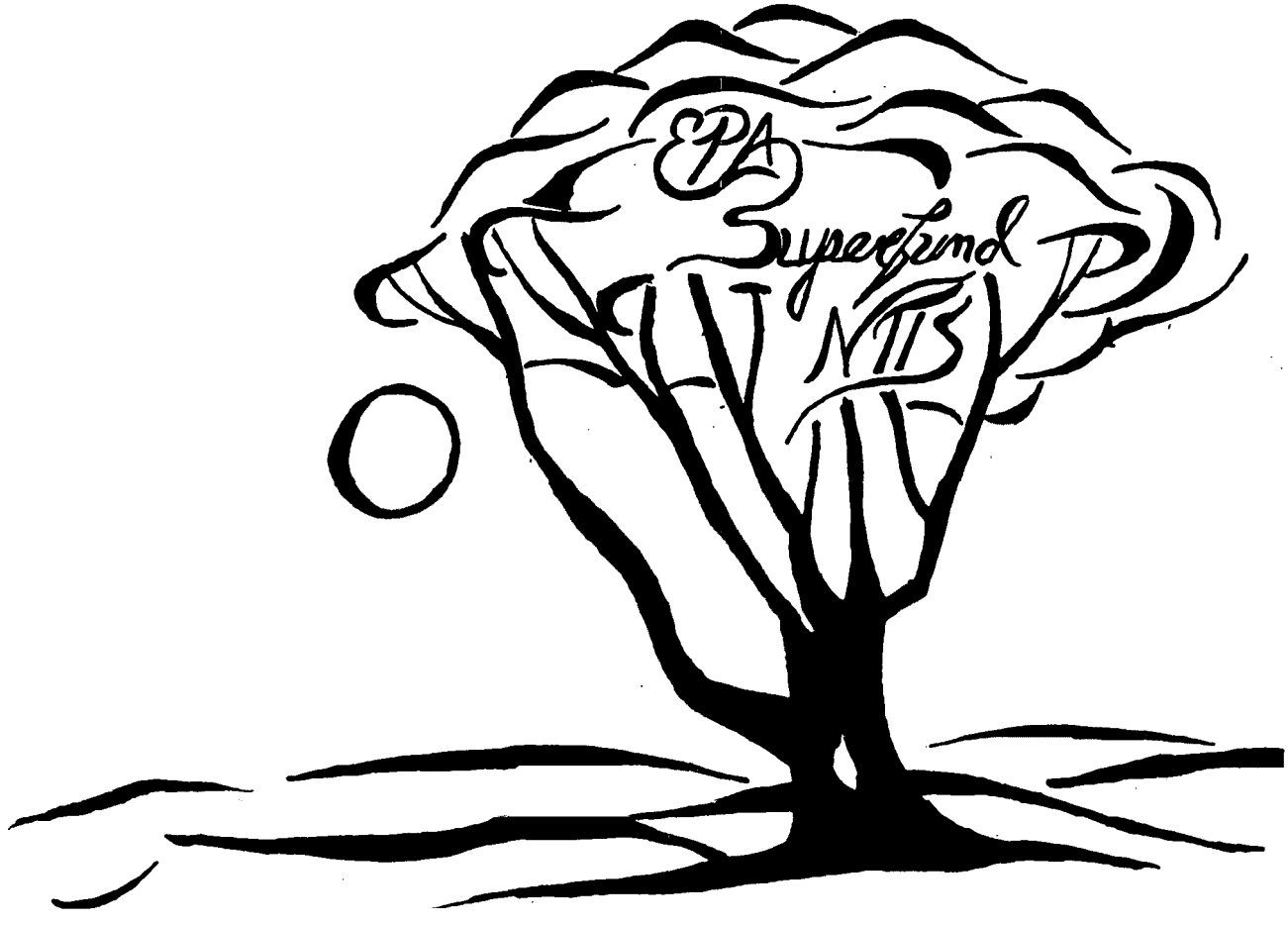
PB94-964082
EPA/ROD/R04-94/222
April 1995

EPA Superfund Record of Decision:

Jacksonville Naval Air Station (O.U. 2), Jacksonville, FL 9/29/1994



INTERIM RECORD OF DECISION

POTENTIAL SOURCES OF CONTAMINATION (PSCs) 2, 41, AND 43 AT OPERABLE UNIT 2

NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

Unit Identification Code (UIC): N00207

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

Dana Gaskins, Code 1857, Engineer-in-Charge

September 1994

TABLE OF CONTENTS

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

LIST OF FIGURES

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

LIST OF TABLES

GLOSSARY

ARARs	Applicable or Relevant and Appropriate Requirements
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
FFA	Federal Facility Agreement
FRI	Focused Remediation Investigation
FFS	Focused Feasibility Study
FS	Feasibility Study
IROD	Interim Record of Decision
LDR	Land Disposal Restrictions
LNAPL	light nonaqueous-phase liquid
mg/kg	milligrams per kilogram
µg/kg	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Contingency Plan
NSPS	New Source Performance Standards
O&M	operation and maintenance
OSHA	Occupational Safety and Health Act
OU	Operable Unit
PAH	polynuclear aromatic hydrocarbons
PA/SI	Preliminary Assessment and Site Inspection
PM_{10}	particulate matter less than 10 microns in size
PSC	potential source of contamination
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
SARA	Superfund Amendments and Reauthorization Act
SVOCs	semivolatile organic compounds
TC	toxicity characteristic
TPH	total petroleum hydrocarbons
TSD	treatment, storage, and disposal
TU	temporary units

GLOSSARY (Continued)

USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
VOCs	volatile organic compounds

1.0 DECLARATION FOR THE INTERIM RECORD OF DECISION

1.1 SITE NAME AND LOCATION. The site name is Operable Unit (OU) 2, Potential Sources of Contamination (PSCs) 2 (Former Fire-fighting Training Area), 41 (Domestic Waste Sludge Drying Beds), and 43 (Industrial Waste Sludge Drying Beds), located at the Naval Air Station (NAS) Jacksonville in Jacksonville, Florida (Figures 1-1 and 1-2).

1.2 STATEMENT OF BASIS AND PURPOSE. This decision document presents the selected interim remedial action for source control at PSCs 2, 41, and 43 at OU 2, NAS Jacksonville, Jacksonville, Florida. The selected 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 (SARA) of 1986, and the National Oil and Hazardous Substances Contingency Plan (NCP, 40 Code of Federal Regulations [CFR] 300). This decision document explains the factual basis and rationale for selecting the interim remedies at PSCs 2, 41, and 43. The information supporting this interim remedial action decision is contained in the Administrative Record for this site.

Remedial action objectives were established separately for PSC 2 and PSCs 41 and 43 due to the units' different media and types of contaminants. The purpose of the interim remedial action for PSC 2 is to remove free product from the subsurface soil and to conduct source removal to reduce petroleum contamination in the soil. The purpose of the interim remedial action for PSCs 41 and 43 is to reduce a potential source of contamination to groundwater and exposure to soil contaminants by humans and wildlife. These interim remedial actions will collectively reduce future contaminant exposure to humans and wildlife.

The U.S. Environmental Protection Agency (USEPA) and the State of Florida concur on the selected interim remedy.

1.3 ASSESSMENT OF THE SITE. Actual or threatened releases of petroleum products and metals 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.

1.4 DESCRIPTION OF THE SELECTED REMEDY. OU 2 is one of the three OUs that are presently identified at NAS Jacksonville, Florida. The selected remedy at OU 2 addresses the PSCs in two groups. They are:

- PSC 2, the former fire-fighting training area; and
- PSCs 41 and 43, the domestic and industrial sludge drying beds.

1.4.1 Potential Source of Contamination (PSC) 2 The preferred interim action for source control at PSC 2 is Alternative 2, developed and evaluated in the Focused Remedial Investigation and Focused Feasibility Study (FRI/FFS) for PSC 2 at OU 2. This and other alternatives considered for PSC 2 are summarized in Table 1-1. The major components of the selected remedy include:

