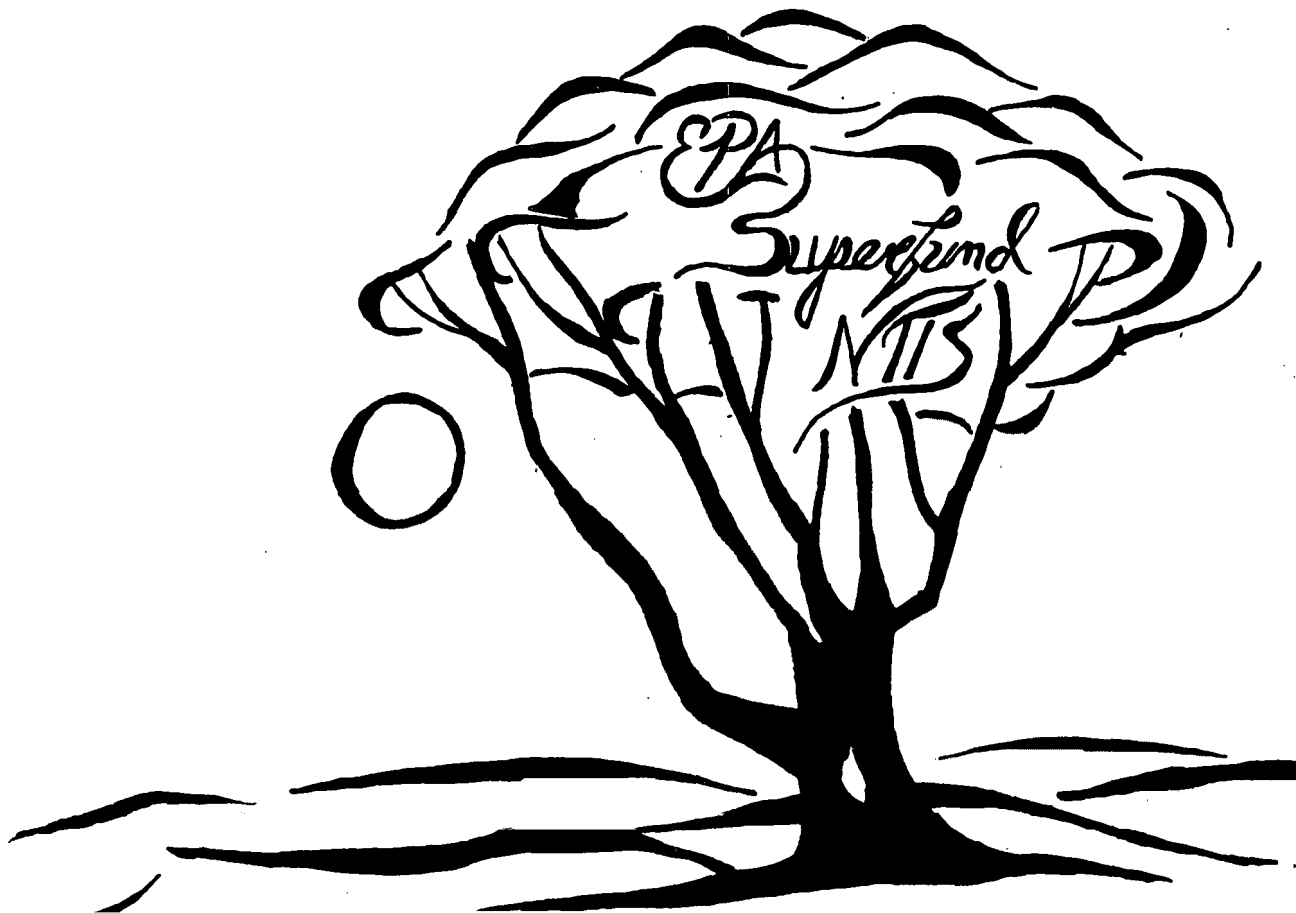


PB94-964057
EPA/ROD/R04-94/186
September 1994

EPA Superfund Record of Decision:

**Naval Air Station, Cecil Field,
Jacksonville, FL,
9/14/1994**





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IV

345 COURTLAND STREET, N.E.
ATLANTA, GEORGIA 30365

SEP 14 1994

4WD-FFB

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Captain Kirk T. Lewis
Commanding Officer, NAS Cecil Field
P.O. Box 108 (code 00)
Cecil Field, Florida 32215-0108

SUBJ: Cecil Field Site 11

Dear Captain Lewis:

The Environmental Protection Agency (EPA) has received and reviewed the final Interim Record of Decision (IROD) for the pesticide disposal area, also known as Site 11. EPA concurs with the Navy's decision as set forth in the IROD dated September 1, 1994. This concurrence is with the understanding that the proposed action is an interim action and the need for any future or final remedial action will be addressed following the finalization of the Baseline Risk Assessment (BRA).

By providing concurrence on this plan EPA does not warrant technical adequacy as set forth or implied in the IROD. Additionally, EPA concurrence does not implicitly or expressly waive any of it's rights or authority.

EPA appreciates the opportunity to work with the Navy on this site and other sites at Cecil Field. Should you have any questions, or if EPA can be of any assistance, please contact Mr. Bart Reedy, of my staff, at the letterhead address or at (404) 347-3555 vmx 2049.

Sincerely,

A handwritten signature in cursive script, reading "Patrick M. Tobin".

Patrick M. Tobin, Deputy
Regional Administrator

cc: Mr. James Crane, FDEP
Mr. Eric Nuzie, FDEP
Mr. Michael Deliz, FDEP
Mr. Steve Wilson, SDIV

INTERIM RECORD OF DECISION
GOLF COURSE PESTICIDE DISPOSAL AREA
SITE 11, OPERABLE UNIT 6
NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

Unit Identification Code (UIC): N60200

Contract No. N62467-89-D-0317

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Alan Shoultz, Code 1875, Engineer-in-Charge

August 1994

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GLOSSARY

AOC	area of concern
ARARs	applicable or relevant and appropriate requirements
bls	below land surface
CAA	Clean Air Act
CAMU	corrective action management units
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FFS	Focused Feasibility Study
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FS	Feasibility Study
IAS	Initial Assessment Study
IROD	Interim Record of Decision
LDR	Land Disposal Restrictions
mg/kg	milligrams per kilogram
µg/kg	micrograms per kilogram
µg/l	micrograms per liter
MSDS	Material Safety Data Sheets
NAS	Naval Air Station
NAAQS	National Ambient Air Quality Standards
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priority List
NSPS	New Source Performance Standards
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PEL	permissible exposure limit
ppb	parts per billion
PPE	personal protection equipment
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act

GLOSSARY (Continued)

TSD	treatment, storage, and disposal
TU	temporary units
USEPA	U.S. Environmental Protection Agency
VOCs	volatile organic compounds
yd ³	cubic yards

1.0 DECLARATION FOR THE INTERIM RECORD OF DECISION

1.1 SITE NAME AND LOCATION. The site name is the Golf Course Pesticide Disposal Area, Site 11, Operable Unit (OU) 6. The site is located in a wooded area between the 11th fairway and the 17th green at the Naval Air Station (NAS) Cecil Field golf course, Jacksonville, Florida.

1.2 STATEMENT OF BASIS AND PURPOSE. This decision document presents the selected interim remedial action for source control at OU 6 or Site 11, the Golf Course Pesticide Disposal Area. The selected interim remedial action was chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP, 40 Code of Federal Regulations [CFR], Part 300). This decision document explains the factual basis for selecting the interim remedy for Site 11 and the rationale for the final decision. The information supporting this interim remedial action decision is contained in the Administrative Record for this site.

The purpose of the interim remedial action is to remove buried containers of pesticides and associated contaminated soil. The U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP) concur with the selected interim remedy.

1.3 ASSESSMENT OF THE SITE. Actual or threatened releases of hazardous substances from the site, if not addressed by implementing the response actions selected in the Interim Record of Decision (IROD), may present an imminent and substantial endangerment to public health, welfare, or the environment as a result of concentrations of contaminants in soil and groundwater in excess of health-based levels, if the contents of the containers is released into the environment.

