.

28. Comment (written): Page K-17 (Volume II), #32: No reference exists for the Exposure Factors Handbook in the reference section of the document. This should be included and the proper changes made to Table 2-7 (pp. 2-22 and 2-23). This new information should be provided in the Responsiveness Summary.

Response: The reference for the exposure parameters for trespasser weight and construction worker surface area in Table 2-7 should be USEPA 1990c, not USEPA, 1990b. The full reference should read as follows:

USEPA, 1990c. Exposure Factors Handbook. Office of Health and Environmental Assessment. EPA/600/3-90.

29. Comment (written): Page K-18 (Volume II), #45, Paragraph 1: We were unable to locate the list of PRGs for the ecological assessment that were supposedly included in Appendix H.

Response: The initial ABB-ES response to Comment #45 on the draft document was to include a list of PRGs for all ecological contaminants of concern (COCs). However, it became clear following the selection of the recommended remedial action alternative that the development of PRGs for other ecological COCs was unnecessary. In removing soil exceeding PRGs for DDT, other potential COCs would also be removed, because DDT is the most widespread of the contaminants at the Building 95 site. The initial response should have been corrected to reflect this development.

30. Comment (written): Appendix H, Page H-30: Clarify whether the calculated invertebrate tissue concentration is for a wet weight value or a dry weight value. This value must be consistent with the reference toxicity value or must be corrected for with a correction factor. This information is necessary in order to fully evaluate whether the sample calculations correctly support a PRG of 340 ppb for DDT in surface soils.

Response: The data used to derive the invertebrate uptake factor for DDT (and other pesticides) is presented as bioconcentration factors in "Environmental Profiles and Hazard Indices for Municipal Sludge: DDT/DDE/DDD" (USEPA, 1985). These "bioconcentration factors" were calculated as tissue

concentration divided by soil concentration with each expressed as $\mu g/g$ (dry weight). The resulting factor (unitless) was multiplied by surface soil contaminant concentrations (expressed on a dry weight basis) in the food web model to estimate invertebrate tissue concentrations. As a result, the invertebrate tissue concentration is actually estimated as a dry- rather than a wet-weight basis. Correcting for this would decrease the estimated invertebrate concentration; for example, assuming that the average earthworm consists of 90% water, the wet-weight adjusted BAF would have been 12.9 (as used in the assessment) * 0.1 or 1.29. This correction was not done in the Ecological Assessment for the Building 95 site because of the considerable uncertainty associated with the uptake data, variability in the relative water content of different soil fauna and the conservative nature of the assessment process.

RESPONSE TO MEDEP COMMENTS

1. Comment (written): ABB-ES states there is no evidence to suggest pesticide and/or carrier were disposed of in the sink in Building 95. However, the presence of pesticides in septic tank sludge noted on pages 1-43 through 45 refute this statement.

   Response: The first sentence on page 1-45 states: "Sampling of Building 95 surfaces and the septic tank contents shows that pesticide storage and pesticide disposal practices at Building 95 resulted in contamination of the building and septic tank." On page 1-5, it is implied that the septic system is a contaminant migration pathway, and on page 1-68 it is stated that "Disposal practices also resulted in contamination by pesticides of the septic tank at the site." To clarify its interpretation, ABB-ES notes that the very low concentrations of pesticides (and other organic and inorganic chemicals) in the septic tank suggest that product pesticide or pesticide spray mixtures were not disposed in the sink inside Building 95 in any appreciable quantity. If this were the case, the concentrations would have been more comparable to (significantly higher) concentrations observed in soils outside of the building. Overall, the concentrations of pesticides detected in the septic tank are most likely indicative of workers washing their hands or tools and equipment that would only be lightly contaminated with pesticides after use.

2. Comment (written): The rationale for not determining pesticide concentrations in soils east of the unnamed road is unacceptable. Determination of the limits of pesticide evaluation should not be arbitrarily drawn at this unnamed road. Available data suggest contamination may extend beyond this road. Consequently, if DDT concentrations exceed the Preliminary Remediation Goal east of this road, steps to reduce risks should be evaluated.

   Response: Three soil samples were collected east of Sixth Street to ascertain whether contamination extends into this area. These data show that total DDT, DDD, and DDE concentrations are below the PRG. Therefore, no action will be taken east of Sixth Street.

3. Comment (written): Page 1-43: The Department requested additional soil sampling near the septic system to determine if pesticides have entered soils through subsurface disposal. After removal of the top two feet of soil and the septic system, soil for appropriate analysis could be collected.

   Response: Soil samples from the area around the septic system will be collected as part of the confirmatory sampling program.

4. Comment (written): Page 2-24: EPA's October 9, 1992 comments indicated Maine's MEGs are not promulgated. Please note that in my letter of November 6, 1992 I outlined that Maine's MEGs are promulgated for any solid waste facility. The MEGs were promulgated in the Maine Solid Waste Management Regulations Chapters 400-406, 408 and 409 on May 24, 1989. The reference for the MEGs can be found in CMR 400.1(Y) on page 7 of the regulations.

   Response: Comment noted.

5. Comment (written): Page 3-2, Section 3.1: Concerning removal of structures states that building and structural debris will be steam cleaned prior to disposal in a local landfill. The department recommends that the known contaminated sections of the building be sampled and tested prior to disposal for the contaminants originally discovered during the site evaluation (see section 1.3.2.1 of the August EE/CA report, page 1-43). Otherwise, the structural material should be considered hazardous and be disposed of into a landfill licensed to accept hazardous wastes.

   Response: Prior to removal or disposal, three wipe samples will be collected from Building 31 and the storage shed for asbestos analysis. Building 95 is considered to be contaminated with a listed hazardous waste and will be cleaned and disposed of in accordance with hazardous debris regulations after dismantling.

6. Comment (written) Page 3-8. Although ABB-ES' response indicated no intention to evaluate soil east of the unnamed road (Sixth Street), the description of alternative 2 includes such sampling, Please clarify.

Response: As part of the Predesign Sampling Program, twelve surface soil samples were collected to better define the distribution of soil contamination. These include 3 samples collected east of the Sixth Street. Results of the analysis indicate that total DDT, DDD, and DDE concentrations are below the PRG. These data are presented in Appendix A and summarized in Table 2 of the Action Memorandum.