- collect free product from the subsurface soil and dispose offsite,

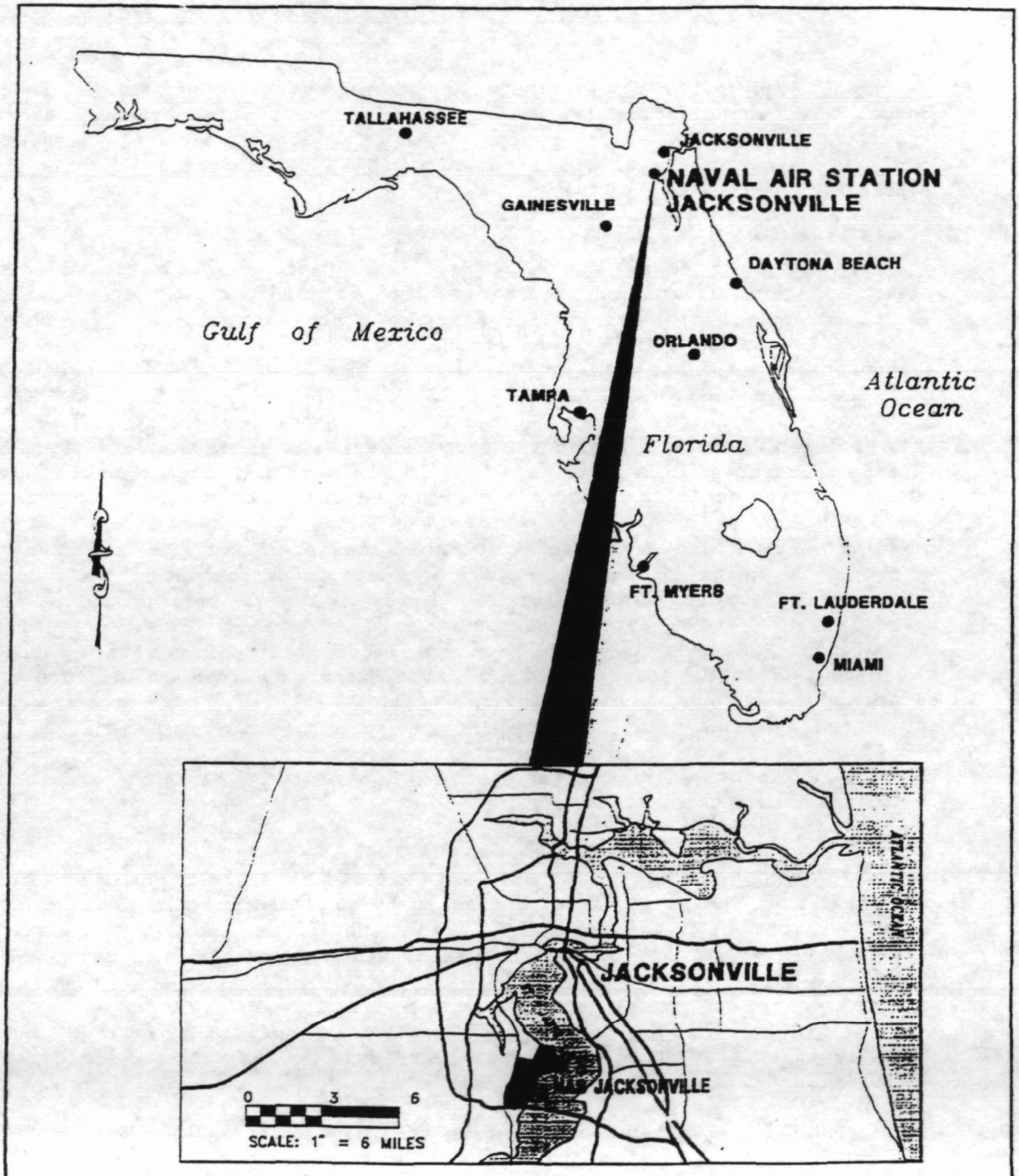


FIGURE 1-1
FACILITY LOCATION MAP

INTERIM RECORD OF DECISION FOR PSCs. 2, 41 AND 43 AT OU 2

NAS JACKSONVILLE
JACKSONVILLE, FLORIDA

JAXSITE/DRM/08-23-94

P2-41-43.IRD
FGB.09.94

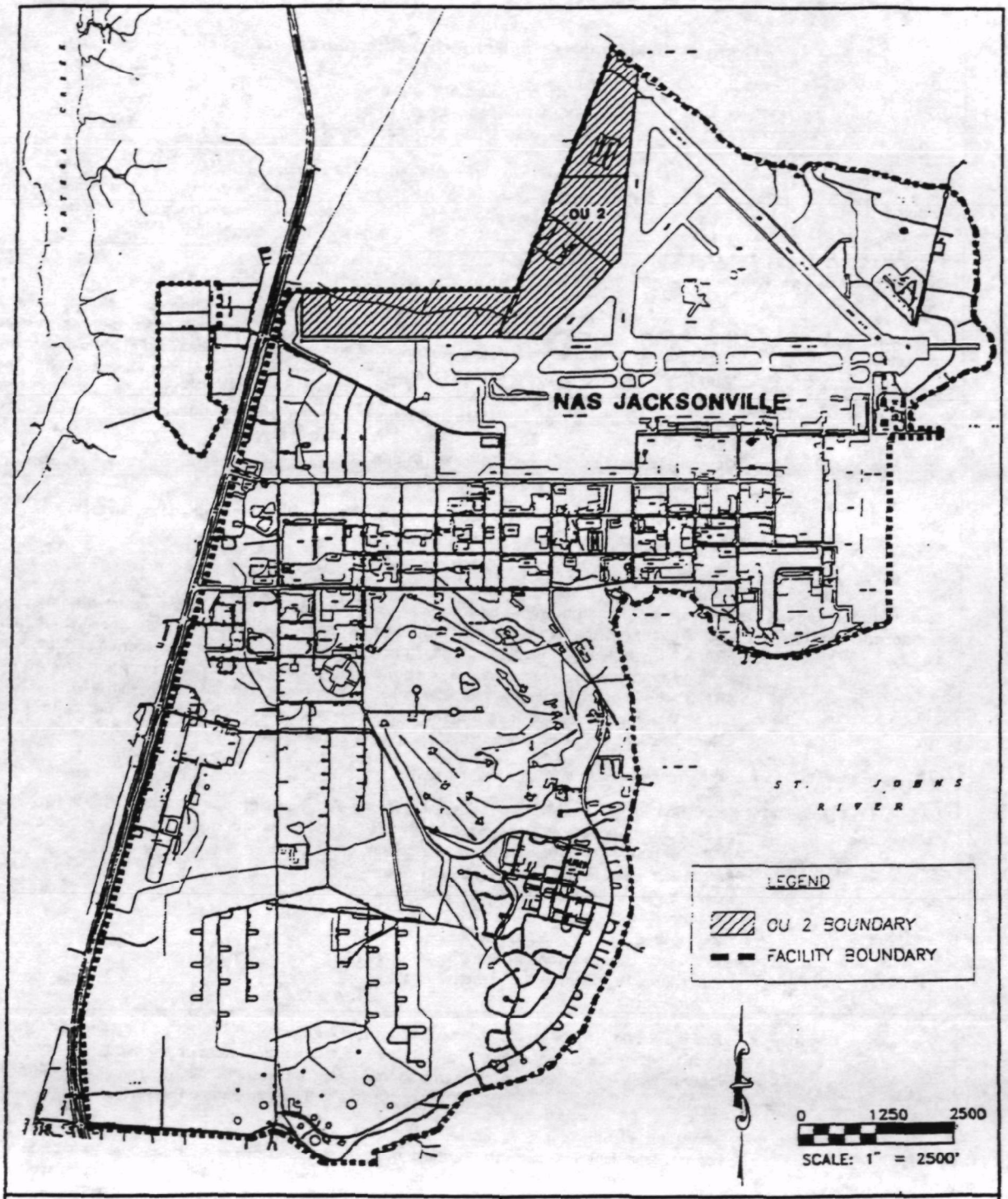


FIGURE 1-2
FACILITY MAP AND LOCATION OF OU 2

INTERIM RECORD OF DECISION FOR PSCs 2, 41 AND 43 AT OU 2

NAS JACKSONVILLE
JACKSONVILLE, FLORIDA

JAX200/DRM/08-23-94

P2-41-43.IRD
FGB.09.94

Table 1-1
Comparative Analyses of Remedial Alternatives for PSC 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 1:** LNAPL recovery and excavation and offsite thermal treatment and disposal of contaminated soil and offsite disposal of LNAPL	**Alternative 2:** LNAPL recovery and excavation and onsite thermal treatment of contaminated soil, onsite redeposition of treated soil and offsite disposal of LNAPL
Overall Protection of Human Health and the Environment		
How risks are eliminated, reduced, or controlled	Alternative 1 would provide an increased level of protection of human health and the environment. Risks are reduced by removing contaminants from the site, thereby preventing exposure and reducing a source of groundwater contamination. Worker health and safety requirements would be maintained. Subsequent risks at disposal facility are reduced through offsite treatment for removal of soil contaminants.	Analysis is the same as for Alternative 1. Though excavated soil remains onsite, risks are reduced through treatment to remove contaminants of concern. Unlike Alternative 1, implementation of this alternative involves no risks posed to offsite populations by transportation of contaminated soil.
Short-term or cross-media effects	No short-term or cross-media effects are expected for the implementation of this alternative.	Analysis is the same as for Alternative 1.
Compliance with ARARs		
Chemical-, location-, and action-specific ARARs	Contaminants would be removed from soil via offsite treatment to levels specified in State ARARs for petroleum-contaminated soil. If soil is found to contain hazardous wastes, disposal ARARs would not be met by this alternative. LNAPL would be recovered from the site to the extent practicable.	Contaminants would be removed from soil via onsite treatment to levels specified in State ARARs for petroleum-contaminated soil. Air emissions from onsite treatment unit may require treatment to comply with ARARs. LNAPL would be removed from the site to the extent practicable.
Long-term Effectiveness and Permanence		
Magnitude of residual risk	Reduction in risk at PSC 2 is permanent because contaminants would be removed from the site. Contaminants remaining below the specified action levels for this remedial action would pose a minimal direct-contact hazard and would be addressed during the overall FS for OU 2 if they pose a risk to groundwater uses. Risk associated with soil contaminants is reduced further through treatment for removal of these contaminants.	Analysis is the same as for Alternative 1. Onsite redeposition of treated soil leaves no residual.
Adequacy of controls	LNAPL recovery followed by excavation and subsequent offsite disposal of soil and LNAPL would provide immediate and long-term source control.	Analysis is the same as for Alternative 1. The thermal treatment unit would be equipped with appropriate shut-down mechanisms if problems with implementation arise.
Reliability of controls	Excavation of soil is highly reliable. Offsite disposal reliability is acceptable. Offsite treatment equipment is also generally reliable.	Analysis is the same as for Alternative 1. Optimization of the thermal treatment parameters during the first week of operation would enhance reliability of the treatment operation, as would proper and continual maintenance of the unit.