1.4 DESCRIPTION OF THE SELECTED REMEDY. The preferred alternative for source control at Site 11 is a combination of two alternatives (Alternatives 1 and 3) that were developed and evaluated in the Focused Feasibility Study (FFS). The combined preferred alternative would meet the Resource Conservation and Recovery Act (RCRA) Land Disposal Restriction (LDR) requirements. A combination of Alternatives 1 and 3 would involve:

- excavation of contaminated debris (i.e., empty, partially full, full, or leaking pesticide containers);
- repackaging (overpacking) of full, partially full, and leaking containers in an area where spills are controlled with subsequent sampling of contents for waste profiling;
- excavation of contaminated soil;
- testing of excavated soils to determine if treatment is required prior to disposal (i.e., if the soils are subject to LDRs);

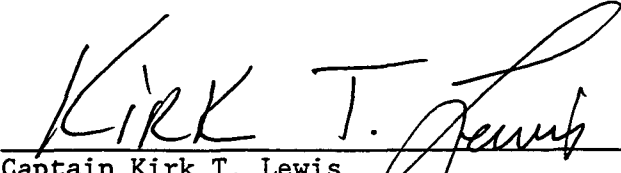
- onsite treatment of contaminated debris (i.e., empty containers) using high pressure water washing;
- transportation and disposal of decontaminated debris to a solid waste landfill;
- transportation of full, partially full, or leaking pesticide containers for offsite incineration;
- transportation and disposal of soil with concentrations below the LDR treatment standards to a hazardous waste landfill;
- transportation, treatment, and disposal in a hazardous waste landfill of all soil with concentrations of hazardous constituents that are higher than the LDR treatment standards;
- transportation, treatment (if necessary), and disposal of water used in high pressure water washing of hazardous debris; and
- backfilling of excavated areas with clean soil.

The Navy estimates that the preferred alternative would cost between \$708,000 and \$1,772,000 and would take 5 weeks to implement. The range in cost is dependent on the amount of excavated material that has concentrations of hazardous constituents above the LDR treatment standard and, therefore, must be treated prior to land disposal.

1.5 STATUTORY DETERMINATIONS. This interim action is protective of human health and the environment, complies with Federal and State applicable or relevant and appropriate requirements (ARARs) for this limited scope action, and is cost effective. Although this interim action is not intended to fully address the statutory mandate for permanence and treatment to the maximum extent practicable, this interim action uses treatment and, thus, is in furtherance of that statutory mandate. Because this action does not constitute the final remedy for soil and groundwater at Site 11, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element, although partially addressed in this remedy, will be addressed by the final response action for soil and groundwater. Subsequent actions are planned to address fully the threats posed by the conditions in the soil and groundwater at this site.

Because this is an interim action Record of Decision (ROD), review of this site and of this remedy will be ongoing as the Navy continues to develop final remedial alternatives for this site and this OU.

1.6 SIGNATURE AND SUPPORT AGENCY ACCEPTANCE OF THE REMEDY



 Captain Kirk T. Lewis
 Commanding Officer, NAS Cecil Field

1 Sep 94

 Date

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION. NAS Cecil Field is located 14 miles southwest of Jacksonville in the northeastern part of Florida. Most of NAS Cecil Field is located within Duval County; however, part is located in the northern part of Clay County.

NAS Cecil Field was established in 1941 and provides facilities, services, and material support for the operation and maintenance of naval weapons, aircraft, and other units of the operating forces as designated by the Chief of Naval Operations. Some of the tasks required to accomplish this mission include operation of fuel storage facilities, performance of aircraft maintenance, maintenance and operation of engine repair facilities and test cells for turbo-jet engines, and support of special weapons systems.

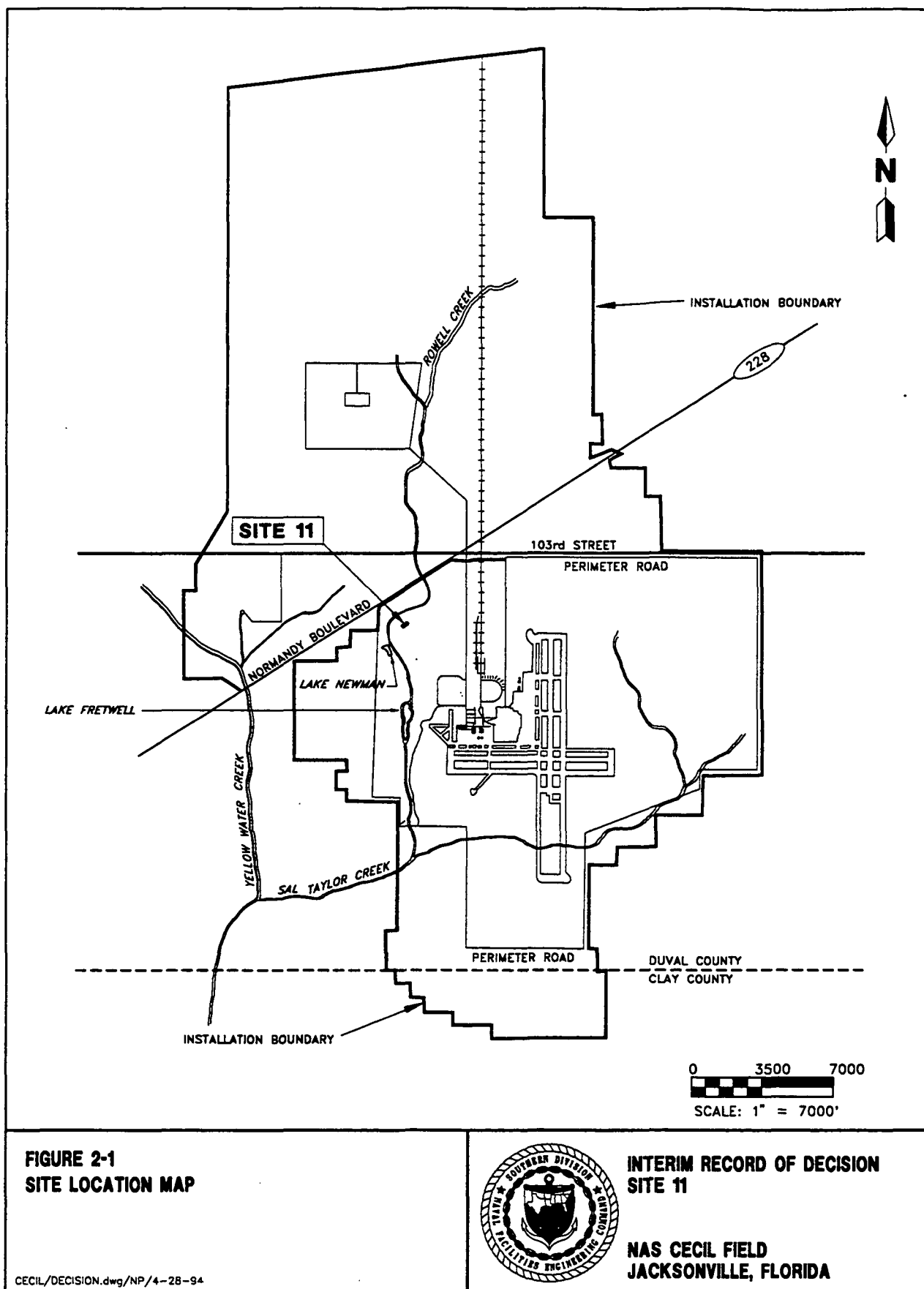
Site 11 is located in a wooded area on the golf course within the NAS Cecil Field property as shown on Figure 2-1. The area around Site 11 is covered with dense undercover. An access road and several small trails that traverse the area appear to be well maintained and free of vegetation. The greens and fairways located east and west of Site 11 are flat and grassy. The golf course maintenance area located southeast of the site consists of several small buildings and sheds with asphalt and concrete ground cover. A sketch of Site 11 is provided on Figure 2-2.

Surface runoff in the immediate vicinity of Site 11 flows into the golf course drainage system, which eventually drains to Rowell Creek. There is little to no surface runoff at the site itself due to the dense vegetation.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES. Site 11 was used by golf course maintenance personnel for the disposal of empty, partially full, and full pesticide containers from the early 1970's until 1978. Containers were reportedly buried in a pit approximately 40 feet wide by 40 feet long. This pit was reportedly (Envirodyne Engineers, 1985) located at the golf course between fairways 11 and 17 (Figure 2-2).

Previous studies indicated that approximately two to four empty 5-gallon cans were disposed per month within the pit. The cans were not rinsed prior to disposal. The cans were allowed to accumulate for a number of months before they were crushed by a front-end loader and buried approximately 3 feet deep. It was estimated that a total of 200 to 450 containers were crushed and disposed within the pit.

After completion of the new pesticide facility (Building 397) in 1978, 2 to 3 full 30-gallon containers of unused pesticides, at least 1 of which reportedly contained 1,2-dibromo-3-chloropropane (trade name Nemagon™), a pesticide used to control nematodes, and approximately 10 to 15 full or partially full 5-gallon containers of pesticides, herbicides, and fungicides were discarded and buried at the site because they were considered unusable for the new facility. Reportedly, many of these containers were beginning to rust and lacked identification labels. Once the move was made to the new facility, use of Site 11 for container disposal purposes was discontinued (Harding Lawson Associates, 1988).



