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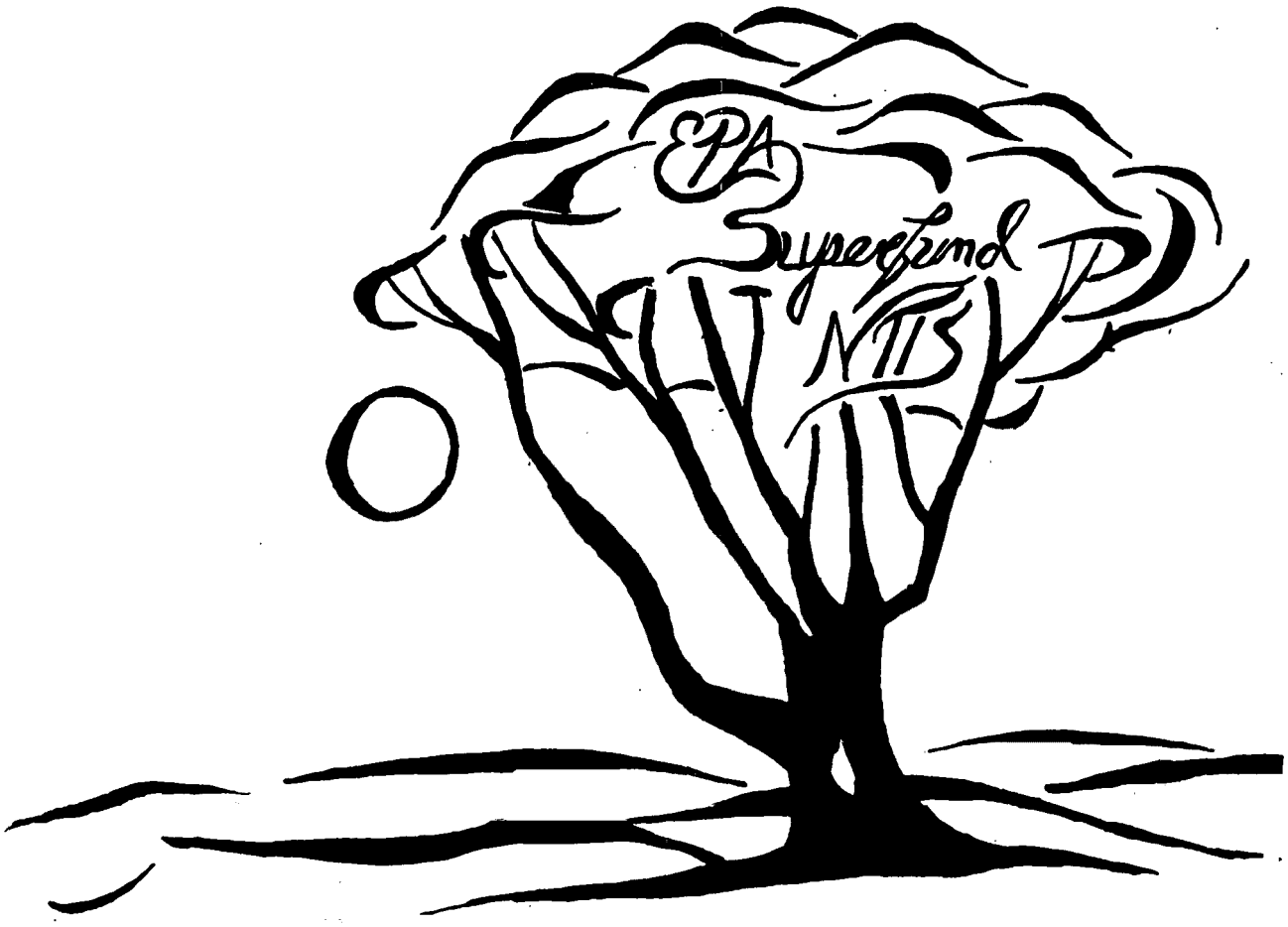
EPA Superfund Record of Decision:

Jacksonville Naval Air Station (OU 1), Jacksonville, FL 8/11/1994



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INTERIM RECORD OF DECISION

LIGHT NONAQUEOUS-PHASE LIQUID SOURCE AREA OPERABLE UNIT 1

NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

CONTRACT TASK ORDER NO. 040
CLEAN, DISTRICT I
CONTRACT NO. N62467-89-D-0317

AUGUST 1994

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010

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INTERIM RECORD OF DECISION

LIGHT NONAQUEOUS-PHASE LIQUID SOURCE AREA
OPERABLE UNIT 1

NAVAL AIR STATION JACKSONVILLE
JACKSONVILLE, FLORIDA

Contract Task Order No. 040

Contract No. N62467-89-D-0317

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August 1994

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NAS Jacksonville, Jacksonville, Florida

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GLOSSARY

ARARs	applicable or relevant and appropriate requirements
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 Remedial Investigation
FFS	Focused Feasibility Study
FS	Feasibility Study
IAS	Initial Assessment Study
IROD	Interim Record of Decision
LNAPL	light nonaqueous-phase liquid
LSA	LNAPL source area
mg/kg	milligrams per kilogram
mg/ℓ	milligrams per liter
NAS	Naval Air Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
OU	Operable Unit
PCBs	polychlorinated biphenyls
PPE	personal protection equipment
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act
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 area identified as the light nonaqueous-phase liquid (LNAPL) Source Area (LSA), Operable Unit (OU) 1, is located at the Naval Air Station (NAS) Jacksonville in Jacksonville, Florida.