See notes at end of table.

Table 1-1 (Continued)
Comparative Analyses of Remedial Alternatives for PSC 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	Alternative 1: LNAPL recovery and excavation and offsite thermal treatment and disposal of contaminated soil and offsite disposal of LNAPL	Alternative 2: LNAPL recovery and excavation and onsite thermal treatment of contaminated soil, onsite redeposition of treated soil and offsite disposal of LNAPL
Reduction of Mobility, Toxicity, or Volume		
Treatment process and remedy	Contaminated soil would be thermally treated offsite at a stationary State-permitted facility.	Contaminated soil would be treated onsite via thermal treatment.
Amount of hazardous material destroyed or treated	Approximately 3,400 cubic yards (4,600 tons) of contaminated soil would be treated under this alternative.	Analysis is the same as for Alternative 1.
Reduction of mobility, toxicity, or volume through treatment	Treatment of soil via thermal treatment would achieve significant and permanent reduction in toxicity, mobility, and volume of soil contaminants. VOCs would be mobilized to the vapor phase and destroyed in an afterburner.	Analysis is the same as for Alternative 1, except that reductions in mobility, toxicity, and volume of contaminants would occur within site boundaries.
Irreversibility of treatment	Removal of VOCs from soil via thermal treatment is irreversible.	Analysis is the same as for Alternative 1.
Type and quantity of treatment residual	Approximately 1,000 gallons of water from decontamination would require treatment. Treated soil would be disposed by the offsite treatment vendor.	Approximately 1,000 gallons of water from decontamination would require treatment. Unlike Alternative 1, treated soil would be reused onsite as backfill in the excavated areas at PSC 2.
Short-Term Effectiveness		
Protection of community during remedial action	If required, dust control would be implemented during excavation of soil. Volatilization of soil contaminants would be monitored during excavation and transport of soil, and controlled with foam and covering. Work area would be fenced off to control access.	Analysis is the same as for Alternative 1. Air emissions during thermal treatment would be monitored and controlled.
Protection of workers during remedial actions	Workers would be required to follow an approved Health and Safety Plan. There are risks associated with open hole excavation and volatilization of contaminants during excavation.	Analysis is the same as for Alternative 1. Experienced, trained personnel would be responsible for operation of the thermal treatment unit.
Environmental effects	No effects expected to surface water or groundwater. Releases of contaminants or particulates to air are expected to have minimal environmental effect.	Analysis is the same as for Alternative 1. Air emissions during thermal treatment would be monitored and controlled, but would have minimal environmental effects.
Time until remedial action objectives are achieved	Approximately 5 weeks are necessary to meet the remedial action objectives for PSC 2.	Approximately 6 weeks are necessary to meet the remedial action objectives for PSC 2.

See notes at end of table.

Table 1-1 (Continued)
Comparative Analyses of Remedial Alternatives for PSC 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 1:** LNAPL recovery and excavation and offsite thermal treatment and disposal of contaminated soil and offsite disposal of LNAPL	**Alternative 2:** LNAPL recovery and excavation and onsite thermal treatment of contaminated soil, onsite redeposition of treated soil and offsite disposal of LNAPL
Implementability		
Ability to construct technology	Soil would be transported to a prefabricated offsite stationary thermal treatment unit.	Thermal treatment units are delivered prefabricated and require little construction or site preparation.
Reliability of technology	Offsite thermal treatment has been implemented successfully at other sites with similar waste streams. Regulated landfills for treated soil are designed and constructed to minimize leaching of contaminants.	Onsite thermal treatment has been implemented successfully at other sites with similar waste streams. Unlike regulated landfills, onsite redeposition does not have leaching or runoff control protocols.
Ease of undertaking additional remedial action, if necessary	Implementation of this alternative would pose no impediment to additional remediation.	Analysis is the same as for Alternative 1. However, concrete pad constructed for staging of the thermal treatment unit would require removal before site restoration.
Monitoring considerations	Air monitoring would be conducted as appropriate during excavation and transportation.	Analysis is the same as for Alternative 1. Thermal treatment system would be monitored for gaseous releases. Treated soil would be sampled and analyzed to demonstrate compliance with remedial objectives.
Coordination with other agencies	Coordination with NAS Jacksonville personnel would be required for the duration of remedial activities. Coordination with county, USEPA, FDEP, and landfill regulatory agencies necessary. Coordination with offsite stationary thermal treatment facility would be necessary also.	Analysis is the same as for Alternative 1, except that coordination with landfill agencies would not be necessary because treated soil would be redeposited onsite. Coordination with onsite thermal treatment vendors would be required also.
Availability and capacity of treatment, storage, and disposal services	Availability of permitted stationary offsite thermal treatment facilities for contaminated soil would be required at the time of remedial action. Availability of landfills permitted to accept treated soils would be required also.	Availability of thermal treatment unit at time of remedial action is necessary. Unlike Alternatives 1 and 2, availability of offsite landfills is not required.
Availability of technologies, equipment, and specialists	Construction contractors, equipment, and laboratories are available. Offsite stationary thermal treatment facilities are also available locally, but would require coordination.	Analysis is the same as for Alternative 1. Thermal treatment vendors are generally available, but would require schedule coordination.
Ability to obtain approvals from other agencies	Approval from State and USEPA necessary prior to offsite disposal of contaminated soil. Approval from State and USEPA necessary prior to offsite treatment of contaminated soils.	Approval from State and USEPA necessary prior to onsite treatment. If results of the pilot treatment test are acceptable, approval should not be difficult. Approval to backfill treated soil onsite would also be necessary; sampling and analysis of soil to demonstrate efficacy of onsite treatment would be required in order to get approval.

See notes at end of table.

Table 1-1 (Continued)
Comparative Analyses of Remedial Alternatives for PSC 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 1:** LNAPL *recovery and excavation* and offsite thermal treatment and disposal of contaminated soil and offsite disposal of LNAPL	**Alternative 2:** LNAPL *recovery and excavation* and onsite thermal treatment of contaminated soil, onsite redeposition of treated soil and offsite disposal of LNAPL
Cost		
Capital costs	$567,000	$491,00
O&M Cost	$14,000	$21,000
Total present worth (including contingency)	$697,000	$614,000

Notes: PSC = potential source of contamination.
OU = operable unit.
NAS = naval air station.
LNAPL = light nonaqueous-phase liquid.
ARARs = applicable or relevant and appropriate requirements.
FS = feasibility study.
VOCs = volatile organic compounds.
USEPA = U.S. Environmental Protection Agency.
FDEP = Florida Department of Environmental Protection.
O&M = operating and maintenance.

- excavate and treat contaminated soil onsite, and
- backfill with treated soil and grade and revegetate the area.

Implementation of the interim action will reduce a potential continuing source of groundwater contamination as well as reduce direct contact exposure to soil contaminants by humans and wildlife at OU 2. The Navy estimates that the preferred alternative will cost $614,000 to construct and will take 6 weeks to implement.

1.4.2 PSC 41 and 43 The preferred interim action for source control at PSCs 41 and 43 is Alternative 5, developed and evaluated in the FRI/FFS for PSCs 41 and 43 at OU 2. This and other alternatives considered for PSCs 41 and 43 are summarized in Table 1-2. The major components of the selected remedy include:

- remove and dispose nonhazardous material offsite,
- excavate and treat hazardous material onsite, and
- backfill with treated material and grade and revegetate the area.

Implementation of the interim action will also reduce a potential continuing source of groundwater contamination as well as reduce direct exposure to contaminated materials by humans and wildlife at OU 2. The Navy estimates that the preferred alternative will cost $558,000 to construct and will take 7 weeks to implement.

1.5 DECLARATION STATEMENT. 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. Table 1-3 summarizes ARARs for the interim remedial action. 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 for contaminated materials and debris and, thus, is in furtherance of that statutory mandate. Because this action does not constitute the final remedy for contaminated groundwater at OU 2, the statutory preference for remedies that employ treatments that reduce toxicity, mobility, or volume as a principal element, although addressed for contaminated materials in this remedy, will be addressed by the final response action(s) for groundwater. Subsequent actions are planned to address the potential threats posed by the conditions in the groundwater at OU 2.

Because this is an Interim Record of Decision (IROD), review of this site and of this remedy will be ongoing as the Navy continues to develop final remedial alternatives for OU 2.