To date there has been no enforcement activities at the site.

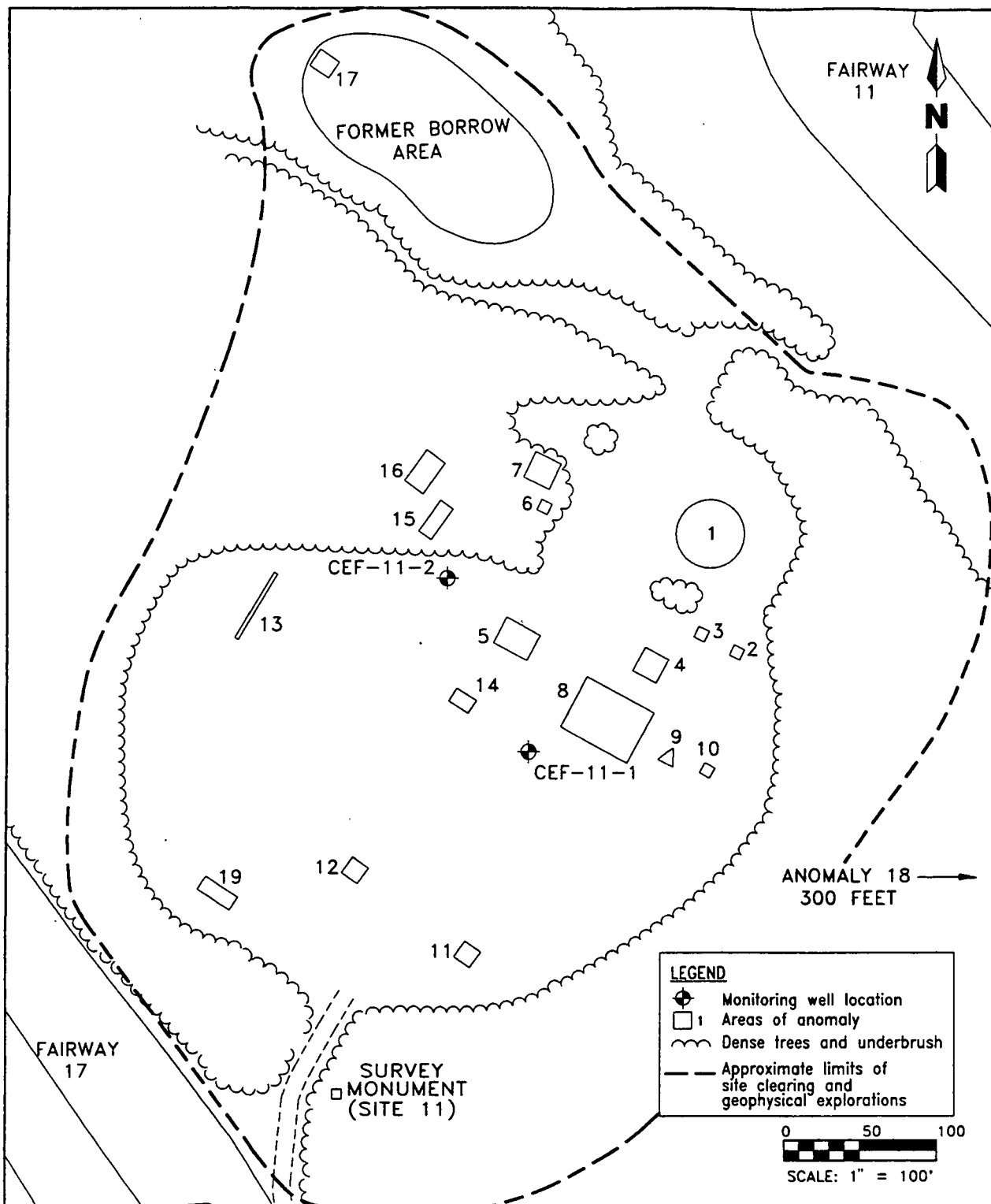
2.3 PREVIOUS INVESTIGATIONS. Previous environmental investigations at Site 11 include an Initial Assessment Study (IAS), an RCRA Facility Investigation (RFI), and a Focused Remedial Investigation (RI). The results of these investigations are summarized below.

Initial Assessment Study. The IAS was performed in 1985 by Envirodyne Engineers to identify waste sites at NAS Cecil Field that warranted further investigation. The study included an investigation of historical data and aerial photographs as well as field inspections and personnel interviews. A total of 18 sites were identified as a result of the IAS, including Site 11.

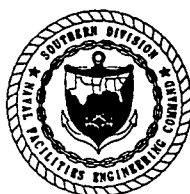
RCRA Facility Investigation. The RFI was performed in 1988 by Harding Lawson Associates. Field investigations completed for Site 11 included a geophysical survey using a magnetometer to locate subsurface features, the installation of two monitoring wells, collection and analysis of two groundwater samples and two soil samples, and measurement of water levels in the two monitoring wells. Groundwater samples contained inorganics such as chromium (332 and 40 micrograms per liter [$\mu\text{g}/\ell$]) and lead (573 and 59 $\mu\text{g}/\ell$). The analytical results of the two soil samples collected from the suspected pesticide container burial pit indicated the presence of volatile organic compounds (VOCs) such as methylene chloride (24 micrograms per kilogram [$\mu\text{g}/\text{kg}$]), toluene (16 $\mu\text{g}/\text{kg}$), and 1,1,1-trichloroethane (24 and 39 $\mu\text{g}/\text{kg}$).

Focused Remedial Investigation. A Focused RI at Site 11 was conducted by ABB Environmental Services, Inc., from July to October 1993 to define the volume, location, and characteristics of the reportedly buried pesticide containers. This investigation was accomplished by clearing the understory and vegetation, conducting a geophysical survey to verify the presence of disturbed soil and identify anomalies, test pitting anomalies to characterize the contents, sampling and analyses of pesticide products found in partially full or leaking containers, and sampling and analyses of soil suspected of pesticide contamination. Approximately 40 percent of the areal extent of the site was investigated using modified Level D personal protection equipment (PPE). The remaining 60 percent of the work was executed in Level B PPE. The upgrade of PPE was necessary because of the possible presence of 1,2-dibromo-3-chloropropane. Personal air monitoring for 1,2-dibromo-3-chloropropane was conducted during test pitting using GillianTM model HFS 113A pumps with low flow adapters and petroleum-based charcoal tubes. All test pit workers were on supplied air. In the breathing zone of test pit workers, atmospheric concentrations ranging from 1 to 4 parts per billion (ppb) of 1,2-dibromo-3-chloropropane were detected, which is above the permissible exposure limit (PEL) of 1 ppb.

The geophysical survey indicated 19 anomalies in the area of Site 11. These areas are shown on Figure 2-3. Test pits were excavated at these locations to verify the presence of pesticide containers. Pesticide containers were found in Anomalies 4, 5, 7, 8, and 16. All other anomalies contained either nothing or non-hazardous debris. The results of the product and soil sampling are provided in Table 2-1. Pesticides were found in three of the six product samples. Pesticides and metals were found in the soil sample from Anomaly 4. Despite extending the investigation beyond the originally designated site, the reported deposit of 200 to 450 containers was not found. A total of 41 empty containers, 7 full or



**FIGURE 2-3
LOCATIONS OF ANOMALIES TEST PITTED
DURING FOCUSED REMEDIAL INVESTIGATION**



**INTERIM RECORD OF DECISION
SITE 11**

**NAS CECIL FIELD
JACKSONVILLE, FLORIDA**

CECIL\SURVEY\MAH-WDW\08-24-93

Table 2-1
Results of Product and Soil Analyses for
Focused Remedial Investigation

Interim Record of Decision
Golf Course Pesticide Disposal Area, Site 11, OU 6
NAS Cecil Field, Jacksonville, Florida

Sample	Compound Detected	Type	Concentrations
Product No. 1	alpha-BHC ¹	Pesticide	0.085 mg/kg
	gamma-BHC	Pesticide	0.60 mg/kg
	2,4-D ²	Pesticide	47 mg/kg
Product No. 5	1,2-Dibromo-3-chloropropane ³	Pesticide	680 µg/l
	Toxaphene	Pesticide	73 µg/l
Product No. 6	1,2-Dibromo-3-chloropropane ³	Pesticide	340,000 µg/l
Soil No. 1	1,2-Dibromo-3-chloropropane ³	Pesticide	160 µg/kg
	Parathion	Pesticide	330 µg/kg
	Aluminum	Metal	1,690 mg/kg
	Arsenic	Metal	46.6 mg/kg
	Barium	Metal	3.4 mg/kg
	Chromium	Metal	4.6 mg/kg
	Copper	Metal	1.2 mg/kg
	Iron	Metal	623 mg/kg
	Magnesium	Metal	5.0 mg/kg
	Zinc	Metal	6.0 mg/kg

¹ Benzene hexachloride.