1.2 STATEMENT OF BASIS AND PURPOSE. This decision document presents the selected interim remedial action for source control at the LSA at OU 1. 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 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 and rationale for selecting the interim remedy at the LSA. 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 LNAPL, which is a continuing source of soil and groundwater contamination, from the subsurface at OU 1. The U.S. Environmental Protection Agency (USEPA) and the State of Florida concur with the selected interim remedy.

1.3 ASSESSMENT OF THE SITE. Actual or threatened releases of LNAPL 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. The preferred interim action for source control at the LSA is Alternative 3. Alternative 3 was developed and evaluated in the Focused Remedial Investigation (FRI) and Focused Feasibility Study (FFS) (ABB-ES, 1993) for the LSA at OU 1. Alternative 3 involves:

- construction and operation of a passive recovery system for LNAPL,
- recovery and offsite treatment and disposal of LNAPL, and
- temporary onsite stockpiling of soil excavated during construction.

Implementation of the interim action will reduce a continuing source of soil and groundwater contamination at OU 1. The Navy estimates that the preferred alternative will cost $621,000 to construct and maintain, take 5 weeks for construction and startup, and operate for approximately 2 years.

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. 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 LNAPL and, thus, is in furtherance of that statutory mandate. Because this action does not constitute the final remedy for contaminated soil and groundwater at OU 1, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal

element, although partially addressed fo LNAPL in this remedy, will be addresse at the time of the final response action(s) for soil and groundwater. Subsequen actions are planned to address fully threats posed by the conditions in th soil and groundwater at OU 1: untreat il that is stockpiled onsite as par of this interim action will be ma ed at a later date during subsequen actions.

Because this is an interim action Record of Decision (ROD), review of this sit and of this remedy will be ongoing as the Navy continues to develop fina remedial alternatives for OU 1.

1.6 SIGNATURE AND SUPPORT AGENCY ACCEPTANCE OF THE REMEDY

R.D. Resavage

Captain R.D. Resavage
Commanding Officer, NAS Jacksonville
Jacksonville, Florida

8/11/94
Date

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 1 is located in the southern 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.

Within OU 1, the LSA is bounded by the golf course on the north and east and Child Street on the south and west (Figure 2-2). It is approximately 3 acres in size. A ditch, bordered by dense woods, runs northwest to southeast within the LSA. Another ditch runs northeast to southwest and intersects the first ditch at its center. The ditch is dammed on the southeast side. Water is allowed to flow through a culvert underneath Child Street on the northwest side of the LSA to a perimeter drainage ditch system south of Child Street. Berms are present along the ditches within the LSA but the natural terrain is grassy to wooded and flat to gently sloped.

2.2 SITE HISTORY AND ENFORCEMENT ACTIVITIES. OU 1 was used by NAS Jacksonville personnel for a variety of disposal purposes. Some of the wastes reportedly disposed at OU 1 include: nonhazardous household and sanitary waste, demolition and construction debris, radium paint wastes, transformer carcasses (reportedly drained of oil), and liquid industrial wastes such as used oil, spent solvents, and transformer oil containing polychlorinated biphenyls (PCBs). Liquid wastes were reportedly placed in open pits or trenches and ignited. When pits were full of burned residues they were covered with soil and graded to conform with the surrounding topography. Reportedly, waste disposal activities at the OU occurred over a period of 3 to 4 decades. Burning of wastes was discontinued at an unknown date. NAS Jacksonville personnel officially discontinued all disposal activities at OU 1 on January 15, 1979.

Disposal of liquid industrial wastes at OU 1 has led to the accumulation of LNAPL within the subsurface at the LSA. The following paragraphs summarize the activities pertinent to LNAPL management at OU 1.

- LNAPL was discovered in the shallow surficial aquifer in the vicinity of what is now OU 1 in 1979. Twenty-one groundwater wells were drilled in the vicinity of the former liquid disposal pits in 1980. Analyses of groundwater samples indicated the presence of volatile organic compounds (VOCs) and inorganics at concentrations exceeding drinking water standards (Geraghty & Miller, 1991).

- An Initial Assessment Study (IAS) (Geraghty & Miller, 1991) completed at NAS Jacksonville in 1982 identified what is now OU 1 as an area that posed a potential threat to human health and the environment, in part because of the LNAPL present in the subsurface.