1.6 SIGNATURE AND SUPPORT AGENCY ACCEPTANCE OF THE REMEDY

R.D. Resavage

Captain R.D. Resavage
Commanding Officer, NAS Jacksonville

9/29/94
Date

Table 1-2
Comparative Analyses of Remedial Alternatives for PSCs 41 and 43

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 3:** Excavation and offsite disposal of all media	**Alternative 4:** Excavation, offsite treatment and disposal of filter media and hazardous debris, offsite disposal of nonhazardous debris	**Alternative 5:** Excavation, onsite treatment of filter media and hazardous debris, onsite redeposition of treated wastes, offsite disposal of nonhazardous debris
Overall Protection of Human Health and the Environment			
How risks are eliminated, reduced, or controlled	Alternative 3 would provide an increased level of protection of human health and the environment. Risks are reduced by removing contaminants from the site, thereby preventing exposure and reducing a source of groundwater contamination. Worker health and safety requirements would be maintained.	Analysis is the same as for Alternative 3.	Analysis is the same as for Alternative 3. Though excavated filter media remain onsite, risks are reduced through treatment to immobilize contaminants of concern. Unlike Alternatives 3 and 4, no risks are posed to offsite populations by transportation of contaminated filter media.
Short-term or cross-media effects	No short-term or cross-media effects are expected for the implementation of this alternative.	Analysis is the same as for Alternative 3.	Analysis is the same as for Alternative 3. Contaminants in stabilized media are not expected to leach from treated matrix.
Compliance with ARARs			
Chemical-, location-, and action-specific ARARs	RCRA LDR ARARs for hazardous media would be met.	ARARs for disposal of hazardous and nonhazardous media would be met. Also, contaminated filter media would be treated via stabilization, for wastes at PSCs 41 and 43.	Analysis is the same as for Alternative 4. Also, contaminated filter media would be treated via stabilization for wastes at the sites.
Long-term Effectiveness and Permanence			
Magnitude of residual risk	Reduction in risk at PSCs 41 and 43 is permanent because contaminants would be removed from the site. Contaminants remaining would pose a minimal direct-contact hazard and would be addressed during the overall FS for OU 2 if they pose a risk to groundwater uses.	Analysis is the same as for Alternative 3. Risk associated with filter media contaminants is reduced further through treatment to immobilize these contaminants.	Analysis is the same as for Alternative 3. Risk associated with filter media contaminants is reduced further through treatment to immobilize these contaminants. Onsite redeposition of treated media poses minimal direct contact risk.
Adequacy of controls	Excavation and subsequent offsite disposal of all media would provide immediate and long-term source control.	Excavation and subsequent offsite treatment and/or disposal of media would provide immediate and long-term source control.	Analysis is the same as for Alternative 3.
Reliability of controls	Excavation of media is highly reliable. Reliability of disposal services is acceptable.	Excavation of media is highly reliable. Reliability of treatment and disposal services are acceptable.	Analysis is the same as for Alternative 3, except that offsite disposal of contaminated wastes would not be necessary. Stabilization is a well-demonstrated technology and mobile units are generally reliable.

See notes at end of table.

Table 1-2 (Continued)
Comparative Analyses of Remedial Alternatives for PSCs 41 and 43

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 3:** Excavation and offsite disposal of all media	**Alternative 4:** Excavation, offsite treatment and disposal of filter media and hazardous debris, offsite disposal of nonhazardous debris	**Alternative 5:** Excavation, onsite treatment of filter media and hazardous debris, onsite redeposition of treated wastes, offsite disposal of nonhazardous debris
Reduction of Mobility, Toxicity, or Volume			
Treatment process and remedy	Excavated filter media and debris would be disposed offsite without treatment.	Excavated filter media and hazardous debris would be treated offsite via stabilization and subsequently disposed. Nonhazardous debris would not be treated but would be decontaminated onsite prior to offsite disposal.	Filter media and hazardous debris would be treated using onsite stabilization equipment and backfilled onsite. Nonhazardous debris would not be treated but would be decontaminated prior to offsite disposal.
Amount of hazardous material destroyed or treated	Neither contaminated filter media nor debris would be treated under this alternative.	Approximately 2,450 cubic yards of filter media and 114 tons of debris would be treated offsite under this alternative. Nonhazardous debris would not be treated.	Approximately 2,450 cubic yards of filter media and 114 tons of hazardous debris would be treated onsite under this alternative. Nonhazardous debris would not be treated.
Reduction of mobility, toxicity, or volume through treatment	Toxicity, mobility, and volume of contaminants in filter media would be reduced onsite but would be transferred to an offsite landfill.	Treatment of filter media and hazardous debris via stabilization would achieve significant reduction in mobility of contaminants. Inorganic compounds would become entrapped in a low-permeability matrix. However, addition of chemical-setting agents to the wastes would increase the volume of contaminated media. The toxicity of contaminants would not be reduced because they are entrapped rather than destroyed.	Analysis is the same as for Alternative 4.
Irreversibility of treatment	No treatment is used, but disposal is generally irreversible.	Stabilization is a potentially reversible treatment. Offsite disposal is generally irreversible.	Analysis is the same as for Alternative 4.
Type and quantity of treatment residual	Approximately 1,000 gallons of water from decontamination would require treatment.	Approximately 1,000 gallons of water from decontamination would require treatment.	Approximately 1,000 gallons of water from decontamination would require treatment. Treated wastes would be reused as backfill in excavated areas at PSCs 41 and 43.

See notes at end of table.

Table 1-2 (Continued)
Comparative Analyses of Remedial Alternatives for PSCs 41 and 43

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 3:** Excavation and offsite disposal of all media	**Alternative 4:** Excavation, offsite treatment and disposal of filter media and hazardous debris, offsite disposal of nonhazardous debris	**Alternative 5:** Excavation, onsite treatment of filter media and hazardous debris, onsite redeposition of treated wastes, offsite disposal of nonhazardous debris
Short-Term Effectiveness			
Protection of community during remedial action	If required, dust control would be implemented during excavation of filter media. Volatilization of filter media contaminants should not be problematic because VOC contamination is not extensive at the sites. Work areas would be fenced off to control access.	Analysis is the same as for Alternative 3.	Analysis is the same as for Alternative 3, except that treated wastes remain within site boundaries.
Protection of workers during remedial actions	Workers would be required to follow an approved Health and Safety Plan. There are human safety risks associated with open hole excavation.	Analysis is the same as for Alternative 3.	Analysis is the same as for Alternative 3. Trained personnel would be responsible for the operation of the stabilization equipment.
Environmental effects	No effects expected to surface water or groundwater. Releases of contaminants or particulates to air are expected to have minimal environmental effect.	Analysis is the same as for Alternative 3.	Analysis is the same as for Alternative 3. If curing conditions are optimized and the chemical environment remains the same, contaminants should not leach from stabilized filter media that would be backfilled onsite.
Time until remedial action objectives are achieved	Approximately 5 weeks are necessary to meet the remedial action objectives for PSCs 41 and 43.	Approximately 5 weeks are necessary to meet the remedial action objectives for PSCs 41 and 43.	Approximately 7 weeks are necessary to meet the remedial action objectives for PSCs 41 and 43.
Implementability			
Ability to construct technology	No construction would be required for implementation of this alternative.	Analysis is the same as for Alternative 3.	Wastes would be treated using prefabricated stabilization equipment, a well-demonstrated technology that uses common equipment and requires minimal construction or site preparation.

See notes at end of table.

Table 1-2 (Continued)
Comparative Analyses of Remedial Alternatives for PSCs 41 and 43

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 3:** Excavation and offsite disposal of all media	**Alternative 4:** Excavation, offsite treatment and disposal of filter media and hazardous debris, offsite disposal of nonhazardous debris	**Alternative 5:** Excavation, onsite treatment of filter media and hazardous debris, onsite redeposition of treated wastes, offsite disposal of nonhazardous debris
Reliability of technology	Regulated landfills are designed and constructed to minimize leaching of contaminants.	Offsite stabilization has been used successfully with similar waste streams. Regulated landfills are designed and constructed to minimize leaching of contaminants.	Onsite stabilization has been implemented successfully at other sites with similar waste streams. Unlike regulated landfills, onsite redeposition of treated media does not have leaching or runoff control protocols.
Ease of undertaking additional remedial action, if necessary	Implementation of this alternative would pose no impediment to additional remediation.	Analysis is the same as for Alternative 3.	Care would have to be taken to avoid unnecessary disturbance of backfilled treated wastes when undertaking additional investigations or remedial actions. Disturbing backfilled areas is undesirable because it would provide pathways for reversal of treatment and weakening of the structural integrity of the stabilized media.
Monitoring considerations	Air monitoring would be conducted as appropriate during excavation and transportation.	Analysis is the same as for Alternative 3.	Analysis is the same as for Alternative 3. Air monitoring would also be required during stabilization of wastes. Treated wastes would be sampled and analyzed to demonstrate compliance with TC leaching standards for PSCs 41 and 43.
Coordination with other agencies	Coordination with NAS Jacksonville personnel would be required for the duration of remedial activities. Coordination with county, USEPA, FDEP, and landfill regulatory agencies necessary.	Analysis is the same as for Alternative 3. Coordination with offsite stabilization vendors would be required.	Analysis is the same as for Alternative 3. Coordination with mobile stabilization vendors would be required.

See notes at end of table.