7. Comment (written) Page 3-11. The Phase I temporary wells are not on Figure 1-5. However, rather than install both temporary wells and permanent wells, could evaluation of groundwater wait until permanent wells are installed?

Response: Four monitoring wells were installed at Building 95 in January and one round of groundwater samples collected in February, 1993. Data from these samples are presented in Appendix A and summarized in Table 1 of the Action Memorandum. The temporary monitoring wells were included in the predesign sampling effort to provide data on existing groundwater quality beneath Building 95. Four permanent wells will be placed on-site, after the excavation is complete, and used for long-term groundwater monitoring.

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

VOLUME ESTIMATE FOR SUBSURFACE SOILS

PROJECT	COMP. BY	JOB NO.
BNAS - BLDG 05 VOLUME CALC 2'-4' BGS NEAR LOCATION HX4	[illegible]	712202
	CHK. BY (RMD)	DATE 05 FEB 93

OBJECTIVE: APPROXIMATE AREA FROM 2'-4' BGS IN VICINITY OF LOCATION HX4 (FIGURE 1-13 ATTACHED) THAT EXCEEDS PRGs OF 135,000 ug/kg DDT.

APPROACH: USE AVAILABLE FIELD SCREENING DATA TO CONTOUR AREA AROUND HX4 TO ESTABLISH A 135,000 ug/kg DDT CONTOUR

ASSUMPTIONS:

① ASSUME ONLY SOIL FROM 2'-4' BGS

② ASSUME CONCENTRATION DECREASES LINEARLY WITH DISTANCE FROM HX4. USE NEARBY BORINGS TO APPROXIMATE RATE OF DECREASE IN DDT CONCENTRATION

$$\frac{(\text{DDT conc. HX4}) - (\text{DDT conc @ Point A})}{\text{DISTANCE BETWEEN POINT A \& HX4}} = \frac{\text{DECREASE DDT}}{\text{LINEAR FOOT}}$$

CALCULATIONS:

LOCATION	DDT CONC. (ug/kg)	DISTANCE FROM HX4	Δ DDT Conc (ug/kg)	DECREASE DDT / LINEAR FT.	DDT @ HX4 − PRG / DECREASE DDT/LINEAR FT.
JX4	330	20'	229,700	1148.5	8.27 FT.
HX0	< 220	45'	229,780	5106.2	18.6 FT
GX3	< 220	15'	229,780	15,318.7	6.2 FT
EX5	2500	35'	227,500	6500	14.6 FT
EX7	< 225	45'	229,775	5106.2	18.6 FT

* ASSUME AREA TO NORTH EXTENDS ~ 20 FROM HX4 SINCE NO DATA IS AVAILABLE

PLANIMETER OF AREA IN RED : 615 FT²

DEPTH 2 FT

1230 FT³ ~ 45.6 CUBIC YARDS.

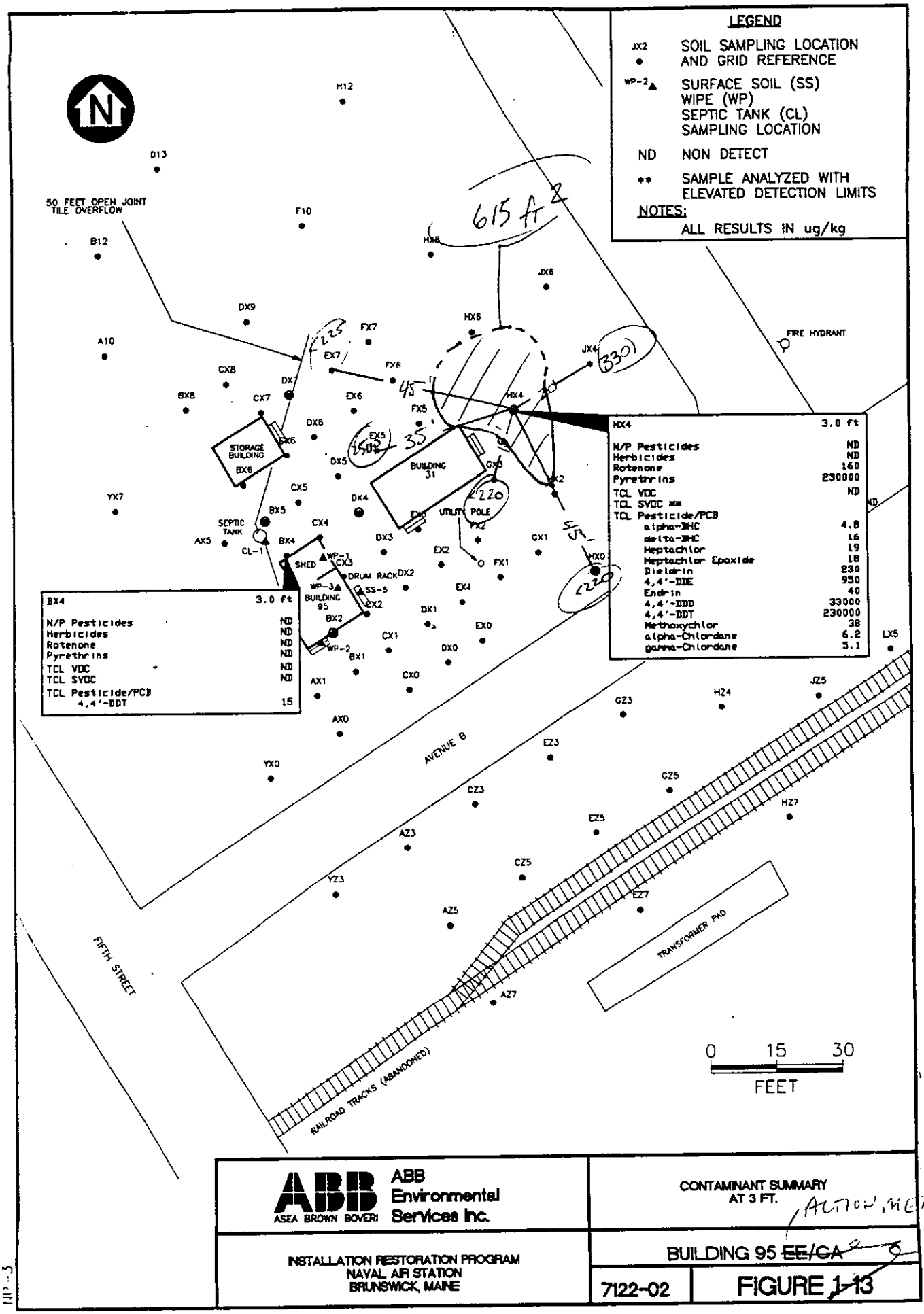

ABB Environmental Services Inc.
ASEA BROWN BOVERI

CONTAMINANT SUMMARY AT 3 FT.