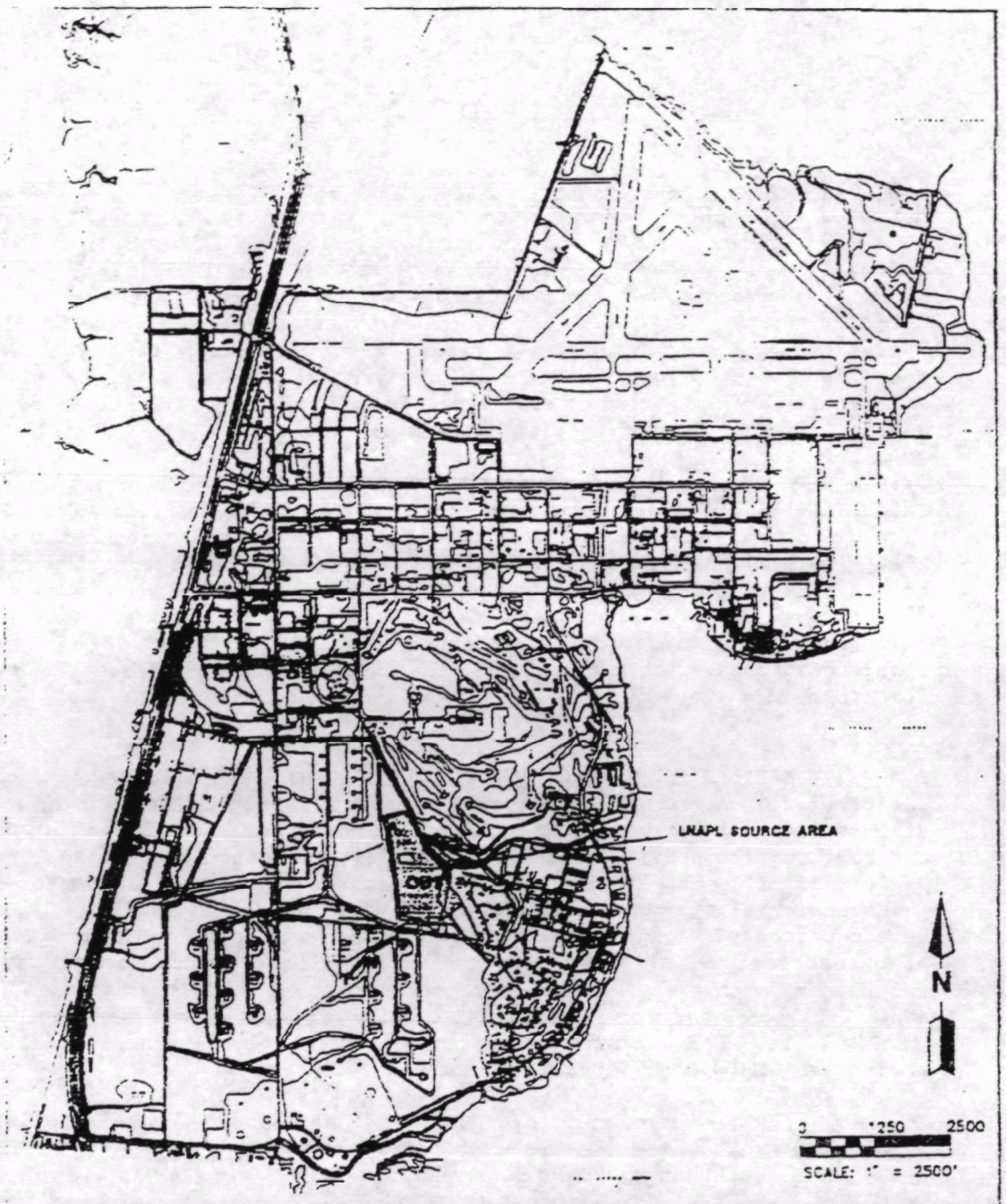

FIGURE 2-1

FACILITY MAP AND LOCATION OF OU 1

INTERIM RECORD OF DECISION
LNAPL SOURCE AREA, OU 1

NAS JACKSONVILLE,
JACKSONVILLE, FLORIDA

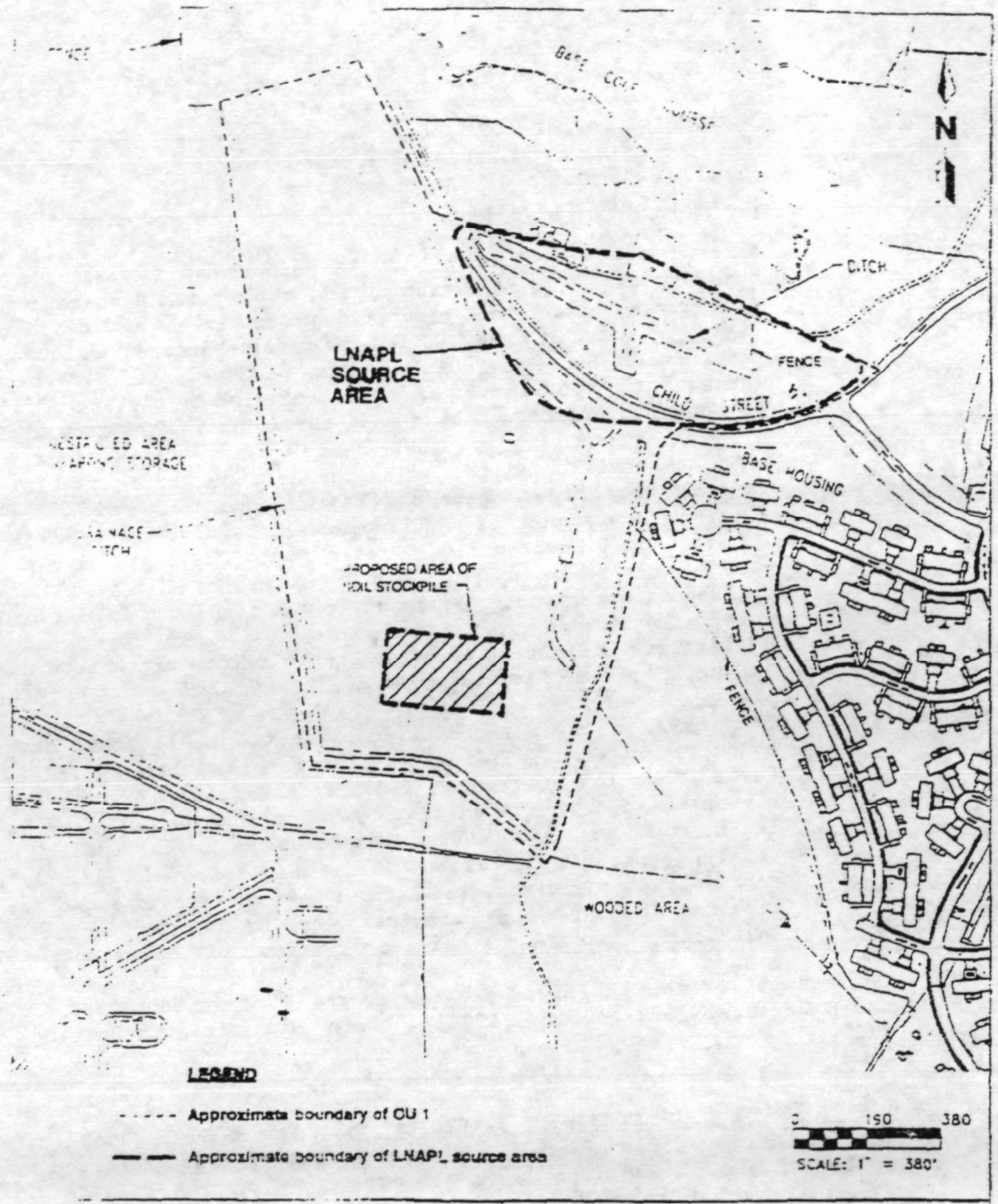

FIGURE 2-2

OU 1 WITH LOCATIONS OF LNAPL SOURCE AREA AND SOIL STOCKPILE AREA

INTERIM RECORD OF DECISION
LNAPL SOURCE AREA, OU 1

NAS JACKSONVILLE,
JACKSONVILLE, FLORIDA

- An LNAPL recovery system was constructed north and southwest of Child Street in 1983 and operated until 1984. The system included: two exfiltration galleries, a perimeter drainage ditch system (see Figure 2-2) with underflow weirs, a flow-measuring weir, and skimmer pumps to collect LNAPL. Prior to startup of the recovery system, the materials within the former liquid disposal pits were excavated, mixed with sandy fill material, and spread over the land surface of OU 1 to a minimum depth of 10 inches. The entire area was then graded to drain to the perimeter ditch system.

- Removal of recoverable LNAPL was initiated in September 1983. The quantity of LNAPL recovered during the system's operation is unknown. Recovery of LNAPL was discontinued in 1984 when discharge from the drainage ditch system failed to meet National Pollutant Discharge Elimination System (NPDES) permit requirements. Earthen dams were subsequently constructed across the ditches to prevent offsite drainage. No other attempts have been made to recover LNAPL from the site.

- NAS Jacksonville was placed on the National Priority List (NPL) and a Federal Facility Agreement (FFA) amongst the Navy, the USEPA, and Florida Department of Environmental Regulation (FDER, now Florida Department of Environmental Protection [FDEP]) was signed in 1990.

- In 1990, a cone penetrometer survey was completed in the area around the former liquid disposal pits. The results of the study provided a qualitative indication of LNAPL contamination present in the subsurface at the LSA (U.S. Army Corps of Engineers, 1991).

- From 1992 to 1994, remedial investigation (RI) field activities were conducted at OU 1. Field investigations included an FRI in April 1993 for delineation of the LSA and characterization of the LNAPL product. During the FRI, baildown tests were completed on two wells containing LNAPL; soil and groundwater samples were collected and analyzed for total petroleum hydrocarbons (TPH); samples of LNAPL and "clean" soil were collected and analyzed for parameters used to establish management requirements and design parameters; and temporary observation wells were installed to assess the horizontal extent of LNAPL at the LSA.

The results of the FRI field program at the LSA are contained in the FRI/FFS dated December 1993 (ABB-ES, 1993) and are summarized in Section 2.5 of this IROD.