Table 1-2 (Continued)
Comparative Analyses of Remedial Alternatives for PSCs 41 and 43

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Criterion	**Alternative 3:** Excavation and offsite disposal of all media	**Alternative 4:** Excavation, offsite treatment and disposal of filter media and hazardous debris, offsite disposal of nonhazardous debris	**Alternative 5:** Excavation, onsite treatment of filter media and hazardous debris, onsite redeposition of treated wastes, offsite disposal of nonhazardous debris
Availability and capacity of treatment, storage, and disposal services	Availability of landfills permitted to accept excavated filter media, and hazardous and nonhazardous debris would be required at the time of remedial action.	Availability of offsite stabilization equipment for contaminated media would be required at the time of remedial action. Availability of landfills permitted to accept nonhazardous debris would be required also.	Availability of stabilization equipment for contaminated media would be required at the time of remedial action. Availability of landfills permitted to accept nonhazardous debris would be required also.
Availability of technologies, equipment, and specialists	Construction contractors, equipment, and laboratories are available.	Analysis is the same as for Alternative 3. Stabilization equipment and specialists are also generally available, but would require coordination.	Analysis is the same as for Alternative 3. Mobile stabilization equipment and specialists are also generally available, but would require coordination.
Ability to obtain approvals from other agencies	Approval from State and USEPA are necessary prior to offsite disposal of contaminated filter media and debris.	Approvals from State and USEPA are necessary prior to offsite treatment. If results of the pilot treatment test are acceptable, approval should not be difficult.	Approvals from State and USEPA are necessary prior to onsite treatment. If results of the pilot treatment test are acceptable, approval should not be difficult. Approval to backfill treated filter media onsite would also be necessary; sampling and analysis of filter media to demonstrate efficacy of onsite treatment would be required in order to get approval.
Cost			
Capital costs	$1,706,000	$1,836,000	$444,000
O&M Costs	$14,000	$14,000	$21,000
Total present worth (including contingency)	$2,064,000	$2,220,000	$558,000

Notes: PSC = potential source of contamination.
OU = operable unit.
NAS = naval air station.
ARARs = applicable or relevant and appropriate requirements.
RCRA = Resource Conservation and Recovery Act.
LDR = Land Disposal Restrictions.
FS = feasibility study.
VOC = volatile organic compound.
FDEP = Florida Department of Environmental Protection.
TC = toxicity characteristic
USEPA = U.S. Environmental Protection Agency.

Table 1-3
Synopsis of Federal and State ARARs for OU 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Federal or State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
Endangered Species Act [50 CFR, Part 402]	This act requires action to avoid jeopardizing the continued existence of listed endangered or threatened species or modification of their habitat.	Investigation and/or remediation that may impact a rare species or habitat (e.g., gopher tortoise [*Gophorus polyphenus*]), requires notification to the agency and minimization of the adverse effects to such endangered species due to remedial activities.
Floodplain Management Executive Order No. 11968 [40 CFR, Part 6]	Requires Federal agencies to evaluate the potential effects of adverse impacts to floodplains associated with direct and indirect development of a floodplain.	Alternatives that involve modification or construction within a floodplain may not be selected unless a determination is made that no practicable alternative exists. If no practicable alternative exists, potential harm must be minimized and action taken to restore and preserve the natural and beneficial values of the floodplain.
RCRA, General Facility Standards [40 CFR, Subpart B, 264.10 264.18]	Section 264.18 establishes that a facility located in a 100-year floodplain must be designed, constructed, and maintained to prevent washout of any hazardous wastes by a 100-year flood.	May be relevant and appropriate if a treatment facility is established onsite for remediation of wastes from the domestic and industrial sludge drying beds.
National Environmental Policy Act (NEPA) [40 CFR, Part 6]	Requires an Environmental Impact Statement or a "functional equivalent" for Federal actions that may impact the human environment. Also requires that Federal agencies minimize the degradation, loss, or destruction of wetlands, and preserve and enhance natural and beneficial values of wetlands and floodplains under Executive Orders 11990 and 11988.	During the feasibility study process, identification and evaluation of alternatives involving excavation, transport, or backfilling, in or adjacent to a floodplain should address the alternative's impact on the floodplain as it relates to NEPA. According to the Federal Emergency Management Agency, floodplains are present at Operable Unit 2 at Naval Air Station Jacksonville.
Occupational Safety and Health Act (OSHA), Occupational Health and Safety Regulations [29 CFR, Part 1910, Subpart Z]	Establishes permissible exposure limits for workplace exposure to a specific listing of chemicals.	Standards are applicable for worker exposure to OSHA hazardous chemicals during remedial activities.
Resource Conservation and Recovery Act (RCRA), Identification and Listing of Hazardous Waste [40 CFR, Part 261]	Defines those solid wastes subject to regulation as hazardous wastes under 40 CFR Parts 262-265.	These requirements define RCRA-regulated wastes, thereby delineating acceptable management approaches for listed and characteristically hazardous wastes that should be incorporated into the remedial response for the domestic and industrial sludge drying beds.

See notes at the end of table.

Table 1-3 (Continued)
Synopsis of Potential Federal and State ARARs for OU 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Federal or State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
CAA, National Ambient Air Quality Standards (NAAQS) [40 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.	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 ($\mu g/m^3$) 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 new source performance standards (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.	Because NSPS are source-specific requirements, they are not generally considered applicable to 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.
RCRA, Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal (TSD) Facilities [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 hazardous wastes.	Remedial alternatives for PSC 43 that involve the management of RCRA wastes at an offsite treatment, storage, or disposal unit would need to meet the substantive requirements of this rule.
RCRA, Use and Management of Containers [40 CFR, Part 264, Subpart I]	Sets standards for the storage of containers of hazardous waste.	This rule would be an ARAR for remedial alternatives for PSCs 41 and 43 that involve the storage of containers of RCRA hazardous waste onsite. 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.	These requirements are applicable for remedial actions involving the offsite incineration of RCRA-regulated wastes.

See notes at end of table.

Table 1-3 (Continued)
Synopsis of Potential Federal and State ARARs for OU 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Federal or State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
Chapter 17-775, FAC, Florida Soil Thermal Facilities Regulations	This rule establishes criteria for the thermal treatment of petroleum- or petroleum-product-contaminated soil. Guidelines for management and treatment of soil to levels that prevent future contamination of other soil, groundwater, and surface water are provided. Chapter 17-775.300, FAC, provides permitting requirements for soil thermal treatment facilities. This section states that soil must be screened or otherwise processed to prevent soil particles greater than 2 inches in diameter from entering the thermal treatment unit. This rule further outlines procedures for excavating, receiving, handling, and stockpiling contaminated soil prior to thermal treatment in both stationary and mobile facilities.	This requirement is not applicable to soil classified as hazardous. However, it may be a relevant and appropriate requirement for soil contaminated with constituents that are significantly similar to the organic and inorganic constituents regulated under this rule.
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 hazardous waste.	These regulations apply if a remedial alternative involves the offsite treatment, storage, or disposal of hazardous waste, as for PSCs 41 and 43.
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.	For remedial actions involving offsite disposal, hazardous materials would need to be packaged, manifested, and transported to a licensed offsite disposal 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.	If a remedial alternative involves offsite transportation of hazardous waste for treatment and/or disposal, these requirements must be attained.
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 (USDOT) regulations.	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]	This rule sets forth procedures that the USEPA will use to make information available to the public and sets forth rules that TSD facilities must follow to assert claims of business confidentiality with respect to information submitted to the USEPA pursuant to 40 CFR, Parts 261-265.	Although this regulation does not stipulate substantive cleanup requirements, it details confidentiality procedures for offsite TSD facilities.

See notes at end of table.

Table 1-3 (Continued)
Synopsis of Potential Federal and State ARARs for OU 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Federal or State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
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, corrositivity, reactivity, or toxicity.	Soil and filter media excavated from PSCs 41 and 43 are RCRA-listed wastes. All soil and containers will be managed in accordance with this regulation.
RCRA, Land Disposal Restrictions (LDRs) 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 debris, (3) treat the debris using a technology approved through an "equivalent technology demonstration," (4) treat the debris to existing LDR standards for wastes contaminating the debris and continue to manage under RCRA Subtitle C, or (5) dispose debris in an RCRA Subtitle C landfill under the generic extension of the capacity variance for hazardous debris, which expired on May 8, 1994.	*Debris at Operable Unit 2 (i.e., filter media) 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 has not occurred and, therefore, LDRs are not triggered. However, if the debris is determined to be hazardous, and placement is determined to occur, the debris would be treated to existing LDR standards for wastes contaminating the debris and managed under RCRA Subtitle C.
RCRA, 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.	Treated and untreated waste at OU 2 will need to meet these requirements prior to disposal in a regulated landfill.
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 (TU) as two options for corrective actions at permitted RCRA facilities.	The substantive requirements of this rule are potential ARARs at OU 2 because hazardous wastes would be stored onsite for any remedial alternatives at PSCs 41, and 43.
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.	*These requirements are relevant and appropriate for remedial* actions involving the management of hazardous waste.

See notes at end of table.