INSTALLATION RESTORATION PROGRAM
NAVAL AIR STATION
BRUNSWICK, MAINE

BUILDING 95 ~~EE/CA~~

7122-02 FIGURE 1-13

[5] From: Kim LaMarre 3/26/93 10:26AM (544 bytes: 7 ln)
To: Elizabeth Walter, Chris Pellerin
Subject: Volume of Soil to Remove - Building 95
---------- Message Contents ----------

I have recomputed the total soil volume to be removed at Building 95. The new area includes SS-9 and SS-11 where pyrethrin and DDT were found in concentrations above the PRG. The total volume is approximately 1,250 cubic yards. Beth- CAD is revising the contours on the site plan. When I get a print I'll give you a copy for the Action Memo.

ABB
SEA BROWN BOVERI

ABB Environmental Services, Inc.

110 Free Street/P.O. Box 7050, Portland, Maine 04112
(207) 775-5401 FAX (207) 772-4762

MEMORANDUM

PROJECT NO.: 712202 **DATE:** 4-2-93

CLIENT: Navy
PROJECT DESCRIPTION: Action Memorandum
TO: File
FROM: Beth Walter
SUBJECT: Revised Costs

This is to summarize the revised costs for the excavation and incineration alternative. Revisions to the costs presented in the EE/CA were necessary based on the additional area requiring excavation (1) soils below 2 feet > 135,000 ug/kg (human health PRG) and (2) soils associated with SS-9 and SS-11.

The increased volume of soil resulting from excavating 2-4 ft bgs for 135,000 ug/kg is estimated at 45 yg3 (see Appendix D in the Action Memorandum). The increased volume of soil resulting from excavating SS-9 and SS-11 is estimated to be 100 yd3 (see Appendix D in the Action Memorandum). The original cost estimate presented in the EE/CA was $2,276,000 (capital) and $3,431,000 (net present worth). The effect of the volume increase is on capital costs and is based on the following assumptions - cost increases are linear; EE/CA costs based on excavation of 1150 yd3.

Excavation: $35,000/1150 x 145 yd3 = $4413

Transportation: $374,000/1150 x 145 = $47156

Incineration: 145 x $2000 = $290,000

Total incremental cost = 4413 + 47156 + 290000 = $341,569 (342,000)

$2,276,000 + $342,000 = 2,618,000 capital costs

$3,431,000 + $342,000 = $3,773,000 net present worth.

DISTRIBUTION:
file

Correspondence

APPENDIX B

Response To Comment Letters Submitted To Maine Department Of Environmental Protection And U.S. Environmental Protection Agency And Concurrence Letters

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RESPONSE TO COMMENTS FROM THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION DRAFT SITE 17 WORK PLAN TO INVESTIGATE AND REMOVE RELOCATED SOILS NAVAL AIR STATION BRUNSWICK, BRUNSWICK, MAINE

Commentor: Claudia Sait, Remedial Project Manager	
Comment Issue Date: 8 August 2008	Navy Response Date: 16 Sep 2008

General Comments:

1. There are two possible scenarios for the investigation and removal of the relocated pesticide contaminated soil.

   A. The relocated soil is sandwiched between geotextile fabric as indicated in the draft closure report. If this is the case, then the hazardous waste determination and waste characterization will determine the appropriate disposal. (See comment 2 below.) No confirmation samples would be necessary as any remaining contaminants in soil and risk will be determined during the upcoming remedial investigation (RI).

   B. The relocated soil is not separated from the underlying native soil or the overlying cover by geotextile (Or there is no geotextile at all.) This is the more difficult scenario which has a couple of it own scenarios:
      - The relocated soil can be readily distinguished from the soil cover and native soil. If this is the case then the relocated soil must be carefully uncovered, excavated, placed in roll offs, and sampled for soil and waste characterization to determine its ultimate disposal. Confirmation samples would be necessary wherever the relocated soil came in contact with the native soil and/or the soil cover and the results compared to the preliminary remedial goals.
      - The relocated soil cannot be readily distinguished from the soil cover. The test pitted material must be carefully put back in the same order as it was removed and the location of the relocated soil will be determined during the RI phase.

How the Navy's contractor plans to handle these different potential scenarios must be clearly addressed in the workplan.

Response: In scenario A above, the Navy agrees that no confirmatory sampling is required. In addition, in scenario B, first bullet, after further discussions with MEDEP and EPA, the Navy proposes that no confirmatory sampling will be required if the relocated soil can be readily identified. In the case of scenario B, second bullet, if the relocated soil is not readily identifiable, then this area will be evaluated during the remedial investigation of Site 17. Therefore, no confirmatory soil samples will be collected as part of this Work Plan. The confirmatory sampling section of section 3.4 will be omitted from future drafts. Also, since no confirmatory samples will be collected, no QA/QC samples are required. This section will also be omitted from future drafts.

2. According to the Action Memorandum (April 1993) DDT triggered the Land Disposal Restrictions (LDR), therefore the workplan must include more information regarding the determination for hazardous waste and the disposal of the relocated soil in the event it is determined to be hazardous and triggers the LDR. The Navy must be prepared for that eventuality since the previous investigations detected other pesticides including DDT, heptachlor and chlordane in soils south of Avenue B. At the time of the soil relocation, the primary driver was pyrethrins, however characterizing the relocated soil for pesticides will provide the necessary data to determine whether there are any listed hazardous wastes in the relocated soil.

Response: According to the Action Memorandum, a 4,4'-DDT concentration of greater than 0.087 mg/Kg triggers the Land Disposal Restriction. According to the Draft Final Closure Report, the relocated soils contained pyrethrins at concentrations greater than 10,000ug/Kg (p4-8). However, it is unknown whether these soils also contained other contaminants such as DDT, hence the purpose for the waste characterization sampling described in this Work Plan. As stated in the Work Plan, the final disposal location of the relocated soil will be determined based on results of the waste characterization sample results and the requirements of the treatment, storage and disposal facility (TSDF) that will be accepting the waste material.