2.3 HIGHLIGHTS OF COMMUNITY PARTICIPATION. The FRI/FFS Report for the LSA at OU 1 and Proposed Plan (ABB-ES, 1994) were completed and released to the public in December 1993 and June 1994, respectively. A news release was issued to present information on the proposed interim remedial action at the LSA 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 June 10, 1994. A technical review committee meeting was held on June 28, 1994, at NAS Jacksonville, Florida, and

the public was invited to present information on the proposed interim remedial action at the LSA and to solicit comments on the proposed cleanup. Representatives from NAS Jacksonville, USEPA, FDEP, and the Navy's environmental consultants presented information on the remedial alternatives evaluated in the FRI/FFS and answered questions regarding the proposed interim remedial action at the LSA.

A 45-day public comment period was held from June 10 to July 25, 1994. One written comment was received during the public comment period. Written comments are addressed and are summarized in Appendix A, Responsiveness Summary.

2.4 SCOPE AND ROLE OF INTERIM REMEDIAL ACTION. Investigations at the LSA indicated that LNAPL is present and is acting as a continuing source of soil and groundwater contamination. The purpose of this interim remedial action is to remove this source of contamination to soil and groundwater at the LSA at OU 1. Based on previous investigations and the evaluation of ARARs for this site, the following interim remedial action objective was identified:

- remove LNAPL from the shallow surficial aquifer at the LSA and manage it in accordance with USEPA and FDEP regulations to control a source of groundwater contamination.

Upon completion of the overall RI/FS for OU 1, the need for remedial action to address soil or groundwater contamination will be evaluated. This IROD addresses an interim source control (i.e., removal of LNAPL) action only. This interim action is consistent with any future remedial activities that may take place at the site.

2.5 SITE CHARACTERISTICS. Sampling and analyses of LNAPL, soil, and groundwater were completed during the FRI in March and April 1993. The results of this investigation, which was designed to characterize the extent of LNAPL contamination at OU 1, are summarized in this section.

Results of baildown tests indicated true LNAPL thicknesses at the LSA ranging from 0.62 foot to 0.79 foot. Laboratory analyses of the LNAPL indicated that it is a viscous (one order of magnitude greater than gasoline or jet fuels), weathered petroleum product with a PCB content greater than 50 milligrams per kilogram (mg/kg) and, therefore, must be managed according to the requirements set forth by the Toxic Substances Control Act (TSCA).