Table 1-3 (Continued)
Synopsis of Potential Federal and State ARARs for OU 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Federal or State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
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.	Under 40 CFR, Part 300.38, requirements apply to all response activities under the 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.	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.	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 analyses, security measures, inspections, and training requirements.	Because the remedial action planned for OU 2 involves the management of RCRA wastes at an offsite TSD facility, these requirements are applicable.
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.	Safety and communication equipment should be incorporated into all aspects of the remedial process and local authorities should be familiarized with site operations.
Chapter 17-4, FAC, Florida Rules on Permits, May 1991	Establishes procedures for obtaining permits for sources of pollution.	The substantive permitting requirements of this rule must be met during the remedial action at OU 2.
Chapter 17-736, FAC, Florida Rules on Hazardous Waste Warning Signs, July 1991	Requires warning signs at National Priority List and FDEP (formerly FDER) identified hazardous waste sites to inform the public of the presence of potentially harmful conditions.	Because Naval Air Station Jacksonville is currently listed on the NPL, this requirement is applicable.
Chapter 17-730, FAC, Florida Hazardous Waste Rules, August 1990	Adopts by reference appropriate sections of 40 CFR and established minor additions to these regulations concerning the generation, storage, treatment, transportation, and disposal of hazardous waste.	The substantive permitting requirements for hazardous waste must be met where applicable for CERCLA remedial actions. Actions at RCRA permitted units (PSCs 41 and 43) are subject to substantive requirements.
Chapter 17-770, FAC, Florida Petroleum Contaminated Site Cleanup Criteria, February 1990	Establishes a cleanup process to be followed at all petroleum contaminated sites.	Relevant and appropriate requirement for petroleum contaminated sites (PSC 2).

See notes at end of table.

Table 1-3 (Continued)
Synopsis of Potential Federal and State ARARs for OU 2

Interim Record of Decision
PSCs 2, 41, and 43 at OU 2
NAS Jacksonville, Jacksonville, Florida

Federal or State Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
Chapter 17-775, FAC, Florida Soil Thermal Treatment	Establishes criteria for the thermal treatment of petroleum- or petroleum-product-contaminated soil. The rule further outlines procedures for excavating, receiving, handling, and stockpiling contaminated soil prior to thermal treatment in both stationary and mobile facilities.	Relevant and appropriate requirement for remediation of petroleum contaminated sites (PSC 2).
RCRA, Solid Waste Land Disposal Requirements [40 CFR, *Part 258*]	This rule sets forth requirements for disposal of waste within a solid waste landfill. It sets forth construction and monitoring requirements of Subtitle D landfills.	This rule stipulates that no free liquids, no hazardous wastes, and no reactive wastes may be deposited within a Subtitle D landfill.

Notes: ARARs = applicable or relevant and appropriate requirements.
OU = operable unit.
PSC = potential source of contamination.
NAS = naval air station.
CFR = Code of Federal Regulations.
RCRA = Resource Conservation and Recovery Act.
CAA = Clean Air Act.
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act.
FAC = Florida Administrative Code.
FDEP = Florida Department of Environmental Protection.
FDER = Florida Department of Environmental Regulation.

2.0 DECISION SUMMARY

2.1 SITE NAME, LOCATION, AND DESCRIPTION. NAS Jacksonville is located in the northwestern section of Duval County on the western bank of the St. Johns River; OU 2 is located in the northern part of the installation (Figure 2-1). The official mission of NAS Jacksonville is to provide facilities, service, and managerial support for the operation and maintenance of naval weapons and aircraft to operating forces of the U.S. Navy 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 turbojet engines, and support of special weapons systems.

The land use west of PSCs 2, 41, and 43 is primarily composed of a residential/recreational nature. The Timuquana Country Club and Golf Course border OU 2 to the west. Access to the country club is restricted to members and guests. Two private residences abut the NAS boundary on the northwest side of OU 2 near the St. Johns River (see Figure 2-2). A residential area (trailer park) also abuts the NAS boundary west of the Timuquana Country Club; the distance from this trailer park to OU 2 is about 3,000 feet. Access to OU 2 is limited because of its proximity to the NAS taxiways and runways, which have additional security requirements. A chainlink fence along the base boundary and continuous patrols make access by unauthorized personnel unlikely and limited.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES. The area incorporated into NAS Jacksonville has been used for U.S. Navy operations since 1940. OU 2, which is located on the northern part of NAS Jacksonville, has historically been used primarily for wastewater treatment. Its secondary use has been for fire-fighting training.

Past operations at the wastewater treatment plant located within OU 2 that possibly affected soil quality include:

- drying sludge in unlined beds (PSCs 41 and 43),
- discharge of treated water to an unlined polishing pond (PSC 42), and
- land disposal of sludge removed from the drying beds (PSCs 3 and 4).

In addition to the treatment plant, a former fire-fighting training area (PSC 2) is located within OU 2. Burning fuels within the unlined pit at the training area has affected soil quality at PSC 2.

Probable waste materials disposed at OU 2 include aviation fuels and waste petroleum products (at the former fire-fighting training area), inorganic and organic compounds (at the domestic and industrial wastewater sludge drying beds), and asbestos (at PSC 4). PSC 4 will be evaluated during the site-wide Remedial Investigation and Feasibility Study (RI/FS) to be conducted in the near future. An FRI/FFS study is currently on going at PSCs 3 and 42. The three potential source areas studied as part of this investigation (PSCs 2, 41, and 43 [see Figure 2-1]) are described briefly in the following subsections.

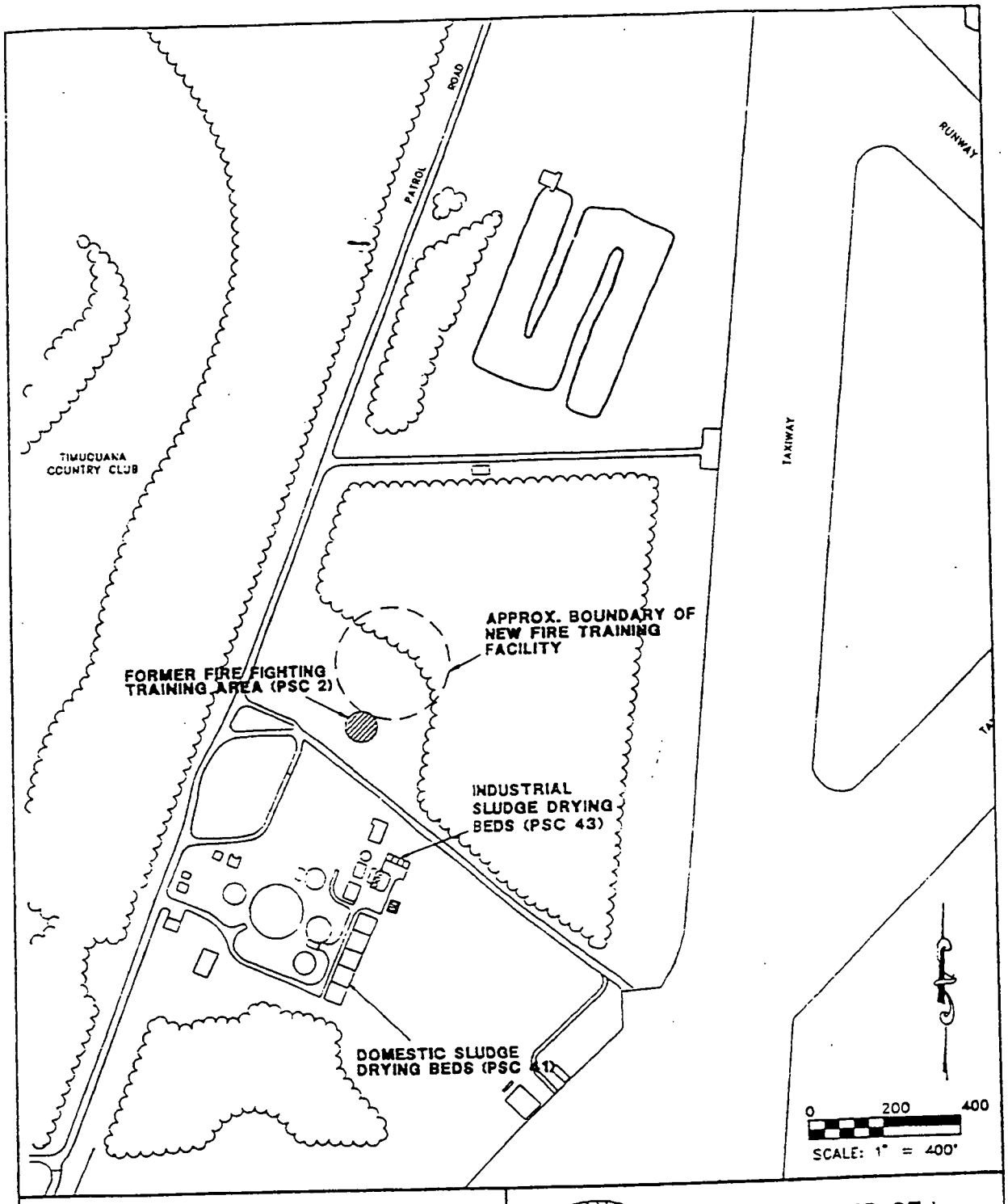


FIGURE 2-1
LOCATIONS OF PSCs 2, 41, AND 43 AT OU 2

INTERIM RECORD OF DECISION FOR PSCs 2, 41, AND 43 AT OU 2

NAS JACKSONVILLE
JACKSONVILLE, FLORIDA

OU2AREA/DRM/7-29-94

P2-41-43.IRD
FGB.09.94

2.2.1 Former Fire-fighting Training Area (PSC 2) The former fire-fighting training area (PSC 2) is a shallow, unlined, circular pit, approximately 120 feet in diameter. Since 1966, obsolete vehicle chassis and parts were periodically staged on the pit, covered with JP-4, JP-5, aviation gasoline, or waste petroleum products, and then ignited to simulate aircraft crashes. An estimated 6,000 gallons of fuel were burned annually. PSC 2 was removed from service as a fire-fighting training area in 1991. NAS Jacksonville completed construction of a new fire-fighting training area just northeast of PSC 2 in 1992.