3. MEDEP appreciates the Navy's proposing to remove the relocated contaminated soil this field season and its wanting to streamline the process as much as possible. However, certain elements of the Comprehensive Environmental Response, Compensation, and Liability Action (CERCLA) must be followed. The 1990 National Oil and Hazardous Substances Pollution Contingency Plan (NCP) requires compliance with Applicable or Relevant and Appropriate Requirements (ARARs), during remedial and removal actions. Therefore please add the action specific ARARs which will be followed during this removal action.

Response: Appendix B of the Action Memorandum will be added as an attachment to the Work Plan. A statement will be made in the text of the Work Plan that the removal action will be completed in accordance with Applicable or Relevant and Appropriate Requirements as described in the Action Memorandum. Note that the Maine Hazardous Waste Management Regulations have been included as an ARAR (see attached updated ARAR Table). The Site 17 ARARs are attached to this Response to Comment Letter.

4. Since the proposed investigation is only to locate the buried contaminated soil for removal and disposal purposes, the Maine Remedial Action Guidelines criteria for this situation are not appropriate. The State Hazardous Waste Management Rules and Federal (CFR 262 and 268) hazardous waste criteria must be used to determine if the soil is hazardous and triggers LDR. Please revise.
Response: Agreed.

5. The referenced health and safety plan may be adequate but the workplan indicates level D protective gear will be used for the test pitting and removal. Since the pesticides and their concentrations in the relocated soil are unknown the Navy should seriously reconsider the adequacy of the proposed level of protective gear.

Response: Agreed. The initial level of protection in the exclusion zone will be upgraded to a "modified" Level D, which includes a tyvek suit, booties, eye protection, gloves, and hearing protection.

6. The Navy must be prepared to use covered and lined trucks and the hauler may have to comply with the federal Hazardous Waste transport requirements.

Response: Comment noted.

7. If the relocated soil is sandwiched between geotextile, as reported in the draft close out report, then confirmation sampling may not be necessary since any remaining contamination south of Avenue B will be evaluated in the remedial investigation of the Site 17.

Response: Agreed. Also see response to comment 1 above.

8. There should be a brief description of how the closeout report and data from this investigation and removal action will be presented to stakeholders. Also please submit the analytical data in MEDEP's version 5 EDD format and provide the excavation location data in spreadsheet format following the investigation.

Response: A statement will be added that a letter report will be completed documenting removal activities completed under this Work Plan. The analytical data and excavation location data in spreadsheet format will be provided following the investigation.

9. Please add to the text that MEDEP will be notified at least two weeks prior to implementing this workplan so MEDEP staff may be on site, if schedules allow.

Response: Comment noted. The relevant text will be added.

10. Please provide a chart or table listing the key people and their contact information for the Navy and their contractors who are in charge of this project.

Response: Comment noted. An applicable chart will be added to the Work Plan

11. If the relocated soils are deemed hazardous waste then the Navy must provide MEDEP with the information on the disposal facility prior to shipping it off site.

Response: Agreed.

Specific Comments:

12. Section 1.2, Site Description, para 1: "The site is bounded to the northeast by the former Old Navy Fuel Farm, to the southeast by Avenue B, and to the southwest…"

    The southern boundary extends south of the former railroad tracks approximately 65 feet from Avenue B, as shown on figure 2 in this workplan. Please revise.

Response: Comment noted. The suggestion revision will be made to this section.

13. Section 1.2, Site Description, para 6: Please be sure that the description is appropriate to the area south of Avenue B.

Response: Comment noted.

14. Section 1.3, Previous Remedial Actions, para 3: "In addition, an area immediately south of Avenue B was found exceeding the soil PRG for total pyrethrins."

    It is unclear from the draft final Closure Report (August 1998) for Site 17 whether the buried soil contained pyrethrins or DDT but in reviewing the historic documents there were other pesticides in the soil south of Avenue B that would have been excavated along with the pyrethrin contaminated soil. So unless the Navy can provide documentation for the pesticides in the relocated soil this statement must be qualified. (Also make this revision to Section 3, para 1.)

Response: Comment noted. The referenced statement will be revised to read "In addition, an area immediately south of Avenue B was found exceeding the surface soil PRG for pyrethrins but below the subsurface PRG. It is unknown whether these soils also contained other contaminants such as DDT."

15. Section 1.3, Previous Remedial Actions, para 4: "This 6-in. layer of soil was then covered…"

    Since it is unclear whether the pictures taken of the site showing geotextile being laid down was under the buried soil or over it (or possibly both) MEDEP suggests the following language: "*According to the Draft Final Closure Report t*his 6-in. layer…" Also please make this same revision to Section 3, para 1.

Response: Agreed, the suggested revision will be made to this section and to Section 3, para 1.

16. Section 3.3, Relocated Soils Identification, para 2:

    a. The text must clarify that the relocated soils will be managed, handled and stored according to State and Federal hazardous waste management requirements if they are excavated and placed into roll offs.

Response: Agreed. The text will state that soils will be managed, handled and stored according to State and Federal hazardous waste management requirements if they are excavated and placed into roll offs.

b. "It is anticipated that several elongated test pits parallel to the width of the area …"

It is unclear to MEDEP exactly what is intended but there must a limit to disturbing the site if the relocated soil is not readily distinguishable. Please add the following language: "It is anticipated *that no more than 3 test pits will dug perpendicular from Avenue B to intersect the reported burial location as identified in the Draft Final Closure Report.*" Also please revise figure 2 to show the approximate locations of the proposed test pits.

Response: After discussions with MEDEP and EPA, the exact approach to identifying relocated soils will be amended and modified in the field as field conditions warrant. The Navy considers it unduly restrictive to the investigation to describe beyond a general approach the means by which relocated soils will be identified.

c. A smooth edged excavator bucket must be used to minimize tearing the geotextile and to prevent mixing of the soils during excavation. This should also reduce the degree of over-excavation that will need to be done to get all of the contaminated soil. Please revise.