² Dichlorophenoxyacetic acid.

³ Trade name Nemagon™.

Notes: Samples collected from containers are referred to as product.

There was no product No. 4 sample collected or analyzed.

Soil No. 1 was collected from Anomaly 4.

No hazardous substances were detected for products No. 2, 3, and 7.

mg/kg = milligrams per kilogram.

µg/l = micrograms per liter.

µg/kg = micrograms per kilogram.

partially full containers, and 3 50-pound bags of powder were found during the investigation. All full, partially full, and leaking containers were placed into overpack drums. A variety of nonhazardous debris including pipes, concrete, tires, scrap metal, and bottles were encountered during test pitting.

2.4 HIGHLIGHTS OF COMMUNITY PARTICIPATION. The FFS report and Proposed Plan were completed and released to the public in February 1994. A public meeting was held on March 8, 1994, to present information on the proposed interim remedial action at Site 11 and to solicit comments on the proposed cleanup. These documents and other Installation Restoration program information are available for public review in the Information Repository and Administrative Record. The repository is maintained at the Charles D. Webb Wesconnett Branch of the Jacksonville Public Library in Jacksonville, Florida. The notice of availability of these documents was published in *The Florida Times Union* on February 27, 1994, and March 6, 1994.

A 30-day public comment period was held from March 2, 1994, to April 1, 1994. At the public meeting on March 8, 1994, representatives from NAS Cecil Field, USEPA, FDEP, and the Navy's environmental consultants presented information on the remedial alternatives and answered questions regarding the proposed interim remedial action at Site 11. No written comments were received during the public comment period; however, questions asked during the public meeting are summarized and addressed in Appendix A, Responsiveness Summary.

2.5 SCOPE AND ROLE OF INTERIM REMEDIAL ACTION. Investigations at Site 11 indicated that pesticide containers were deposited in several locations within the site. The purpose of this interim remedial action is to remove the source of contamination to soil and groundwater at Site 11; namely, the debris and the contaminated soil encountered during removal of the pesticide containers at the site. Based on previous investigations and the evaluation of ARARs for this site, the following remedial action objectives were identified:

- reduce migration and volatilization of pesticide contaminants to the surrounding environment at the site by removing pesticide wastes, containers, and associated obviously contaminated soil; and
- characterize wastes removed from the site.

Upon completion of the overall Remedial Investigation and Feasibility Study (RI/FS) for Site 11, the need for remedial action to address soil or groundwater contamination will be evaluated. This IROD addresses interim source control (i.e., removal of pesticide containers) remedial actions only. It is believed that this interim action is consistent with any future remedial activities that may take place at the site.

2.6 SITE CHARACTERISTICS. The geophysical surveys and test pitting have characterized approximately 2.5 acres at Site 11 to a depth of approximately 10 feet below land surface (bls). The reported deposit of 200 to 450 buried empty pesticide containers was not located during this investigation. The geophysical survey and test pits have identified five anomalies where containers with

pesticides were found buried and another six anomalies where miscellaneous debris was located. A total of 41 empty containers, 7 full or partially full containers, and 3 bags were found during this investigation.

The volume of soil and the number of pesticide containers that require removal from Site 11 are developed from the descriptions of materials encountered during test pitting of magnetic anomalies. The volume of soil to be excavated for this remedial action was based on a maximum expected excavation depth of 5 feet bls at Anomaly 4 and 2 feet bls at Anomalies 5, 7, 8, and 16 (Figure 2-3). It is assumed that soil from anomalies where pesticide containers were found would require excavation during the interim remedial action. This includes Anomalies 4, 5, 7, 8, and 16. The depth of excavation was based on the extent of disturbed soils identified during the Focused RI. Based on these assumptions, a maximum of 360 cubic yards (yd³), including a 10 percent bulking factor, would be excavated from the site during the interim remedial action.

The number of full, partially full, or leaking pesticide containers to be removed from the site was estimated based on observations made by field personnel during the Focused RI. Anomaly 4 contains an estimated 190 pounds of empty pesticide containers and one 50-pound bag of powder requiring removal from the site. Approximately 360 pounds of empty pesticide containers and one full 50-pound bag of solid material require removal from Anomalies 5, 7, 8, and 16 and the surface.

2.7 SUMMARY OF SITE RISKS. The insecticide Nemagon™ contains 1,2-dibromo-3-chloropropane, which is the contaminant of concern at Site 11. This compound has an Occupational Safety and Health Administration (OSHA) PEL of 1 ppb, cannot be detected adequately by any real-time monitoring instrumentation, is absorbed through all routes of entry into the body (inhalation, ingestion, dermal, and eye), can cause breakthrough in impermeable work clothing, and causes cancer, atrophy of the testicles in men, changes in the estrous cycle in women, liver disease, kidney disease, skin disease, and blood disorders.

The purpose of this interim remedial action is to remove pesticide wastes and debris, which are currently acting as sources of soil contamination at Site 11. A baseline risk assessment has not been completed at this time. Once the overall RI has been completed, the baseline risk assessment will be completed using RI data and any risks associated with exposure to contaminated soils and/or groundwater at Site 11 will be addressed in a subsequent FS.

Results of the Focused RI indicated that pesticide containers were deposited in several locations within the site. The results of the sampling and analyses are presented in Table 2-1 (Subsection 2.2.2). In sufficient quantity, these compounds represent a potential human health and environmental risk if contacted, ingested, or allowed to migrate freely in surface water, soil, sediment, air, or groundwater. Removal and appropriate management of wastes and containers with residues of these compounds will reduce the risk posed to human health and the environment.

2.8 DESCRIPTIONS OF ALTERNATIVES. Table 2-2 presents a description of the source control alternatives evaluated for Site 11. The alternatives are numbered to correspond with the alternatives provided in the FFS report (available at the Information Repository).

Table 2-2
Alternatives Evaluated for the Interim Remedial Action at Site 11

Interim Record of Decision
Golf Course Pesticide Disposal Area, Site 11, OU 6
NAS Cecil Field, Jacksonville, Florida

Alternative	Alternative 1: Excavation and offsite incineration of contaminated soil; onsite treatment of contaminated debris with offsite disposal of treated debris.	Alternative 2: Excavation and offsite incineration of contaminated soil; offsite treatment and disposal of contaminated debris.	Alternative 3: Excavation and offsite disposal of contaminated soil; onsite treatment of contaminated debris with offsite disposal of treated debris.	Alternative 4: Excavation and offsite disposal of contaminated soil, and offsite treatment and disposal of debris.	Alternative 5: Excavation and offsite disposal of contaminated soil and debris.
Total Cost	\$1,772,000	\$1,770,000	\$708,000	\$705,000	\$749,000
Soil	<ul style="list-style-type: none"> Transport contaminated soil to offsite incinerator. 	<ul style="list-style-type: none"> Transport contaminated soil to offsite incinerator. 	<ul style="list-style-type: none"> Transport contaminated soil to an offsite hazardous waste landfill. 	<ul style="list-style-type: none"> Transport contaminated soil to an offsite hazardous waste landfill. 	<ul style="list-style-type: none"> Transport contaminated soil to an offsite hazardous waste landfill.
Debris	<ul style="list-style-type: none"> Treat contaminated debris onsite using high-pressure water washing. Transport treated debris offsite for disposal in a solid waste landfill. 	<ul style="list-style-type: none"> Transport contaminated debris to an offsite hazardous waste treatment facility for treatment and disposal. 	<ul style="list-style-type: none"> Treat contaminated debris onsite. Transport treated debris to offsite solid waste landfill. 	<ul style="list-style-type: none"> Transport contaminated debris to offsite hazardous waste treatment facility for treatment and disposal. 	<ul style="list-style-type: none"> Transport contaminated debris to an offsite hazardous waste landfill.
Activities common to all alternatives	<ol style="list-style-type: none"> 1. Clear and prepare the site. 2. Excavate contaminated debris, including full, partially full, and leaking containers. 3. Stage all pesticide containers; sample contents of partially full and leaking containers. 4. Excavate contaminated soil. 5. Sample excavated soil. 6. Transport full, partially full, and leaking containers to offsite incinerator. 7. Backfill excavated areas with native soil. 8. Demobilize and restore site to its previous condition. 				