Total petroleum hydrocarbon (TPH) measurements in soil using field laboratory equipment ranged from less than 50 mg/kg to more than 70,000 mg/kg. Groundwater samples contained TPH at levels ranging from less than 100 to 2,650 milligrams per liter (mg/ℓ). The interpreted extent of the LSA, based on observation of LNAPL in temporary wells and TPH levels in soil and groundwater, is shown on Figure 2-2.

Field observations indicated that LNAPL will accumulate in a temporary well if the soil in the vicinity of the well contained 20,000 mg/kg TPH or greater. The volume of potentially recoverable LNAPL was estimated from this "threshold" soil TPH concentration, soil engineering parameters such as density and porosity, LNAPL density, and field observations of LNAPL in monitoring wells and temporary

wells. Based on this information, an estimated 5,900 to 10,200 gallons of LNAPL is potentially recoverable from the LSA at OU 1.

2.6 SUMMARY OF SITE RISKS. The Baseline Risk Assessment for OU 1 is underway and will be submitted with the overall RI report for OU 1. However, a qualitative evaluation of risk caused by the LNAPL at OU 1 indicates that its removal is warranted. LNAPL can flow in the subsurface and will continue to contaminate soil and groundwater at OU 1 if not removed. Though specific migration pathways for LNAPL have not yet been identified, LNAPL contamination reduces the beneficial uses of the groundwater in the surficial aquifer and LNAPL contaminated soil reduces future land use options. The proposed interim remedial action of LNAPL removal will reduce further degradation of the environmental quality of OU 1 and is consistent with likely long term remedial objectives and alternatives for soil and groundwater at OU 1.

2.7 DESCRIPTION OF ALTERNATIVES

This section presents a summary of the source control alternatives evaluated in the FFS for the LSA at OU1. They are as follows:

Alternative 1, installation of recovery sumps, offsite treatment and/or disposal of LNAPL at a TSCA-approved facility, and offsite disposal of excavated soil at an TSCA-approved facility;

Alternative 2, installation of recovery trenches, offsite treatment and/or disposal of LNAPL at a TSCA-approved facility, and offsite disposal of excavated soil at an TSCA-approved facility; and

Alternative 3, installation of recovery trenches and sumps, offsite treatment and/or disposal of LNAPL at a TSCA-approved facility, and offsite disposal of excavated soil at an TSCA-approved facility.

2.7.1 Common Elements of Alternatives All of the alternatives will involve installation of recovery trenches and/or sumps and offsite treatment and/or disposal of recovered LNAPL and soil.

Each alternative proposed for the LSA calls for collection and disposal of the LNAPL present in the subsurface soil. According to the Resource Conservation and Recovery Act (RCRA), wastes containing concentrations of PCBs greater than 50 mg/kg are excluded from hazardous waste management regulations, and instead are regulated under TSCA. Based on the results of the analyses of the LNAPL sample, it is assumed that the material is a TSCA waste. Alternative 1 would use sumps, Alternative 2 would use trenches, and Alternative 3 will use both sumps and trenches for maximum recovery of LNAPL at the LSA.

2.7.2 Alternative 1, Installation of Recovery Sumps, Offsite Treatment and/or Disposal of LNAPL at a TSCA-Approved Facility, and Offsite Disposal of Excavated Soil at an TSCA-Approved Facility

Total Cost: $300,000

Months to Implement: 25

Alternative 1 will include the following activities:

- site clearing and preparation,
- installation of sumps and recovery system,
- startup of the recovery system,
- transportation and offsite treatment and disposal of recovered LNAPL and excavated soils, and
- operation and maintenance of the recovery system.

LNAPL. This alternative calls for installation of strategically placed covered sumps as a passive recovery technique. The 3-foot-diameter, flush-mounted sumps will extend to a depth of 20 feet to account for seasonal fluctuations in the water table. Each sump will be constructed of corrugated, perforated, steel casings, and will be equipped with a pump designed for the extraction the LNAPL present at the LSA. One sump will be installed south of Child Street and 11 sumps will be installed north of Child Street for maximum recovery of LNAPL. LNAPL will be collected, temporarily stored onsite in a tank, and then transported offsite for disposal. The system will be outfitted with proper controls for safety.

Soils. Soil excavated during installation of the system will be transported for offsite disposal in a TSCA-approved disposal facility.

2.7.3 Alternative 2, Installation of Recovery Trenches, Offsite Treatment and/or Disposal of LNAPL at a TSCA-Approved Facility, and Offsite Disposal of Excavated Soil at an Approved Facility

Total Cost: $569,000

Months to Implement: 24

Alternative 2 will include the following activities:

- site clearing and preparation,
- installation of sumps and recovery system,
- startup of the recovery system,
- operation and maintenance of the recovery system, and
- transportation and offsite treatment and disposal of recovered LNAPL and excavated soils.

LNAPL. This alternative calls for the installation of recovery trenches equipped with collection sumps on the north and south sides of the existing ditch at the LSA. The trenches will be approximately 1.5 feet wide by 240 (south trench) to 320 (north trench) feet long, and excavated to an approximate depth of 20 feet to account for seasonal fluctuations of the water table. Proper ventilation

methods will be used during excavation. The trenches will be excavated and backfilled with gravel simultaneously to about 2 feet below the land surface.

A geotextile fabric will be placed above the gravel, and the remaining 2 feet of the trench will be backfilled with native clean soil to control emissions of constituents to the air. Three equally spaced collection sumps with pumps will be installed within each trench. A groundwater recovery line will also be installed to provide for possible future remedial action for the area.