Response: Agreed, if feasible, a smooth edged excavator bucket will be used during the investigative phase of this event.

d. "During the test pit excavations, care will be taken to excavate and segregate the soil in 1-ft lifts…"

According to the draft final Closure Report the contaminated soil was buried in a 6-inch lift therefore the soil must be excavated and segregated in 6-inch lifts to avoid mixing soil cover or underlying soil with the contaminated soil. Please revise.

Response: It may be impractical to excavate soil in 6-inch lifts as requested. If the relocated soil cannot be identified, then all reasonable efforts will be made to replace any soil excavated during the exploratory phase of the investigation to its original location. It is noted that this area will be evaluated during the RI if relocated soil identification is not successful.

e. Please describe in this section how the top 2 feet of soil cover will be handled (e.g., placed on poly and covered), and how the next six inch lift will be handled (e.g. placed on separate poly and covered).

Response: It may be impractical to segregate the two feet of common borrow backfill from the relocated 6" soil horizon during removal. If feasible, the top two feet of common borrow backfill will be segregated from the relocated soils, stockpiled on site and used to backfill the area upon site restoration. The statement that the common borrow will be sampled to ensure that it is not impacted by pyrethrins will be retracted (see EPA comment 4. If segregating is not feasible, then

the common borrow will be placed into the roll-off containers along with the relocated soils and sampled for waste characterization.

f. "Test pit excavations will continue until either the vertical and horizontal extents of the relocated soil can be determined or until it is determined that the relocated soils cannot be visually identified."

See comment 16.b above.

Response: Please see response to comment 16b above.

17. Section 3.3, Relocated Soils Identification, Para 3:

a. "...relocated soils will be removed and placed into a lined roll-off container, covered and staged at the site."

Until the soils are characterized it must be assumed that they are hazardous waste and must be treated as such including labeling the containers and staging of the roll offs.

Response: Agreed, a statement to this effect will be added to the text

b. "The soil will then be sampled for waste characterization purposes..."

Please revise to state: "The soil will then be sampled for *hazardous waste determination and* waste characterization purposes..."

Response: The suggested revision will be made to this section.

c. "A sample of this common borrow will be collected to ensure it is not impacted by pyrethrins."

The soil relocated to this area likely contained other pesticides as well. If there is no geotextile between the cover material and the relocated soil in order to re-use the cover material, a more complete list of analytes should be developed based on what was detected in previous analyses. One sample is inadequate to allow soil to be re-used on site. At least two composite samples, with each composite consisting of a minimum of four grab samples is necessary. Please revise. (Also revise Section 3.4, Confirmatory Sampling paragraph 3.)

Response: As stated in EPA comment 4, the Navy and EPA do not see the need to characterize the two feet of common borrow backfill that overlays the relocated 6" soil horizon as the Site 17 RI work plan includes surface soil sampling and comprehensive chemical analysis for this portion of the area south of Avenue B, regardless of whether the reburied soils are excavated or not.

18. Section 3.3, Relocated Soils Identification, Para 4: This section also needs to include how the excavated soil will be handled if the buried contaminated soil cannot be distinguished from the cover material and/or the underlying native soil.

Response: As noted in response to comment 1 above, if soils cannot be identified then this area will be evaluated by the Remedial Investigation Work Plan for Site 17. A statement to this effect is already included in Section 3.3.

19. Section 3.4, Soil Sampling:

a. "Soil sampling and handling will be completed in accordance with applicable sections of the Final Base-Wide Quality Assurance Project Plan for the Long-Term Monitoring Program (ECC/EA 2006) and QAPP included as Section 4 of the Remedial Investigation Work Plan for Site 17 (Tetra Tech NUS 2008)."

Please cite the applicable sections of the Base-Wide Quality Assurance Project Plan for the Long-Term Monitoring Program since it primarily deals with groundwater monitoring not with soil sampling for hazardous waste determination and waste disposal. Also MEDEP provided comments regarding necessary revisions to Section 4 of the Remedial Investigation Work Plan for Site 17, which to date have not been finalized. The Navy must revise and include "Section 4" and Appendix B for applicable SOPs in this workplan.

Response: Soil sampling and handling are referenced in the Final Base-Wide Quality Assurance Project Plan (ECC/EA 2006) SOP No. 5 – *Sediment Sampling Procedures, SOP No. 10 Field Quality Control Procedures.* SOP No. 5 deals with procedures for soil sampling and SOP No. 10 discusses analytical sample handling and shipment procedures. Hazardous waste determination will be made based upon the results of the analytical testing and site knowledge, as explained in the Work Plan.

b. The P-listed and U-listed hazardous waste criteria must be referenced in this section and listed in Table 1, as appropriate.

Response: Disagree: Please note that the P-listed and U-listed waste designations refers to chemicals in pure form, in commercial grade form or as an active ingredient in a chemical formulation. Since the focus of this Work Plan is to determine contaminant concentrations in soils, the P-listed and U-listed hazardous waste criteria are not applicable or appropriate..

c. All composite samples for confirmation sampling should be composed of at least four grab samples (unless otherwise noted), and a plan for selecting grab sampling locations should be proposed. Please revise here and throughout Section 3.4

Response: As stated in response to comment 1, no confirmatory sampling will be completed as part of this Work Plan.

d. Also the soil should be homogenized for at least one minute or until thoroughly mixed. Please revise here and throughout Section 3.4.

Response: Comment noted. The relevant text will be added to the referenced section

20. Section 3.4, Waste Characterization, para 1:

a. Waste characterization for the 27 cubic yards of relocated soils states that up to two composite samples will be submitted for analysis. Based on pyrethrins data variability calculated from Table 4-1 of the Draft Closure Report for this site, at least two composite samples with a minimum of eight grabs each would be needed to give a reliable estimate of the mean concentrations for pesticides. A plan for collecting random grab samples from the roll-off of excavated soils, and compositing those grabs into samples needs to be developed and submitted for review.

Response: The TSDF permit sampling and analytical requirements will determine the sampling methodology and required analyses . Currently a TSDF has not been selected. Because evaluation of the waste characterization results will determine the TSDF options, the Work Plan waste characterization testing is broad enough to encompass all potential TSDFs. If further testing is needed, as determined by the TSDF, then it will be performed to meet the TSDF permit acceptance criteria.

b. Preliminary information on this soil suggests that this material must be managed initially as a hazardous waste. Subsequent to removal, waste characterization must be completed to include a waste determination for hazardous waste. If this soil is determined to be hazardous, all requirements for management and disposal of hazardous waste must be met, including compliance to the land disposal regulations.