All alternatives involve excavation of contaminated debris, including full, partially full, and leaking pesticide containers. Additionally, all alternatives include excavation, transport, and disposal of up to 360 yd³ of contaminated soil and transport, thermal treatment, and disposal of full, partially full, and leaking pesticide containers. All alternatives involve disposal of both soil and debris in either hazardous waste or solid waste landfills.

Four alternatives were developed to consider whether debris should be treated onsite or offsite and whether contaminated soil should be disposed in a hazardous waste landfill or incinerated prior to disposal. The fifth alternative assumed all soil and untreated debris would be placed in a hazardous waste landfill and would require a variance for landfilling of untreated debris.

Evaluation of a no action alternative, typically required in a Feasibility Study, is not necessary in an FFS because designation of an interim remedial action implies that some action should be taken.

2.9 SUMMARY OF COMPARATIVE ANALYSES OF ALTERNATIVES. This section evaluates and compares each of the alternatives with respect to the nine criteria used to assess remedial alternatives as outlined in Section 300.430(e) of the NCP. A comparative analysis of source control remedial alternatives for the nine criteria is provided in Table 2-3.

2.9.1 Overall Protection All alternatives would provide an increased level of protection of human health and the environment. Risks are reduced by removing pesticides, pesticide containers, and contaminated soil from the site, thereby preventing exposure and reducing a source of soil and potential groundwater contamination.

2.9.2 Compliance with Applicable or Relevant and Appropriate Requirements (ARARs). All alternatives meet ARARs with one possible exception. Alternative 5 can be implemented only if a Subtitle C landfill capacity regulatory variance extension is granted (and the landfill agrees to accept untreated hazardous debris because capacity is available). No chemical-specific or location-specific ARARs were identified for this interim remedial action. A complete listing of action-specific ARARs is listed in Table 2-4.

2.9.3 Long-term Effectiveness and Permanence The reduction of risk at Site 11 is permanent for all alternatives because pesticide containers, contaminated soil, and debris would be removed from the site. Constituents remaining after soil and debris excavation would not pose a direct-contact hazard and would be addressed during future soil and groundwater remediation if they are determined to pose a risk.

2.9.4 Reduction of Toxicity, Mobility, or Volume of the Contaminants Alternatives 1, 2, and 4 would achieve significant and permanent reduction in toxicity, mobility, and volume of product and contaminants on debris and in soil. Alternative 3 would result in a significant and permanent reduction of toxicity, mobility, and volume of contaminants on debris; the toxicity of soil would not be reduced because contaminated soil would be transported offsite to a hazardous waste landfill. Alternative 4 would reduce the mobility and volume of contaminants of soil and debris onsite, but would not reduce the toxicity of

Table 2-3
Comparative Analyses of Source Control Remedial Alternatives

Interim Record of Decision
Golf Course Pesticide Disposal Area, Site 11, OU 6
NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4	Alternative RA-5
Overall Protection of Human Health and the Environment					
How risks are eliminated, reduced, or controlled	Alternative RA-1 would provide an increased level of protection to human health and the environment because risks via direct contact with or inhalation of pesticide contaminants at the site are minimized. Worker health and safety requirements would be maintained.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1. Soil would not be treated prior to disposal.	Analysis is the same as for Alternative RA-1. Soil would not be treated prior to disposal.	Analysis is the same as or less than that for Alternative RA-1. Neither soil nor debris would be treated prior to disposal.
Short-term or cross-media effects	No short-term adverse effects are expected to occur during implementation of this alternative. Care will be taken to prevent cross-media contamination during remedial action.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Compliance with ARARs					
Chemical-, location-, and action-specific ARARs	Would comply.	Analysis is the same as for Alternative RA-1.	If concentrations of pesticide contaminants in soil do not meet the land ban criteria, this alternative would not meet ARARs.	Analysis is the same as for Alternative RA-3.	If concentrations of pesticide contaminants in soil and on debris do not meet the land ban criteria, this alternative would not meet ARARs.
See notes at end of table.					

Table 2-3 (Continued)
Comparative Analyses of Source Control Remedial Alternatives

Interim Record of Decision
 Golf Course Pesticide Disposal Area, Site 11, OU 6
 NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4	Alternative RA-5
Long-term Effectiveness and Permanence					
Magnitude of residual risk	The reduction in risk at Site 11 would be permanent because pesticide containers would be removed from the site. Other contaminated media at the site remaining after implementation of the remedial action would be addressed in the overall FS for Site 11. Risk associated with hazardous constituents in soil and on debris is reduced through treatment or destruction of these constituents.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1; however, the implementation of this alternative is less favorable than Alternative RA-1 because no treatment of contaminated soil is employed.	Analysis is the same as for Alternative RA-1; however, the implementation of this alternative is less favorable than Alternative RA-1 because no treatment of contaminated soil is employed.	Analysis is similar to Alternative RA-1 but because pesticide contaminants are not destroyed, only their mobility and potential for exposure to receptors will be reduced, the reduction is less than Alternative RA-1.
Adequacy of controls	Implementation of alternative would provide immediate and long-term source control at Site 11.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Reliability of controls	Incineration is highly reliable. High pressure washing is reliable as long as wash water is contained.	Analysis is the same as for Alternative RA-1.	Landfilling of wastes is reliable. High pressure washing is reliable as long as wash water is contained.	Analysis is the same as for Alternative RA-3.	Disposal of soil and debris is reliable.
Reduction of Mobility, Toxicity, and Volume					
Treatment process and remedy	Contaminated nonporous debris would be treated via high pressure washing. Generated water would also be treated. Soil would be treated via incineration.	Analysis is the same as for Alternative RA-1.	Contaminated debris would be treated via high pressure washing. Generated water would also be treated. No treatment processes would be implemented for contaminated soil.	Analysis is the same as for Alternative RA-3.	No treatment processes would be employed to treated contaminated soil or debris.
Amount of hazardous material destroyed or treated	Approximately 550 pounds of empty and 165 pounds of full pesticide containers and 360 yd ³ of soil would be treated for this alternative.	Analysis is the same as for Alternative RA-1.	550 pounds of empty and 165 pounds of full pesticide containers would be treated for this alternative.	Analysis is the same as for Alternative RA-3.	This alternative does not provide for treatment of contaminated soil or debris.
See notes at end of table.					

Table 2-3 (Continued)
Comparative Analyses of Source Control Remedial Alternatives

Interim Record of Decision
 Golf Course Pesticide Disposal Area, Site 11, OU 6
 NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4	Alternative RA-5
Reduction of Mobility, Toxicity, and Volume (Continued)					
Reduction of mobility, toxicity, or volume through treatment	Would achieve significant and permanent reduction in toxicity, mobility, and volume of contaminants on debris and in soil.	Analysis is the same as for Alternative RA-1.	Would achieve significant and permanent reduction in toxicity, mobility, and volume of contaminants on debris. No reduction in toxicity of contaminants in soil.	Analysis is the same as for Alternative RA-3.	No reduction in the toxicity of contaminants on debris or in soil.
Irreversibility of treatment	Incineration and high pressure washing are irreversible.	Analysis is the same as for Alternative RA-1.	High pressure washing of debris is irreversible.	Analysis is the same as for Alternative RA-3.	Not applicable.
Type and quantity of treatment residuals	Approximately 480 gallons of wash water would be produced that would require further treatment and disposal. Ash would be produced during incineration but would be managed by the offsite incineration facility.	Wash water and ash would be produced during implementation of this alternative, but both residuals would be managed by the offsite treatment facility.	Approximately 480 gallons of wash water would be produced that would require further treatment and disposal.	Wash water would be produced during implementation of this alternative, but would be managed by the offsite treatment facility.	No treatment residuals would be produced if this alternative were implemented.
Short-term Effectiveness					
Protection of community during remedial action	Dust control would be required during excavation of soil. Fact sheets and posters providing information to the public regarding the remedial action would be distributed. Transportation of wastes offsite poses a specific level of risk.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Protection of workers during remedial actions	Workers would be required to follow an approved Health and Safety Plan. Workers within the exclusion zone would be dressed in Level B protection and would be on a special medical monitoring program.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
See notes at end of table.					