2.2.2 Domestic Waste Sludge Drying Beds (PSC 41) The domestic waste sludge drying beds (PSC 41) were constructed in 1970 to receive sludge from the anaerobic digester at the wastewater treatment plant. They were in use until 1987. The system consists of five unlined beds, each measuring 50 by 50 feet. The 3-foot-high containment walls and outside dikes are constructed of concrete blocks. The beds are underlain with approximately 7 inches of sand, 3 inches of fine gravel, and 6 to 12 inches of coarse gravel. An underdrain system consisting of three 6-inch diameter vitrified clay drain lines collected leachate from the beds and returned it to the headworks of the wastewater treatment plant. During operations, approximately 300 cubic yards of dried sludge were removed annually from the domestic waste sludge drying beds. Between 1962 and 1980 the dried sludge was disposed on the land at PSCs 3 and 4.

Before construction of the industrial waste sludge drying beds in 1980, sludge from the industrial wastewater treatment operation was also discharged to the domestic waste sludge drying beds. In 1987 USEPA classified the domestic waste sludge drying beds as surface impoundments operated to treat hazardous wastes F001 through F005, F006, and F019 (40 CFR 261). F001 through F005 consists of sludge resulting from treatment of rinsewater from paint stripping and parts cleaning operations. F006 waste is wastewater treatment sludge from electroplating operations. F019 waste is wastewater treatment sludge from the chemical conversion coating of aluminum. The domestic waste sludge drying beds were permanently removed from service on June 10, 1987, with the remaining sludge removed and taken to an offsite USEPA-permitted landfill. At present, the media within the beds consist of filter media (sand and gravel) along with finer grained soil at the surface.

2.2.3 Industrial Waste Sludge Drying Beds (PSC 43) The industrial waste sludge drying beds (PSC 43) were constructed in 1980 to dewater industrial wastewater treatment sludge from electroplating operations. Each of the four beds is approximately 15 by 18 feet and enclosed with concrete retaining walls. The bottoms of the beds are unlined. Filter media within the beds consist of, from the surface of the bed downward, an approximately 12-inch thick sand layer, a 4-inch medium gravel layer, and a minimum 6-inch coarse gravel layer. A synthetic filter material separates the two gravel layers. The bottoms of each bed are sloped toward centralized perforated plastic leachate collection pipes that returned leachate to the headworks of the industrial wastewater treatment plant. Approximately 41 cubic yards of dried sludge were excavated annually from the drying beds. The industrial waste sludge drying beds were permanently removed from service in November 1988, with the remaining sludge removed and taken to an offsite USEPA-permitted landfill in 1991. At present, the media within the beds consist of filter sand and gravels. The waste codes in PSC 43 are F001 through F005, F006, and F019, which are the same as in PSC 41.

On September 1991, Naval Air Station Jacksonville entered into A Federal Facilities Agreement (FFA) with the USEPA and the former Florida Department of Environmental Regulation (FDER) (agency is now named Florida Department of Environmental Protection (FDEP)). The purpose of this agreement was to establish a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions at NAS Jacksonville in accordance with existing regulations. The FFA requires the submittal of several primary documents for each of the Operable Units at NAS Jacksonville.

In 1988, after a review of groundwater monitoring data, FDER issued a Consent Order requiring closure of the industrial sludge drying beds. In response to the Consent Order, NAS Jacksonville developed a closure plan for both the domestic

and the industrial waste sludge drying beds, along with the wastewater treatment plant polishing pond (PSC-42, also located at OU 2). In September 1991, FDER issued a permit for closure and post-closure at PSCs 41, 42, and 43.

As provided in Section VII of the Federal Facility Agreement (FFA), parties should intend to integrate the NAVY's CERCLA response obligations and Resource Conservation and Recovery Act (RCRA) corrective action obligations into any remedial actions. As such, the FFA establishes the mechanism whereby remediation of the PSCs will occur under the provisions of CERCLA with RCRA considered as an ARAR with respect to releases of hazardous waste. Further, the FFA states that permits shall be modified again after the CERCLA process has resulted in the final selection of a remedial action.

Preliminary Assessment and Site Inspection (PA/SI) activities were completed in the early to mid-1980's at PSC 2. One groundwater monitoring well was installed during the SI, which has since been abandoned. PSCs 41 and 43 have been investigated for groundwater compliance with RCRA standards since 1983. Though several groundwater monitoring wells were installed at PSCs 41 and 43, no soil or filter media samples were collected or analyzed during previous investigations at PSCs 2, 41, and 43.

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION. The FRI/FFS report for PSCs 2, 41, and 43 at OU 2 and the Proposed Plan were completed and released to the public on August 12, 1994, and on August 10, 1994, respectively. 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 August 10, 1994.

A 45-day public comment period was held from August 10, 1994, to September 23, 1994. Written comments were received during the public comment period. Written comments and questions asked by the public are summarized and addressed in Appendix A, Responsiveness Summary.

2.4 SCOPE AND ROLE OF INTERIM REMEDIAL ACTION. A preliminary risk evaluation at PSC 2 indicated risks from petroleum-contaminated soil at PSC 2. Therefore, source removal was determined to be the interim remedial action objective for PSC 2. The preliminary risk evaluation at PSCs 41 and 43 indicated risks from metal contamination in the sludge drying bed materials. The interim remedial action objective for PSCs 41 and 43 is to reduce risks to human health and the environment and comply with the RCRA closure plan approved for these PSCs, as discussed in the FRI/FFS report. These petroleum and metal contaminants are potentially acting as a continuing source of soil and groundwater contamination at OU 2. The purpose of this interim remedial action is to remove this source of contamination to the soil and groundwater at OU 2. Based on previous investigations and the evaluation of ARARs for this site, the following interim remedial actions were identified:

- collection and disposal of free product to a waste oil disposal facility and excavation and onsite treatment using low temperature thermal desorption of the petroleum contaminated soil for PSC 2; and
- excavation and onsite treatment by stabilization and solidification, and disposal of sludge drying bed materials and offsite disposal of nonhazardous materials for PSCs 41 and 43.

Upon completion of the overall RI/FS for OU 2, the need for remedial action to address groundwater contamination will be evaluated. This IROD addresses an interim source control of free product and petroleum contaminated soil at PSC 2 and contaminated materials at PSCs 41 and 43. This interim action is consistent with any future remedial activities that may take place at the site.

2.5 SITE CHARACTERISTICS. Sampling and analysis of soil and petroleum products within and surrounding the fire-fighting training pit at PSC 2 as well as sampling and analysis of sludge drying bed material and soil immediately surrounding the sludge drying beds at PSCs 41 and 43 were completed during the focused RI conducted during the months of June through September 1993. The results of this investigation, which was designed to characterize the extent of petroleum and metal contamination at OU 2, are summarized in this section.

Soil samples at PSC 2 contained semivolatile organic compounds (SVOCs) and some volatile organic compounds (VOCs) characteristic of weathered and/or burned waste oil and petroleum products. Also, the total petroleum hydrocarbon (TPH) content in soil samples within the pit was elevated, indicating the presence of contamination due to past use of the area. Metals typical of natural soil (with the exceptions of arsenic, cadmium, chromium, and lead) were detected at PSC 2. However, these metals in soil at PSC 2 were not at levels that posed a risk to humans or the environment. The results of the analyses completed on the free product present at OU 2 (PSC 2) indicate that it is a weathered petroleum product.

The sludge drying bed materials and soil sampled at PSCs 41 and 43 contained few SVOCs and VOCs as compared to PSC 2. Metals, particularly arsenic, cadmium, chromium, lead, and nickel, were detected in the sludge bed material at concentrations higher than those for natural background soil in the area. Lead and chromium were most frequently detected at elevated concentrations at PSCs 41 and 43. Concentrations of metals in the soil immediately surrounding the sludge drying beds were within the range of natural soil background concentrations.

2.6 SUMMARY OF SITE RISKS. A qualitative risk evaluation was completed as a means to characterize potential risks to humans and the environment that could be attributed to exposure to contaminants present at PSCs 2, 41, and 43. Risk associated with petroleum contaminants (PSC 2) and metals (PSCs 41 and 43) were identified from exposure to surface soils. These preliminary risk evaluations supported source removal of the surface soil to reduce these risks and also comply with ARARs for PSC 2 and to comply with closure requirements for PSC 41 and 43.

2.7 SELECTED REMEDY. Of the two alternatives evaluated, the selected interim remedial action for source control at the PSC 2 at OU 2 is Alternative 2, described in the FRI/FFS report for OU 2. Alternative 2 involves:

- collect free product from the subsurface soil and dispose offsite,
- excavate and treat contaminated soil onsite using low temperature thermal desorption, and
- backfill with treated soil and grade and revegetate the area.

This alternative calls for excavation of a trench within the fire-fighting training pit to collect petroleum product present in the subsurface soil at PSC 2. Both water and oil would flow into the trench. Special purpose pumps would be used to skim the oil from the water's surface. The product would be temporarily stored onsite in lined drums. Once collection was complete, the drums would be transported to a disposal facility accepting waste petroleum products.