Response: Comment noted.

c. If there is more than one roll off used please be sure to include soil from each roll off if they are not to be sampled independently. Please clarify how this will be handled in the text.

Response: A statement will be added to the text to the effect that if more than one roll-off container is used, then waste characterization samples will be collected from soil in both containers.

21. Section 3.4, Waste Characterization, para 2: For VOCs, the compositing method given on page 9 is adequate with four grab samples composited in the laboratory.

Response: Comment noted.

22. Section 3.4; Confirmatory Sampling, para 1: Sidewall confirmation samples must be collected from the lower part of the sidewall so that they are representative of soils at the approximate depth at which the contaminated soil layer had been found.

Response: As stated in response to comment 1, no confirmatory sampling will be completed as part of this Work Plan.

23. Section 3.4; Confirmatory Sampling, para 3: "In addition, one composite soil sample will be collected from the two feet of common borrow that was used to cover the relocated soil to ensure that they are not impacted by pyrethrins…"

    If there was geotextile fabric between the common borrow and the relocated soil no confirmation samples are necessary but if there was no geotextile fabric between the two then 2 composite samples with 4 grabs each must be taken and a full pesticide analysis run.

Response: As stated in response to comment 1, no confirmatory sampling will be completed as part of this Work Plan.

24. Section 3.4, Quality Assurance (QA) and Quality Control (QC), para. 2: The rinsate must also be analyzed for the full EPA Method 8081B list with total pyrethrins.

Response: As stated in response to comment 1, no confirmatory sampling will be completed as part of this Work Plan. Therefore, no rinsate samples will be collected.

25. Section 3.5, Personnel Decontamination: See comment 5 above.

Response: Please see response to comment 5 above.

26. Section 3.5, Management of Investigation Derived Waste: "All IDW will be disposed of in accordance with State of Maine requirements."

    Depending on the analytical results federal regulations may also be applicable.

Response: Comment noted. IDW will be disposed of in accordance with both State of Maine and federal requirements.

27. Table 1:

    a. The Project Quantitation Limits (PQL) column and Project Action Limits (PAL) column are given in different units, at least in the header. Please clarify and revise the table accordingly.

Response: Comment noted. The table will be revised accordingly.

    b. Table 1 gives SW-846 Chapter 7 references for determining reactive sulfide and reactive cyanide. These tests have been discredited and removed from SW-846. Currently the only test for reactives is generator knowledge. If waste disposal facilities are requiring these tests we may need to update them.

Response: Comment noted.

    c. The PAL for PCB is given as 2.2 mg/Kg. If the PCBs are from TSCA related releases, the PAL should be 1 mg/Kg. If PCB levels greater than 50 mg/kg are found or a source of PCBs greater than 50 mg/kg is identified, the Region I TSCA coordinator must be notified.

Response: Agreed. A project action limit of 1 mg/Kg will be used added to Table 1. Please note that the PCB testing is in the table only for waste disposal characterization purposes.

d. Page 2; Benzo(a)pyrene – PAL: All carcinogenic PAHs must be factored in using the benzo(a)pyrene Toxicity Equivalents Factor (TEFs). The resultant Toxicity Equivalent Quotients (TEQ) should be compared against the benzo(a)pyrene PAL. This eliminates he need to establish individual PALs for each cPAH identified.

Response: Comment noted. SVOC testing is not being conducted for risk assessment purposes, and the SVOC testing is only being conducted for waste disposal characterization purposes. The receiving TSDF permit acceptance criteria will determine the appropriate SVOC levels.

e. Footnote c: This footnote indicates that the Project Action Limits are the MEDEP RAGS. These numbers were developed as single contaminant clean up numbers not for a site with multiple contaminants. Since this buried soil was excavated then reburied already had site specific Preliminary Remediation Goals clean up numbers for pyrethrins and DDT these are the numbers that should be used for the removal along with MEDEP and federal RCRA hazardous waste criteria.

Response: Agreed. Only compounds with a Project Action Limits based upon a Preliminary Remediation Goals will be included in the Table. All other compounds will be evaluated by comparison to the TSDF permit acceptance criteria. Land disposal regulation criteria are generally covered in the TSDF acceptance criteria.

28. Table 2: The analysis column notes that all the analyses are for waste characterization. It might be more helpful to note those analysis that are for the soil characterization (i.e., 8081, 6010B, 8082, 5035 and 8270).

Response: This table will be revised to reflect that no confirmatory samples will be collected as part of this Work Plan.

29. In this readers copy table 1 is separated by table 2. Please correct fix in the final copy.

Response: Comment noted.

30. Table 3 Analytical Precision for Total Pyrethrins was left blank and should be corrected.

Response: Since no confirmatory samples are being collected for this event, this section of Table 3 will be omitted in future drafts.

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:

U.S. Department of the Navy
Northern Division
Naval Facilities Engineering Command
Contract: N62472-91-C-1013

Prepared by:

ABB Environmental Services, Inc.
Portland, Maine
Project No. 7127-05

JUNE 1993

U.S. DEPARTMENT OF THE NAVY
INSTALLATION RESTORATION PROGRAM

NAVAL AIR STATION BRUNSWICK
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Portland, Maine
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JUNE 1993

continued

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				
Federal Guidance and Advisories to be Considered	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.