Table 2-3 (Continued)
Comparative Analyses of Source Control Remedial Alternatives

Interim Record of Decision
 Golf Course Pesticide Disposal Area, Site 11, OU 6
 NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4	Alternative RA-5
Short-term Effectiveness (Continued)					
Environmental effects	No effects to surrounding environment expected. Releases to air are expected to have minimal environmental effect based on the results of the dust monitoring conducted during the Focused RI.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Time until remedial action objectives are achieved	Approximately 5 weeks are necessary to meet the remedial action objectives for Site 11.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Implementability					
Ability to construct technology	High pressure washer would be delivered prefabricated to the site.	No construction necessary.	High pressure washer would be delivered prefabricated to the site.	No construction necessary.	No technology construction necessary.
Reliability of technology	Treatment standards for contaminated debris and soil would be achieved via high pressure washing and incineration, respectively.	Analysis is the same as for Alternative RA-1.	Treatment standards for contaminated debris would be achieved via high pressure washing. Regulated landfills are designed and constructed to minimize leaching of contaminants.	Analysis is the same as for Alternative RA-3.	Regulated landfills are designed and constructed to minimize leaching of contaminants.
Ease of undertaking additional remedial action, if necessary	Would provide no impediment to additional remediation.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Monitoring considerations	Air monitoring would be conducted as appropriate during excavation, transportation, and debris treatment. Medical monitoring of workers within the exclusion zone would be required.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
See notes at end of table.					

Table 2-3 (Continued)
Comparative Analyses of Source Control Remedial Alternatives

Interim Record of Decision
 Golf Course Pesticide Disposal Area, Site 11, OU 6
 NAS Cecil Field, Jacksonville, Florida

Criterion	Alternative RA-1	Alternative RA-2	Alternative RA-3	Alternative RA-4	Alternative RA-5
Implementability (Continued)					
Coordination with other regulatory agencies	Coordination with NAS Cecil Field personnel required for duration of remedial activities. Coordination with county, USEPA, FDEP, and TSD for incinerator necessary.	Analysis is the same as for Alternative RA-1. Less coordination necessary than for onsite treatment of debris.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1. Less coordination necessary than for onsite treatment of debris.	Analysis is the same as for Alternative RA-1.
Availability and capacity of treatment, storage, and disposal services	Availability of permitted TSD facilities for treatment of contaminated soil would be required at the time of remedial action. Vendors that provide equipment necessary for high pressure washing are available.	Analysis is the same as for Alternative RA-1.	Availability of landfills permitted to accept excavated soil would be required at the time of remedial action. Vendors that provide equipment necessary for high pressure washing are available.	Analysis is the same as for Alternative RA-3.	Availability of landfills permitted to accept excavated soil and debris would be required at the time of remedial action.
Availability of technologies, equipment, and specialists	Construction contractors, equipment, and laboratories are available.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.	Analysis is the same as for Alternative RA-1.
Ability to obtain approvals from other agencies	Approval from State and USEPA necessary prior to offsite treatment of contaminated soil.	Analysis is the same as for Alternative RA-1.	Approval from State and USEPA necessary prior to offsite disposal of contaminated soil.	Analysis is the same as for Alternative RA-3.	Approval from State and USEPA necessary prior to offsite disposal of contaminated soil and debris.
Cost					
Capital Costs	\$1,541,000	\$1,539,000	\$615,000	\$613,000	\$651,000
Total present worth (including contingency)	\$1,772,000	\$1,770,000	\$708,000	\$705,000	\$749,000
Notes: TSD = treatment, storage, and disposal. NAS = Naval Air Station. ARAR = applicable or relevant and appropriate requirements. FS = feasibility study. yd ³ = cubic yard. RI = remedial investigation. USEPA = U.S. Environmental Protection Agency. FDEP = Florida Department of Environmental Protection.					

Table 2-4
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record or Decision
Golf Course Pesticide Disposal Area, Site 11, OU 6
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Applicable or Relevant and Appropriate	Consideration in the Remedial Response Process
Clean Air Act (CAA), National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] Part 50)	Establishes primary (health-based) and secondary (welfare-based) standards for air quality for carbon monoxide, lead, nitrogen dioxide, particulate matter, ozone, and sulfur oxides.	Relevant and Appropriate. This rule is not strictly applicable because the source of contamination (i.e., dust from excavation) is not a "major source" based on volume of release of the regulated contaminant.	Site remedial activities must comply with NAAQS. The most relevant pollutant standard is for particulate matter less than 10 microns in size (PM ₁₀) as defined in 40 CFR Section 50.6. The PM ₁₀ standard is based on the detrimental effects of particulate matter to the lungs of humans. The PM ₁₀ standard for a 24-hour period is 150 micrograms per cubic meter (µg/m ³) of air, not to be exceeded more than once a year. Remedial construction activities such as excavation will need to include controls to ensure compliance with the PM ₁₀ standard. The attainment and maintenance of primary and secondary NAAQS are required to protect human health and welfare (wildlife, climate, recreation, transportation, and economic values). These standards are applicable during remedial activities, such as soil excavation, that may result in exposure to hazardous chemicals through dust and vapors.
CAA, New Source Performance Standards (NSPS) (40 CFR Part 60)	This regulation establishes NSPS for specified sources, including incinerators. This rule establishes a particulate emission standard of 0.08 grains per dry standard cubic foot corrected to 12 percent carbon dioxide for sources.	Applicable. The new source performance standards must be met by the incinerator employed for offsite treatment.	Because NSPS are source-specific requirements, they are not generally considered applicable to Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) cleanup actions. However, an NSPS may be applicable for an incinerator; or may be a relevant and appropriate requirement if the pollutant emitted and the technology employed during the cleanup action are sufficiently similar to the pollutant and source category regulated.
Resource Conservation and Recovery Act (RCRA), Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF) (40 CFR Part 264)	This rule establishes minimum national standards that define the acceptable management of hazardous wastes for owners and operators of facilities that treat, store, or dispose of hazardous wastes.	Applicable. The minimum standards must be met for treatment of hazardous debris on site. Relevant and Appropriate. Minimum standards must be met for treatment of debris contaminated with material which is significantly similar to a hazardous waste.	If a remedial alternative for Site 11 involves the management of RCRA wastes at an offsite treatment, storage, or disposal unit, the substantive requirements of this rule would be an applicable or relevant and appropriate requirement (ARAR).

Table 2-4 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
Golf Course Pesticide Disposal Area, Site 11, OU 6
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Applicable or Relevant and Appropriate	Consideration in the Remedial Response Process
RCRA, Use and Management of Containers (40 CFR Part 264, Subpart I)	Sets standards for the storage of containers of hazardous waste.	Applicable. If waste is hazardous, these requirements must be met for storage of waste in containers. Relevant and Appropriate. If waste is significantly similar to a hazardous waste, storage in containers must meet these requirements.	Any remedial action implemented at Site 11 would involve the storage of containers of RCRA hazardous waste. The staging of study-generated RCRA wastes should meet the intent of this regulation. These requirements are relevant and appropriate for containerized wastes at CERCLA sites.
RCRA, Incinerators (40 CFR Subpart O, 264.340-264.599)	This regulation specifies the performance standards, operating requirements, and monitoring, inspection, and closure guidelines for any incinerator that manages hazardous waste.	Applicable. Offsite incinerator must meet these requirements for treatment of hazardous wastes.	These requirements are applicable for remedial actions involving the offsite incineration of RCRA-regulated wastes.
RCRA, Manifest System, Recordkeeping, and Reporting (40 CFR Part 264, Subpart E)	This rule outlines procedures for manifesting hazardous waste for owners and operators of onsite and offsite facilities that treat, store, or dispose of hazardous waste.	Applicable. If waste is hazardous, these requirements must be met for transportation of waste offsite.	These regulations apply if a remedial alternative involves the offsite treatment, storage, or disposal of hazardous waste. For remedial actions involving onsite treatment or disposal of hazardous waste, these regulations are applicable.
Hazardous Materials Transportation Act (49 CFR Parts 171, 173, 178, and 179) and Hazardous Materials Transportation Regulations	These regulations outline procedures for the packaging, labeling, manifesting, and transporting of hazardous materials.	Applicable. If waste is hazardous, these requirements must be met for transportation of hazardous waste offsite.	For remedial actions involving offsite treatment, storage, or disposal, contaminated media materials would need to be packaged, manifested, and transported to a licensed offsite facility in compliance with these regulations.
RCRA, Standards Applicable to Transporters of Hazardous Waste (40 CFR Part 263, Subparts A - C, 263.10-263.31)	This rule establishes procedures for transporters of hazardous waste within the United States if the transportation requires a manifest under 40 CFR Part 262.	Applicable. If waste to be transported offsite is hazardous, these requirements must be met.	If a remedial alternative involves offsite transportation of hazardous waste for treatment, storage, or disposal, these requirements must be attained.