Soils. Soil excavated during installation of the trench system will be transported for offsite disposal in an approved facility.

2.7.4 Alternative 3, Installation of Recovery Trenches and Sumps, Offsite Treatment and/or Disposal of LNAPL at a TSCA-Approved Facility, and Offsite Disposal of Excavated Soil at an Approved Facility

Total Cost: $621,000

Months to Implement: 24

Alternative 3 includes the following activities:

- site clearing and preparation,
- installation of sumps and recovery system,
- startup of the recovery system,
- transportation and offsite treatment and disposal of recovered LNAPL and excavated soils, and
- operation and maintenance of the recovery system.

LNAPL. This alternative calls for the installation of two recovery trenches on the north side of Child Street, and the installation of a single large diameter sump on the south side of Child Street. The recovery sump and trenches will be installed as described in Alternatives 1 and 2. Collection and offsite disposal of LNAPL will also be as described for Alternatives 1 and 2.

Soils. Soil excavated during installation of the system will be transported for offsite disposal in a TSCA-approved facility.

2.8 SUMMARY OF COMPARATIVE ANALYSES OF ALTERNATIVES

In selecting the preferred alternative for the LSA, nine criteria were used to evaluate the alternatives developed during the FFS. The first seven are technical criteria based on degree of protection of the environment, cost, and engineering feasibility issues. The alternatives were further evaluated based on the final two criteria: acceptance by the USEPA and FDEP, and acceptance by the community. The evaluation of the alternatives and the preferred alternative for the LSA are presented in the following section.

The nine criteria can be categorized into three groups: threshold criteria, primary balancing criteria, and modifying criteria. The USEPA requires that the

alternative implemented must satisfy the threshold criteria. Primary balancing criteria weigh the major tradeoffs among alternatives. Modifying criteria are considered after public comment.

The preferred alternative for source control at the LSA is Alternative 3, which calls for recovery and disposal of the LNAPL using a passive recovery trench and sump system. Soil generated by installation of the recovery system will be temporarily stockpiled onsite at OU 1 rather than disposed offsite as originally planned. Upon further evaluation, the Navy, USEPA, and FDEP have determined that stockpiling soil will be more cost effective because it can be managed at a later date with similar wastes present at OU 1.

This section discusses the preferred alternative relative to the nine criteria, noting how it compares to the other alternatives under consideration for the LSA (e.g., Alternatives 1 and 2).

2.8.1 Threshold Criteria

Overall Protection of Human Health and the Environment. All alternatives provide increased protection of human health and the environment because LNAPL will be removed from the LSA. Removal of this contamination reduces exposure to humans and wildlife and reduces a source of soil and groundwater contamination. Excavation to install the recovery systems proposed by all the alternatives will pose some hazards associated with open excavations, and may allow volatilization of LNAPL into the air. However, if the trench and sump installation technology proposed in Alternative 3 is used during excavation, this effect will be minimized.

Compliance with ARARs. All alternatives will recover the estimated volume of LNAPL within 24 to 25 months. Treatment, storage, and disposal ARARs will be met for both LNAPL and soil. Table 2-1 presents a summary of action-specific ARARs for LNAPL removed at OU 1.

2.8.2 Primary Balancing Criteria

Long-term Effectiveness and Permanence. As with all the alternatives, LNAPL will be removed from the LSA and treated. Residual contamination within the soil and contamination within the groundwater will remain untreated until future remedial actions. Alternative 3 is adaptable to these future remedial actions. All controls, sensors, and valves will be equipped with the necessary safety features that may prevent and/or contain accidental spills, leaks, or overflows. The soil temporarily stockpiled at OU 1 will be bermed and covered to prevent runoff, emissions, and rainwater infiltration. The technology for all alternatives has been well demonstrated to be effective.

Short-term Effectiveness. Dust control will be required during excavation of soil. Volatilization of LNAPL will be monitored and controlled during excavation and transport. The alternatives will have minimal environmental impact during implementation, and a relatively short amount of time (24 to 25 months) to meet the remedial action objective for the LSA. The proposed sump and trench collection system in Alternative 3 may allow for greater volume and efficiency in recovery of LNAPL.

Table 2-1
Synopsis of Potential Federal and State Action-Specific Applicable or Relevant and Appropriate Requirements (ARARs)

IROD for LNAPL Removal
Operable Unit 1, NAS Jacksonville
Jacksonville, Florida

Federal 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.	The attainment and maintenance of primary and secondary standards are required to protect human health and the environment (wildlife, climate, recreation, transportation, and economic values). The principal application of these standards is during remedial activities that may result in exposures through dust and vapors. These standards will be used to assess need for control prior to or during remediation due to unacceptable ambient air levels at OU 1.
CWA, National Pollutant Discharge Elimination System (NPDES) [40 CFR Parts 122 and 125]	Requires permits specifying the permissible concentration or level of contaminants in the effluent for the discharge of pollutants from any point source into waters of the United States.	Onsite discharge from a CERCLA site to surface waters must meet only the substantive NPDES requirements: administrative permit requirements are waived, consistent with CERCLA section 121(e)(1). Conversely, offsite discharge from a CERCLA site to surface waters must obtain an NPDES permit and meet both the substantive and administrative NPDES requirements. Currently, NAS Jacksonville has an NPDES permit for water discharge to the St. Johns River.
Occupational Safety and Health Act (OSHA), General Industry Standards [29 CFR Part 1910]	Requires establishment of programs to assure worker health and safety at hazardous waste sites, including employee training requirements.	Under 40 CFR 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, Standards Applicable to Generators of Hazardous Waste [40 CFR Part 262]	Establishes standards for generators of hazardous wastes that address waste accumulation, preparation for shipment, and completion of the uniform hazardous waste manifest. These requirements are integrated with USDOT regulations.	Alternatives that involve offsite transportation of hazardous wastes 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. This rule would be an ARAR if RCRA wastes are present or produced during remediation.
RCRA, Preparedness and Prevention [40 CFR Part 264, Subpart C]	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 if RCRA wastes are present or produced during remediation.
RCRA, Contingency Plan and Emergency Procedures [40 CFR Part 264, Subpart D]	Outlines requirements for emergency procedures to be used following explosions, fires, etc.	These requirements are relevant and appropriate for remedial actions involving the management of hazardous waste. They may apply during implementation of interim remedial actions at OU 1.