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
$\mu g/m^3$ = 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
NATURAL RESOURCES				
State	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
Federal			
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.

continued

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.

continued

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.

continued

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.
State			
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.

continued

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

Site 17 ARARS

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Media	Requirement	Status	Requirement Synopsis	Most Recent Effective Date*	Modifications/ Impact to Remedy
Groundwater (Federal)	EPA Human Health Assessment Group Cancer Slope Factors	To Be Considered	Carcinogenic effects presented the most up-to-date information on cancer risk potency derived from EPA's Human Health Assessment Group.	None	No applicable changes found
Soil (State)	Maine Hazardous Waste Rules relating to Identification of Hazardous Waste (06-096 CMR 850)	Relevant and Appropriate	This requirement outlines the State of Maine's rules for identifying hazardous wastes so that effective management measures can be implemented.	06-096 CMR850	No applicable changes found
Soil (State)	Maine Hazardous Waste Rules relating to Performance Standards for Establishing, Constructing, Altering, and Operating Certain Types of Hazardous Waste Units (06-096 CMR 854)	Relevant and Appropriate	This requirement outlines the State of Maine's rules relating to establishing, constructing, altering, and operating certain types of hazardous waste units.	06-096CMR854, 27 January 2003	No applicable changes found

RESPONSE TO COMMENTS FROM THE U.S. ENVIRONMENTAL PROTECTION AGENCY DRAFT SITE 17 WORK PLAN TO INVESTIGATE AND REMOVE RELOCATED SOILS NAVAL AIR STATION BRUNSWICK, BRUNSWICK, MAINE

Commentor: Michael Daly, Remedial Project Manager	
Comment Issue Date: 15 Aug 2008	**Navy Response Date: 16 Sep 2008**

1. **General Comment – Section 1.1, Project Objectives and Goals**: EPA generally concurs with the goals outlined in Section 1.1 of the plan. An estimated 27 yd^3 of excavated soils that exceeded the Building 95 Action Memo PRG of 10 ppm total pyrethrins (eco-risk based) were buried south of Avenue B instead of being shipped off-site for treatment and disposal. The cited reason for reburying these soils was the lack of sufficient funding to complete the project. The contaminated soils were buried 2 feet below ground surface to eliminate the risk pathway to ecological receptors.

While the Navy will need to sample these reburied (relocated) soils if they are re-excavated to provide a current chemical constituent profile for the TSDF accepting the contaminated soils, EPA believes the Navy made the correct determination at the time these soils were first excavated under the Building 95 Action Memorandum that they are RCRA-hazardous waste and subject to Land Disposal Restrictions (LDRs).

The Building 95 EE/CA and Action Memo determined that LDRs applied to the selected CERCLA removal action. The three criteria (placement, RCRA-regulated waste defined by 40 CFR Part 261, and waste restricted under LDRs) used to determine whether LDRs applied to the removal action were met when the contaminated soils were selected to be excavated and shipped off-site for disposal. Because the CERCLA removal action soils contained chemicals listed under 40 CFR Part 261, the soils were considered hazardous under the "contained-in" policy. The Navy documented that these pyrethrins-contaminated soils also contained DDT above the land ban requirement of 87 ppb. It is EPA's opinion that since these soils have already been excavated once and determined to be hazardous and subject to LDRs, they must be handled as such should the Navy locate and re-excavate them for offsite treatment and disposal.

Response: The Building 95 EE/CA and Action Memo determined that LDRs could be applicable to a CERCLA removal action involving the disposal of certain hazardous wastes (including DDT) not meeting specific treatment standards. According to the Draft Final Closure Report, the relocated soils contained pyrethrins at concentrations greater than 10,000ug/Kg (p4-8, Harding Lawson Associates, 1998). It is unknown whether these soils also contained other contaminants such as DDT, and at what concentrations. The Navy disagrees that these relocated soils have been previously determined to contain DDT above the LDR of 87 ppb and are therefore already classified as hazardous waste. Therefore, the purpose for the waste characterization sampling described in the Work Plan is to determine whether the relocated soils are hazardous (subject to the LDR) or non-hazardous. As stated in the Work Plan, the TSDF accepting the relocated soil and/or

the appropriate treatment technology prior to placement will be determined based on results of the waste characterization sample results as hazardous or non-hazardous, and in consultation with the Navy's selected waste handler.

2. **General Comment – Section 3.3, Relocated Soils Identification**: EPA believes that from an overall Site 17 cleanup execution standpoint, it would be prudent for the Navy to endeavor into removing these contaminated soils only if they are found to be "sandwiched" between two layers of geo-textile. After reviews of historical removal action documentation and discussions with personnel who were on-site at the time these soils were relocated, it is still unclear whether the soils are contained within a top and bottom layer of geo-textile or there is only one layer of geo-textile separating the relocated soils from the common backfill that was subsequently placed atop the relocated soils and finished to grade. It is unlikely that visual clues will allow accurate identification of the relocated 6"-deep layer of contaminated soils from the adjacent native soils should only one geo-textile layer exist. Additionally, relying on confirmation soil sampling to determine that all the re-located soils have been removed may be complicated by other Site 17 COCs that could exceed Site 17 PRGs listed in the Site 17 RI work plan prepared by TetraTech. Should the "one geo-textile layer" scenario occur, the Navy should default to the TetraTech-developed RI work plan that will be implemented in part to characterize the soils in this portion of the area south of Avenue B.

Response: After discussions with the MEDEP and EPA, the Navy agrees that confirmatory sampling will not be conducted under this Work Plan. If the relocated soils cannot be identified with confidence, then this area will be evaluated during the remedial investigation of Site 17. The Navy agrees that it is unlikely though not impossible that the 6-in lift of relocated soil can be identified if the two layers of geotextile fabric are absent. Should the "one geo-textile layer" scenario occur, the Navy maintains that the identification of relocated soils is still possible if there is a sharp contrast between relocated and underlying native soils. However, the Navy would prefer to wait and see what the excavation reveals before making that determination. It was agreed that this determination will be made in the field during the excavation activities.

3. **General Comment – Section 3.3, Site Control**: If the relocated soils are clearly identified in between two geo-textile layers, all ARARs listed in the Building 95 Action Memo should be followed when implementing excavation, stockpiling, and offsite disposal activities. The ARARs from the Building 95 Action Memo should be included as an attachment to the work plan and the work plan text should be briefly expanded on how the ARARs will be met when this work plan is implemented.

Response: Agreed, all ARARs listed in the Building 95 Action Memo will be followed when implementing excavation, stockpiling, and offsite disposal activities. The ARARs from the Building 95 Action Memo will be included as an attachment to the Work Plan. A statement will be made in the text of the Work Plan that the removal action will be completed in accordance with Applicable or Relevant and Appropriate Requirements described in the Action Memorandum.

4. **Page 7, Section 3.3, Relocated Soils Identification, ¶2**: EPA recommends that the 6" layer of topsoil be removed first and segregated from the rest of the underlying common borrow backfill

that was used to cover the relocated soils. This 6" topsoil layer should be carefully placed back upon completion of excavation activities.