Table 2-4 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
Golf Course Pesticide Disposal Area, Site 11, OU 6
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Applicable or Relevant and Appropriate	Consideration in the Remedial Response Process
RCRA, Standards Applicable to Generators of Hazardous Waste (40 CFR Part 262, Subparts A - D, 262.10-262.44)	These rules establish standards for generators of hazardous wastes that address: accumulating waste, preparing hazardous waste for shipment, and preparing the uniform hazardous waste manifest. These requirements are integrated with U.S. Department of Transportation (DOT) regulations.	Applicable. If waste to be disposed of offsite is hazardous, these requirements must be met.	If an alternative involves the offsite transportation of hazardous wastes, the material must be shipped in proper containers that are accurately marked and labeled, and the transporter must display proper placards. These rules specify that all hazardous waste shipments must be accompanied by an appropriate manifest.
RCRA, Hazardous Waste Management System (40 CFR Part 260)	Sets forth procedures that the U.S. Environmental Protection Agency (USEPA) will use to make information available to the public and sets forth rules that TSDFs must follow to assert claims of business confidentiality with respect to information submitted to the USEPA pursuant to 40 CFR Parts 261-265.	Applicable. Where wastes disposed offsite are hazardous, the requirements of this rule must be met.	Whereas this regulation does not stipulate substantive cleanup requirements, it details confidentially procedures for offsite TSDFs.
RCRA, Identification and Listing of Hazardous Waste (40 CFR Part 261, 261.1-261.33)	This rule defines those solid wastes that are subject to regulation as hazardous wastes under 40 CFR Parts 262-265. The applicability of RCRA regulations to wastes found at a site is dependent on the solid waste meeting one of the following criteria: (1) the wastes are generated through a RCRA listed source process, (2) the wastes are RCRA-listed wastes from a non-specific source, or (3) the waste is characteristically hazardous due to ignitability, corrosivity, reactivity, or toxicity.	Applicable. The criteria for identifying wastes, as defined by this rule, must be met.	Full pesticide containers removed from Site 11 may be classified as RCRA wastes. If a container is labeled, the chemical constituents of the container may be identified from respective Material Safety Data Sheets (MSDS). If a container is not labeled, the contents of the container will be analyzed for RCRA characteristics that include pesticides (including 1,2-dibromo-3-chloropropane) suspected to be disposed at the site. Excavated soil will be analyzed to identify any hazardous constituents contained in the soil. All soils and containers will be managed in accordance with this regulation. Residuals from the treatment of hazardous debris (e.g., decontamination water) may be classified as RCRA hazardous waste. Treatment residuals will be sampled, analyzed, and disposed based on the analytical results.

Table 2-4 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
 Golf Course Pesticide Disposal Area, Site 11, OU 6
 NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Applicable or Relevant and Appropriate	Consideration in the Remedial Response Process
RCRA, Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris (40 CFR Parts 148, 260, 261, 262, 264, 265, 270, and 271)	This rule sets forth five options for management of hazardous debris: (1) treat the debris to performance standards established in this rule through one of 17 approved technologies, (2) obtain a ruling from USEPA that the debris no longer contains hazardous waste, (3) treat the debris using a technology approved through an "equivalent technology demonstration," (4) treat the debris to existing Land Disposal Restriction (LDR) standards for wastes contaminating the debris and continue to manage under RCRA Subtitle C, or (5) dispose of debris in a Subtitle C landfill under the generic extension of the capacity variance for hazardous debris, which currently expires on May 8, 1994.	Applicable. This rule is applicable for treatment of hazardous debris onsite. Relevant and Appropriate. These requirements must be met for onsite treatment of debris contaminated with waste that is significantly similar to hazardous waste.	Debris at Site 11 (i.e., empty pesticides containers) would be classified as hazardous debris if it is contaminated with RCRA listed waste that has LDR standards or with waste that exhibits a toxic characteristic. Under CERCLA, removal of contaminants from debris by decontamination and replacing the debris within an area of concern (AOC) is permitted. As long as movement of waste is conducted within the AOC and outside of a separate RCRA unit, placement of wastes have not occurred and, therefore, LDRs are not triggered. However, if the debris is determined to be hazardous, and placement is determined to occur, one of the five listed options must be selected for management of the hazardous debris.
RCRA, Corrective Action Management Units; Corrective Action Provisions Under Subtitle C (40 CFR Parts 260, 264, 265, 268, 270, and 271)	This rule establishes corrective action management units (CAMU) and temporary units (TUs) as two options for corrective actions at permitted RCRA facilities.	Applicable. Storage and treatment of hazardous wastes onsite would be subject to these requirements. Relevant and Appropriate. Storage and treatment of wastes that are determined to be significantly similar to hazardous wastes would be subject to these requirements.	The substantive requirements of this rule is a potential ARAR at Site 11 because hazardous wastes would be stored onsite for any remedial alternative implemented.
RCRA, Land Disposal Regulations (LDRs) (40 CFR Part 268)	This rule establishes restrictions for the land disposal of untreated hazardous wastes and provides treatment standards for these land-banned wastes. Under this rule, treatment standards have been established for most listed hazardous wastes.	Applicable. If the waste is characterized as a RCRA hazardous waste, the RCRA-contaminated substance is to be "placed" (i.e., moved from the site to a landfill), and the waste is to be land disposed, LDRs would apply. Relevant and Appropriate. The land disposal restrictions must be met if the waste is significantly similar to the RCRA-hazardous waste.	Treatment standards for wastes removed at Site 11 would be established upon completion of testing of materials. If it is determined that wastes removed from Site 11 are subject to these regulations, then the wastes must be treated prior to disposal in a RCRA Subtitle C landfill.

Table 2-4 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
 Golf Course Pesticide Disposal Area, Site 11, OU 6
 NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Applicable or Relevant and Appropriate	Consideration in the Remedial Response Process
RCRA, Contingency Plan and Emergency Procedures (40 CFR Subpart D, 264.30-264.37)	This regulation outlines the requirements for procedures to be followed in the event of an emergency such as an explosion, fire, or other emergency event.	Applicable. Treatment, storage, and disposal of hazardous wastes would be subject to these requirements. Relevant and Appropriate. Onsite storage and treatment of wastes which are determined to be significantly similar to hazardous wastes would be subject to these requirements.	These requirements are relevant and appropriate for remedial actions involving the management of hazardous waste.
Occupational Safety and Health Act (OSHA), General Industry Standards (29 CFR Part 1910)	This act requires establishment of programs to assure worker health and safety at hazardous waste sites, including employee training requirements.	Applicable. OSHA requirements apply to all site work involving hazardous wastes. Relevant and Appropriate. OSHA requirements apply to sites involving work with substances that are significantly similar to hazardous wastes.	Under 40 CFR 300.38, requirements apply to all response activities under the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). During remedial action at the site, these regulations must be maintained.
OSHA, Recordkeeping, Reporting, and Related Regulations (29 CFR Part 1904)	Provides recordkeeping and reporting requirements applicable to remedial activities.	Applicable. OSHA requirements apply to all site work. Relevant and Appropriate. OSHA requirements apply to sites involving work with substances that are significantly similar to hazardous wastes.	These requirements apply to all site contractors and subcontractors and must be followed during all site work. During remedial action at the site, these regulations must be maintained.
OSHA, Health and Safety Standards (29 CFR Part 1926)	Specifies the type of safety training, equipment, and procedures to be used during site investigation and remediation.	Applicable. OSHA requirements apply to all site work. Relevant and Appropriate. OSHA requirements apply to sites involving work with substances that are significantly similar to hazardous wastes.	All phases of the remedial response project should be executed in compliance with this regulation. During remedial action at the site, these regulations must be maintained.
RCRA, General Facility Standards (40 CFR Subpart B, 264.10-264.18)	Sets the general facility requirements including general waste analysis, security measures, inspections, and training requirements.	Applicable. Any offsite TSDF employed to treat, store, or dispose of hazardous waste would be subject to these requirements. Storage and treatment of hazardous wastes onsite would also be subject to these requirements. Relevant and Appropriate. Storage and treatment of wastes that are determined to be significantly similar to hazardous wastes would be subject to these requirements.	Because the remedial action planned for Site 11 involves the management of RCRA wastes at an offsite TSDF, these requirements are applicable.