See notes at end of table.

Table 2-1 (Continued)
Synopsis of Potential Federal and State Action-Specific ARARs

IROD for LNAPL Removal
Operable Unit 1, NAS Jacksonville
Jacksonville, Florida

Federal Standards and Requirements	Requirements Synopsis	Consideration in the Remedial Response Process
RCRA, Manifest System, Recordkeeping, and Reporting [40 CFR Part 264, Subpart E]	Outlines procedures for manifesting hazardous waste for owners and operators of onsite and offsite facilities that treat, store, or dispose of hazardous waste.	Alternatives that involve treatment, storage, or disposal of hazardous waste offsite must attain these rules. For onsite treatment or disposal, these regulations are applicable in order to properly document disposition of RCRA wastes.
RCRA, Releases from Solid Waste Management Units [40 CFR Part 264, Subpart F]	Establishes the requirements for solid waste management units (SWMUs) at RCRA-regulated treatment, storage, and disposal facilities. The scope of the regulation encompasses groundwater protection standards; concentration limits; point of compliance; compliance period; requirements for groundwater monitoring, detection monitoring, and compliance monitoring; and the corrective action program.	This rule is relevant and appropriate for CERCLA sites contaminated with RCRA hazardous constituents, and applicable for groundwater remediation executed under the RCRA Corrective Action Program. This rule may apply during interim remedial actions at OU 1.
RCRA, Use and Management of Containers [40 CFR Part 264, Subpart I]	Sets standards for the storage of containers of hazardous waste.	This requirement would apply if a remedial alternative involves the storage of containers of RCRA hazardous waste. Additionally, the staging of study-generated RCRA-wastes should meet the intent of the regulation. These requirements are relevant and appropriate for containerized hazardous waste at CERCLA sites and may apply during interim remedial actions at OU 1.
Chapter 17-2, FAC, Florida Air Pollution Rules, September 1990	Establishes permitting requirements for owners or operators of any source that emits any air pollutant. Establishes ambient air quality standards for sulfur dioxide, PM_{10}, carbon monoxide, and ozone.	Establishment of air pollutant cleanup levels should incorporate Florida ambient air quality standards. Where remedial action could result in release of regulated contaminants to the atmosphere, such as may occur during air stripping, this regulation would be a potential ARAR.
Chapter 17-730, FAC, Florida Hazardous Waste Rules, August 1990	Adopts by reference appropriate sections of 40 CFR and establishes minor additions to these regulations concerning the generation, storage, treatment, transportation, and disposal of hazardous wastes.	The substantive permitting requirements for hazardous waste must be met where applicable for CERCLA remedial actions.
Chapter 17-736, FAC, Florida Rules on Hazardous Waste Warning Signs, July 1991	Requires warning signs at NPL and FDEP identified hazardous waste sites to inform the public of the presence of potentially harmful conditions.	This requirement is applicable for sites that are on the NPL or that have been identified by the FDEP as potentially harmful.
Chapter 17-770, FAC, Florida Petroleum Contaminated Site Cleanup Criteria, February 1990	Establishes a cleanup process to be followed at all petroleum contaminated sites. Cleanup levels for G-I and G-II groundwater are provided for both the gasoline and kerosene-mixed product analytical groups.	This is a relevant and appropriate ARAR for petroleum-contaminated sites that would be discharging to G-I and G-II groundwater. In addition, this ARAR defines free product at a site as one where petroleum exists at a thickness in excess of 0.1 inch on the surface water or groundwater.

Notes: CWA = Clean Water Act.
NPL = National Priority List.
USDOT = U.S. Department of Transportation.
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act.
NCP = National Oil and Hazardous Substances Pollution Contingency Plan.
RCRA = Resource Conservation and Recovery Act.
FDER = Florida Department of Environmental Regulation.
FDEP = Florida Department of Environmental Protection.
ARAR = applicable or relevant and appropriate requirements.

Implementability. Although the recovery trenches may be difficult to install for Alternatives 2 and 3, the recovery sumps and system are easily installed and require little site preparation. The remedial action objective will be met by all the alternatives, and the technologies have been successfully implemented at other CERCLA sites. The trenches proposed for Alternative 3 will be usable for future groundwater and soil remedial actions. The thickness of the LNAPL will be measured during the operation of the system to ensure that the recovery system is efficient, and to ensure compliance with ARARs. The services and facilities required by the alternatives are expected to be available at the time of implementation. Coordination with and approval from NAS Jacksonville, USEPA, and FDEP will be necessary to implement any of the alternatives.

Reduction of Toxicity, Mobility, or Volume of Contaminants. The toxicity, mobility, and volume of the recovered LNAPL will be reduced via offsite treatment and/or disposal. Removal and stockpiling of soil will decrease the mobility and volume of soil contaminants at the LSA. Alternative 1 will generate a lesser amount of excavated soil for stockpiling, and all alternatives produce an estimated maximum of 10,200 gallons of LNAPL to be removed from the LSA and treated. The treatment of LNAPL proposed by the alternatives will achieve significant and permanent reduction in toxicity, mobility, and volume of contaminants. The treatment and disposal of the LNAPL at the LSA is irreversible. The soil that will be temporarily stockpile at OU 1 will be bermed and covered to prevent runoff, emissions, and rainwater infiltration.