After collecting petroleum product from the subsurface at PSC 2, soil with TPH concentrations greater than 50 milligrams per kilogram (mg/kg) and total polynuclear aromatic hydrocarbon (PAH) concentrations greater than 6 mg/kg will be excavated. As soil is excavated, it will be sampled and analyzed to define the boundaries of removal. To fulfill the purposes of an interim remedial action, an upper volume limit on soil excavation of 3,400 cubic yards was established in the FFS. This volume limit was based on removing all soil at PSC

2 at concentrations above 50 mg/kg TPH and above 6 mg/kg total PAH, based on analytical data derived from the field investigation.

The contaminated soil at PSC 2 will be treated onsite using low temperature thermal desorption. A concrete pad for the placement of the thermal treatment equipment will be constructed adjacent to PSC 2. The treated soil would be sampled and analyzed prior to redeposition to demonstrate that the treated soil contains TPH levels less than the action level of 50 mg/kg and total PAH levels less than 6 mg/kg. The analyzed soil will then be backfilled into the excavated areas, graded, and revegetated. The mobile thermal treatment equipment and the concrete pad would be removed at the end of the process. Long-term monitoring of this treated soil is contemplated under RCRA.

The Navy estimates the total cost of this interim remedial action to be $614,000 to construct and maintain. The substantive requirements for any operating permits would be secured prior to the installation of the onsite remedial system.

Three alternatives were evaluated at PSCs 41 and 43. The selected interim remedial action for source control is Alternative 5, which is described in the FRI/FFS report for OU 2. Alternative 5 involves:

- remove and dispose of nonhazardous material offsite,
- excavate and treat hazardous materials onsite, and
- backfill with treated materials and grade and revegetate the area.

The concrete cinder block walls, which did not come into contact with the industrial sludge, are nonhazardous. As a first step in this alternative, the nonhazardous debris would be removed from PSCs 41 and 43 and stored separately from other excavated materials. This debris would later be transported to an offsite non-hazardous landfill.

The selected alternative assumes that the concentrations of contaminants in the sludge drying bed materials (sand and gravels) are above the RCRA Land Disposal Restrictions (LDR) treatment standards for those hazardous wastes and, thus, would require treatment prior to disposal. As previously discussed, the sludge drying bed materials are contaminated with metals. Arsenic, cadmium, chromium, lead, and nickel were identified as potential threats in the human health risk evaluation of PSCs 41 and 43. The treatment technology proposed in this alternative is onsite stabilization, which involves immobilizing the metals in the contaminated material by adding a setting agent such as Portland cement. Metals are not destroyed by this treatment process, but rather become physically and chemically entrapped in the resulting material, which can range from a semisolid to a solid. The treated (stabilized) material will be backfilled into excavated areas at OU 2. Long-term monitoring of this treated soil is contemplated under RCRA.

A concrete pad will be constructed for the placement of the stabilization equipment adjacent to PSCs 41 and 43. Stabilization is an approved treatment technology for debris contaminated with metals under the Debris Rule described in 40 CFR 268. If necessary, debris would be crushed to an appropriate size (typically 4 inches or less) prior to stabilization. Treated material would be sampled and analyzed to demonstrate that metals in the soil were immobilized by the stabilization process before being backfilled to the excavated areas at PSCs 41 and 43. The mobile stabilization equipment and the concrete pad would be removed at the end of the process.

The Navy estimates the total cost of this interim remedial action to be $558,000 to construct and maintain. Applicable permits would be secured for the installation of the onsite treatment system.

2.8 STATUTORY DETERMINATIONS. The interim remedial actions selected for implementation at OU 2 are consistent with CERCLA and the NCP. The selected remedies are protective of human health and the environment, attain ARARs, and are cost effective. The selected remedies also satisfy the statutory preference

for remedial treatment (of free product, TPH, and metals) that permanently and significantly reduces the mobility, toxicity, or volume of hazardous substances as a principal element. Because this remedy is not intended as the final action for remediation of the contaminated soil and groundwater at OU 2, the statutory preference for treatment of these media will be addressed during the final FS for OU 2. Additionally, the selected remedies use alternate treatment technologies or resource recovery technologies to the maximum extent practicable. Because these remedies are not intended as the final remedial effort for groundwater at OU 2, any such media remaining onsite after this interim remedial action will be addressed during the overall RI/FS for OU 2 and the resulting Record of Decision.

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

APPENDIX A

RESPONSIVENESS SUMMARY

Appendix A, Responsiveness Summary

The responsiveness summary serves three purposes. First, it provides regulatory agencies with information about the community preferences regarding both the remedial at Operable Unit 2 NAS Jacksonville. Second, the responsiveness summary documents how public comments have been considered and integrated into the decision making process. Third, it provides the Navy, USEPA, and FDEP with the opportunity to respond to each comment submitted during the record.

The Focused Remedial Investigation/Feasibility Study, Technical Memorandum, and Proposed Plan for PSCs 2, 41, and 43 respectively. These documents were made available and an information repository maintained at the Webb-Wesconnett Branch Library.

The following comments were received during the Public Comment Period.

Respons[illegible]ss Summary

Interim Record of Decision
Potential Sources of Contamination 2, 41, and 43 at Operable Unit 2
Naval Air Station Jacksonville
Jacksonville, Florida

Comment	Response
Letter from Phillip J. Sparta to the Deputy Public Affairs Officer Dear Deputy Public Officer,	The following information is being provided in response to your August 26 letter regarding the alternatives for PSC 2 and the concern about the cost calculation.
As both corporate and personal tax payers, we at IWE are interested in minimizing the expenditures of public funds. As an environmental remediation company, we are also interested in maximizing the opportunities for new sales. In this regard, we are particularly concerned about what appears as a large discrepancy in the calculation of total costs between Alternative 1 and Alternative 2 at PSC 2.	The selection of the preferred alternative remedial action was based on nine selection criteria. These selection criteria are organized into three categories: (1) Threshold Criteria; (2) Modifying Criteria; and (3) Balancing Criteria.
As described in the plan, the total cost of Alternative 1 (off-site treatment of soil) is $83,000 greater than Alternative 2 (on-site treatment of soil). This appears to us as an inversion. On-site thermal treatment is certainly the most costly method.	Threshold Criteria are the minimum requirements an alternative must meet for the protection of human health, the environment and compliance with environmental laws and regulations. An alternative, unless mitigating factors exist, is not selected if it does not meet the minimum Threshold Criteria.
The plan states that the upper limit on soil excavation is 3,400 cubic years. (Approx. 4,700 tons). On-site thermal treatment, including mobilization, demobilization and fugitive emissions testing will not cost less than $42.00/ton. Off-site treatment, including transport of the contaminated soil and supply and delivery of clean fill dirt to the PSC 2 site would cost between $35.00/ton and $42.00/ton, depending upon whether the off-site treatment os biotreatment or thermal treatment, respectively.	Modifying Criteria include regulatory and community preferences obtained about proposed alternatives during the public comment period for a proposed plan. Expressed concerns by regulatory agencies and the community may affect the final alternative selected for remediating the identified environmental hazard.
On the basis of the current market costs, the government would save as much as $7.00/ton if the PSC 2 soils were treated off-site. When this saving is added to the erroneous plan, the net savings to the government would between $83,000 and $115,900.	Balancing Criteria include engineering factors such a technical effectiveness and the practical aspects of construction. Cost is also a Balancing Criterion.
To further illustrate the point, IWE could transport all of the excavated soil from PSC 2, treat all of the soil to meet less than 10 mg/kg TPH and supply and deliver all of the required clean fill dirt to the site for $35.00/ton. Assuming 4,700 tons, the cost to the government would be $164,500.	Specific design details are not known during the feasibility study. Cost data at this stage of the remediation project is provided in the form of "cost estimates". The cost estimates are refined during the detailed design state of the project. The key goal of the feasibility study is objectively estimate the relative costs to distinguish between possible alternatives. Please realize that the selected alternative cost estimate will change as design details are further refined.
The balance of the work at the PSC 2 (Recovering of a little free product, digging and filling a big hole and doing a bunch of soil sampling and analysis) certainly should not exceed an additional $100,000. The entire IRA should not cost more than about $265,000. Five weeks would be plenty of time to complete the work.	The cost estimate cited in the feasibility study for PSC 2 was derived from cost factors used for similar project and recent unit cost data obtained from technology vendors in the southeast region. The cost estimates depicted fairly reflect typical market prices at the time of the analysis. Typical market prices were used in order to obtain a "level playing field" for objectively measuring the relative costs between alternatives. Therefore, no single vendors pricing data were used. Individual companies may have different pricing structures, however, cost was only one of nine selection criteria used to assess the cleanup alternatives is the essence of the feasibility study and the basis for the selection of the preferred alternative.
We ask that the cost factors for Alternative 1 and Alternative 2 be re-evaluated and that off-site bioremediation be considered as an additional alternative for PSC 2. I am enclosing for you reference our data sheet on Biosolids Enhanced Remediation (BER).	Mr. Bill Raspet of our Facilities and Environmental Department is available at 772-2717 to further discuss the technical aspects of the Interim Remediation Actions.
I might point out the BER is presently being utilized in IR Program at the fire training pit at Fentress Auxiliary Landing Field in Chesapeake, VA.	Thank you for your comments, information and the concern expressed for environmental restoration undertaken by the United States Navy in Jacksonville.
Sincerely, Phillip L. Sparta	