Table 2-4 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

Interim Record of Decision
Golf Course Pesticide Disposal Area, Site 11, OU 6
NAS Cecil Field, Jacksonville, Florida

Federal and State Standards and Requirements	Requirements Synopsis	Applicable or Relevant and Appropriate	Consideration in the Remedial Response Process
RCRA, Preparedness and Prevention (40 CFR Part 264, Subpart C)	This regulation outlines requirements for safety equipment and spill-control for hazardous waste facilities. Facilities must be designed, maintained, constructed, and operated to minimize the possibility of an unplanned release that could threaten human health or the environment.	Applicable. Any offsite TSDf employed to treat, store, or dispose of hazardous waste would be subject to these requirements. Storage and treatment of hazardous wastes onsite would also be subject to these requirements. Relevant and Appropriate. Storage and treatment of wastes which are determined to be significantly similar to hazardous wastes would be subject to these requirements.	Safety and communication equipment should be incorporated into all aspects of the remedial process and local authorities should be familiarized with site operations.
Chapter 17-736, Florida Administrative Code (FAC), Florida Rules on Hazardous Waste Warning Signs, July 1991	Requires warning signs at National Priority List (NPL) and Florida Department of Environmental Regulation (FDEP; formerly Florida Department of Environmental Regulation [FDER]) identified hazardous waste sites to inform the public of the presence of potentially harmful conditions.	Applicable. Warning signs must be placed on NPL sites.	Because Naval Air Station (NAS) Cecil Field is currently listed on the NPL, this requirement is applicable.
Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (40 CFR Part 165)	Provides procedures for the storage and disposal of pesticides, pesticide related wastes, and their containers.	Applicable. Specified pesticides must be managed according to the requirements established in this rule.	FIFRA requirements are action-specific ARARs for pesticide-contaminated media. Remedial alternatives for Site 11 would include provisions for drumming, storing, and disposing pesticide contaminated wastes; FIFRA requirements must be met.
RCRA, Solid Waste Land Disposal Requirements (40 CFR Part 258)	This rule sets forth requirements for disposal of waste within a solid waste landfill. Also sets forth construction and monitoring requirements of Subtitle D landfills.	Applicable. The requirements established in this rule are applicable to waste determined to be non-hazardous.	This rule stipulates that no free liquids, no hazardous wastes, and no reactive wastes may be deposited within a Subtitle D landfill.

contaminants in either soil or debris because contaminants would be transferred to an offsite hazardous waste landfill.

2.9.5 Short-Term Effectiveness Dust control would be required during excavation of soil. Volatilization of the contaminants would be monitored and controlled during excavation and transport. Releases to the air are expected to have minimal environmental effect based on the results of the dust monitoring conducted during the Focused RI.

2.9.6 Implementability It is expected that all alternatives would be implementable at Site 11. Equipment and services necessary for the removal, treatment, and disposal of contaminated media at Site 11 are readily available.

2.9.7 Cost The range of cost for the two preferred alternatives (Alternatives 1 and 3) is \$1,772,000 to \$708,000, respectively. A range is provided because the volume of soils requiring thermal treatment is not known at this time but will be evaluated during implementation of the interim remedial action. The most expensive alternative is Alternative 1 because offsite thermal treatment of contaminated soil by incineration and onsite treatment of contaminated debris is costly.

2.9.8 State and Federal Acceptance The FDEP and USEPA have concurred with the Navy's selection of a combination of these alternatives.

2.9.9 Community Acceptance The community has accepted the selected remedy. No written comments were received during the public comment period. In general, comments raised during the public meeting on March 8, 1994, supported the selected alternatives and the expedient implementation of the interim remedial action.

2.10 SELECTED REMEDY. The preferred alternative for source control at Site 11 is a combination of Alternatives 1 and 3. The combination of these alternatives would meet the LDR requirements by transporting contaminated soil above the LDR treatment standards offsite for incineration prior to disposal and transporting contaminated soil below the LDR standards to a hazardous waste landfill. Every 20 yd³ of excavated soil will be sampled and analyzed to determine pesticide contaminant concentrations. In addition, contaminated debris will be treated onsite using high-pressure water washing prior to disposal of treated debris in a solid waste landfill. A combination of Alternatives 1 and 3 is protective of the environment, a permanent remedy, and cost effective.

The interim remedial action at Site 11 will be conducted in Level B PPE due to the possible exposure to 1,2-dibromo-3-chloropropane. The Navy estimates that the preferred alternative would cost between \$708,000 and \$1,772,000 and would take 5 weeks to implement.

2.11 STATUTORY DETERMINATIONS. The interim remedial action selected for implementation at Site 11 is consistent with CERCLA and the NCP. The selected remedy is protective of human health and the environment, attains ARARs, and is cost effective. The selected remedy also satisfies the statutory preference for treatment that permanently and significantly reduces the mobility, toxicity, or volume of hazardous substances as a principal element. Additionally, the

selected remedy uses alternate treatment technologies or resource recovery technologies to the maximum extent practicable. Any soil contamination remaining onsite after this interim remedial action will be addressed during the RI and FS for this OU and the resulting ROD.

2.12 DOCUMENTATION OF SIGNIFICANT CHANGES. There are no significant changes in the interim remedial action from that described in the Proposed Plan.

REFERENCES

- ABB Environmental Services, Inc. (ABB-ES), 1993, Handbook of Applicable or Relevant and Appropriate Requirements for Navy Sites within the State of Florida: prepared for the Department of the Navy, Southern Division, Charleston, South Carolina, August 1993.
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APPENDIX A
RESPONSIVENESS SUMMARY

Responsiveness Summary

Site 11 Source Control Remedial Alternatives

NAS Cecil Field, Florida

Comment	Response
QUESTIONS FROM THE PUBLIC MEETING	
Why did you choose onsite treatment of debris versus offsite?	Onsite treatment for the debris was selected to avoid hauling containers of pesticides through communities to a disposal area. The cost differential was not significant, and because of the positive aspect of treating the waste at the source, it was determined to be more appropriate.
Did you look at the groundwater or just at the soil at this time?	Just the soil. During an earlier field investigation (1987) two groundwater monitoring wells were installed at Site 11: Groundwater samples collected at both monitoring wells indicated no pesticide contamination in the groundwater. The overall Remedial Investigation and Feasibility Study program is designed to install additional monitoring wells to further characterize soil and groundwater contamination at the site.
How deep were the monitoring wells that were installed?	The screened interval of the monitoring wells were from 10 feet below ground surface to 40 feet below ground surface. Additional monitoring wells will be screened over a shorter interval across the water table surface and at the deeper parts of the surficial aquifer.
The fact sheet indicates that there were also some solvents found at the site.	During an earlier investigation conducted in 1987, some solvents were found in two soil samples. The solvents that were found in the soils included toluene, a common petroleum product that could have been used to cut or dilute and process the pesticides; 1,1-trichloroethane (TCA), another common solvent that could have derived from practices other than the pesticide operation; and methylene chloride, used commonly as a paint thinner and paint stripper, and may be derived from that type of waste disposal practice. The concentrations of these chemicals in the soil were very low; in the order of 20 to 40 micrograms per kilogram.
Is the estimated time to complete the alternatives in years or months?	The estimated time to complete each of the alternatives for the interim remedial action at site 11 is 5 weeks.
After the soil is thermally treated, why is it not placed back in the excavation?	After offsite thermal treatment of the soils is completed, the soil is still considered a hazardous waste. Regulatory requirements state that the soils must go into a permitted hazardous waste landfill.
So, thermally treated soil is still considered contaminated soil?	In the hazardous waste regulatory system, thermally treated soil is still considered hazardous for land disposal purposes. Total petroleum hydrocarbon contamination without the hazardous waste constituents, are treated in a different manner.
In the feasibility study, it mentioned that an explosive training device was found at one of the sites. Is there a possibility of explosives at this site or is that remote?	It is a remote possibility that unexploded ordnance will be encountered at this site. However, part of the cleanup operations for all alternatives includes a provision to handle unexploded ordnance, if encountered.

Responsiveness Summary--continued

Site 11 Source Control Remedial Alternatives

NAS Cecil Field, Florida

Comment	Response
QUESTIONS FROM THE PUBLIC MEETING (continued)	
How will the soil that comes out of the ground be classified? What type of F codes, U codes, K codes, apply?	At least one U-type waste, 1,2,-dibromo-3-chloropropane (U-66), has been identified to be present at the site. If we find a U-type listed waste, then that would be a Resource Conservation and Recovery Act (RCRA) hazardous waste and must be managed accordingly. Otherwise, the soil would be evaluated based on its hazardous characteristics.
Do you run an analytical test on all the soil before it goes offsite in order to classify it?	Yes.
From your investigations, how long have the drums that were filled with pesticide containers been sitting there?	Overpacked drums have been sitting aboveground since the end of the field investigation (October 1993).
Based on what you found so far, what is the estimated volume, in gallons, that was likely disposed of at Site 11?	In the test pits, 41 empty containers (1- to 55-gallon containers), 7 full or partially full containers, and 3 50-pound bags of yellow powder were uncovered. Because it was an undocumented disposal operation, it is difficult to determine an accurate volume in gallons of what was deposited.