Cost. Estimated remedial costs of all alternatives proposed for the LSA are within the same order of magnitude. The costs for Alternatives 1 and 2 are lower; however, Alternative 3 will reduce costs of future remedial efforts due to the flexibility of using the recovery system for later remediation. The recovery system of the preferred alternative, with its trench and sump combination, will also provide a more efficient volume recovery during operation. The estimated cost for Alternative 3 is $621,000.

2.8.3 Modifying Criteria

State and Federal Acceptance. The FDEP and USEPA have concurred with the Navy's selection of Alternative 3 (with the revised soil management plan of stockpiling rather than offsite disposal) as the preferred alternative.

Community Acceptance. Community acceptance of the preferred alternative is evaluated at the end of the public comment period and is addressed in the Responsiveness Summary included in Appendix A.

2.9 SELECTED REMEDY. Of the three alternatives evaluated, the selected interim remedial action for source control at the LSA at OU 1 is Alternative 3, described in the FRI/FFS Report for the LSA. Alternative 3 involves:

- construction and operation of a passive recovery system for LNAPL,
- recovery and offsite treatment and disposal of LNAPL, and
- temporary onsite stockpiling of soil excavated during construction.

A conceptual layout of the passive LNAPL recovery system is included in Figure 2-2. A combination of trenches and large-diameter sumps will be used to collect LNAPL, which will be transported offsite for treatment and disposal. Treatment

(most likely incineration) and disposal of the LNAPL will meet the requirements of TSCA for materials containing greater than 50 mg/kg PCBs. LNAPL will be removed using passive methods (i.e., no drawdown of groundwater) until a determination is made that (1) another recovery method will be more effective (i.e., active recovery using groundwater drawdown), or (2) passive recovery has successfully removed LNAPL from the subsurface to the extent possible in accordance with Federal and State requirements.

Soil excavated during construction of the recovery system will be temporarily stockpiled at OU 1 in the location shown on Figure 2-2. The stockpile will be covered and bermed to prevent emissions of volatile LNAPL components, rainwater infiltration, and runoff. The Navy is still investigating the most cost-effective long-term management option for soil at OU1; however, it is anticipated that soil from the LSA will be stockpiled onsite for no longer than 2 years. Soils from the LSA will be managed together with other similarly contaminated soils at OU1.

The recovery system at the LSA will be constructed by personnel dressed in Level D personal protection equipment (PPE), with options to upgrade to Level C if site conditions warrant this change. The Navy estimates that the recovery system will be constructed in 4 weeks and will operate using passive recovery for approximately 2 years, assuming that the high volume estimate (10,200 gallons) of LNAPL is recoverable during that time. Details of cost estimates for the selected remedy are presented in Table 2-2. The Navy estimates the total cost of this interim remedial action to be $621,000, including construction, operation and maintenance, and treatment and disposal of LNAPL.

2.10 STATUTORY DETERMINATIONS. The interim remedial action selected for implementation at the LSA 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 (of LNAPL) that permanently and significantly reduces the mobility, toxicity, or volume of hazardous substances as a principal element. Because this action does not constitute the final remedy for contaminated soil and groundwater at OU 1, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element, although partially addressed for LNAPL in this remedy, will be addressed at the time of the final response action(s) for soil and groundwater. Additionally, the selected remedy uses alternate treatment technologies or resource recovery technologies to the maximum extent practicable. Because this remedy is not intended as the final remedy for contaminated soil and groundwater at OU 1, any such media remaining onsite after this interim remedial action will be addressed during the RI and FS for OU1 and the resulting ROD.

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

Table 2-2
Cost Summary for Selected Remedy, Light Nonaqueous-Phase Liquid (LNAPL) Collection in Recovery Trenches and Large Diameter Sump

IROD for LNAPL Removal
Operable Unit 1, NAS Jacksonville
Jacksonville, Florida

CAPITAL COSTS		Amount
Direct Costs		
Site preparation		$1,000
Construction costs		$6,000
Installation of recovery system		$221,000
Soil transportation and disposal		$86,000
Utilities		$4,000
	Total Direct Costs	$318,000
Indirect Costs		
Health and safety (at 15 percent)		$48,000
Administration, clearances, permitting (at 5 percent)		$16,000
Services during construction (at 5 percent)		$16,000
Engineering (at 10 percent)		$32,000
	Total Indirect Cost	$112,000
	Total Capital Cost (Direct and Indirect)	$430,000
Operation and Maintenance (O&M) Costs		
LNAPL transportation and disposal		$60,000
Oversight of recovery system		$22,000
	Total O&M Costs	$82,000
	Present Worth of O&M Costs	$67,000
	SUBTOTAL	$497,000
Contingency (at 25 percent)		$124,000
	TOTAL COST OF ALTERNATIVE	**$621,000**

Notes: Health and safety cost assumes that excavation activities will be conducted in Level B personal protective equipment.

Operation and maintenance costs are reported for 24 months of LNAPL recovery.

LNAPL = light nonaqueous-phase liquid.

REFERENCES

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U.S. Army Corps of Engineers, 1991, Initial Field Trials of the Site Characterization Analysis Penetrometer System (SCAPS) Reconnaissance of Jacksonville Naval Air Station Waste Oil and Solvents Disposal Site: Working Draft, June 1991.