EPA doesn't see the need to characterize the two feet of common borrow backfill that overlays the relocated 6" soil horizon as the Site 17 TetraTech RI work plan includes surface soil sampling and comprehensive chemical analysis for this portion of the area south of Avenue B, regardless of whether the reburied soils are excavated or not.

Response: As discussed with MEDEP and EPA, segregation of the 6-in topsoil layer may prove impractical in the field. A determination on whether this can be achieved will be made in the field at the time of the excavation.

It may prove impractical to segregate the two feet of common borrow backfill from the relocated 6" soil horizon during removal. If feasible, the two feet of common borrow backfill will be segregated from the relocated soils, stockpiled on site and used to backfill the area upon site restoration. The statement that the common borrow will be sampled to ensure that it is not impacted by pyrethrins will be retracted. If segregating is not feasible, then the common borrow will placed into the roll-off containers along with the relocated soils and sampled for waste characterization.

5. **Page 9, Section 3.4, Soil Sampling – Confirmatory Sampling**: EPA does not see the need to conduct confirmatory soil sampling. EPA's Comment #2 recommends against excavation of the relocated soils if the soils are not sandwiched between top and bottom geo-textile layers. Removal confirmation of these soils will be achieved when all the soil between the two geo-textile layers are excavated. The Site 17 TetraTech RI work plan includes the collection of subsurface soil samples and comprehensive chemical analysis.

Response: Agreed. Please see response to comment 2 above.

September 25, 2008

Mr. Todd Bober
Department of Navy
Base Realignment and Closure
Program Management Office-Northeast
4911 South Broad Street
Philadelphia, PA 19112-1303

Re: Site 17, Relocated Soils Workplan-Response to Comments (RTCs)
Naval Air Station, Brunswick, Maine

Dear Mr. Bober:

Pursuant to Section VI of the Naval Air Station, Brunswick, Maine Federal Facility Agreement (Oct 1990), as amended, the Maine Department of Environmental Protection (MEDEP) has reviewed the Navy's responses dated September 16, 2008 to MEDEP's comments dated August 8, 2008, for the draft "Site 17 Workplan to Investigate and Remove Relocated Soils", (July 2008), prepared by ECC. Based on that review and a telephone conversation with Al Easterday of ECC on September 23, 2008, MEDEP has no further comments on the proposed workplan provided that:

- The Navy agrees to a limited number of test pits (approximately 3) to be dug perpendicular from Avenue B to intersect the reported burial location as identified in the Draft Final Closure Report. However, if the buried (relocated) soil is located and readily identifiable additional test pits may be necessary to locate the limits of the buried material.

- The Navy agrees to use a backhoe or excavator with a smooth edged bucket to prevent tearing the geotextile fabric, if it exists, or unnecessarily mixing of the clean soil with the contaminated soil.

- The Navy agrees to remove the clean soil cover in two one foot lifts but hand dig or remove the lower soil in 6 inch lifts or less until the relocated soil is identified or it is determined that it cannot be identified.

- The Navy agrees to segregate the soil cover from the relocated soil.

- The Navy agrees to have ECC include a copy of their Soil Sampling Procedure in the final workplan.

- The Navy agrees to a minimum of eight grabs for each of the composite samples for waste characterization unless specifically required to do otherwise by the Treatment, Storage and Disposal Facility (TSDF).

- The Navy agrees to the VOCs grab samples for waste characterization being composited in the laboratory unless specifically required to do otherwise by the TSDF.

It must still be resolved whether the earlier decision that RCRA Land Disposal Restriction applied to the Site 17 excavated soil still applies to the reburied soil south of Avenue B.

Please contact me at (207) 287-7713 or claudia.b.sait@maine.gov, if you have any questions regarding these provisions.

Respectfully,

Claudia Sait
Project Manager-Federal Facilities
Bureau of Remediation & Waste Management

Cf:
File
Mike Fagan-BNAS
Carolyn Lepage-Lepage Environmental
Ed Benedikt
Linda Klink – Tetra Tech NUS
David W. Chipman (email only)
Susanne Johnson (email only)
Chris Evans-MEDEP
Mike Daly-EPA
Al Easterday–ECC
Carol Warren-(email only
Catherine Guido-ECC (email only)
Vicki Boundy-MRRA (email only)
Gina Calderone-ECC (email only)

CONCURRENCE FROM
U.S. ENVIRONMENTAL PROTECTION AGENCY
ON THE DRAFT SITE 17 WORK PLAN
TO INVESTIGATION AND REMOVE RELOCATED SOILS

From: <Daly.Mike@epamail.epa.gov>
To: <todd.bober@navy.mil>, <paul.burgio@navy.mil>
CC: "Al Easterday" <AEasterday@ecc.net>, "Gina Calderone" <GCalderone@ecc.ne...
Date: 9/26/2008 1:52 PM
Subject: Re: concurrence on site 17 relocated soils WP?
Attachments: pic26255.jpg

Todd & Paul,

Based on our brief conference call yesterday with DEP and DEP's follow-up letter, EPA agrees that the test pitting activities can proceed at Site 17. What we also agreed was that further discussions with the EPA RCRA folks were necessary to resolve the current disagreement on the waste characterization of this soil.

I will be at the site on 14 October with my heavy duty soup spoon to help with the sub-surface surgery, if needed.

Thanks,

Mike

"Catherine Guido" <CGuido@ecc.net> 09/26/2008 12:43 PM

To: Mike Daly/R1/USEPA/US@EPA
cc: "Al Easterday" <AEasterday@ecc.net>, "Gina Calderone" <GCalderone@ecc.net>
Subject: concurrence on site 17 relocated soils WP?

hi mike,

just wondering if you have had a chance to review navy responses to comments on the site 17 work plan. they were sent out on 9/16 and are attached for your convenience. if you concur with the responses, it would be appreciated if you could send us an email stating so. we have concurrence from claudia so once we hear from you we will proceed to finalize and get the team out in the field!

thanks and have a great weekend,
catherine

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(Embedded image moved to file: pic26255.jpg)ECC Green Team Your resource for greening the ECC community and beyond.
Please consider the environment and, if possible, refrain from printing this email.[attachment "RTCs EPA Cmts on Draft Site 17 Reloc Soils Invest&Rmvl.pdf" deleted by Mike Daly/R1/USEPA/US]