



INSTALLATION RESTORATION PROGRAM

August 2003



Proposed Plan for Potential Source of Contamination 46 Naval Air Station Jacksonville Jacksonville, Florida

Facility Description

Naval Air Station (NAS) Jacksonville (see Figure 1) occupies approximately 3,900 acres on the west bank of the St. Johns River in southeastern Duval County, Florida. The station is located 13 miles south of downtown Jacksonville. It was commissioned on October 15, 1940, to provide facilities for pilot training and a Navy Aviation Trades School for ground crewmen. Its physical size more than doubled in support of World War II military operations. Since 1951, the facility has served the dual purpose of training pilots and ground crewmen and supporting operational carrier squadrons. In November 1989, NAS Jacksonville was added to the **National Priorities List**.

Site Description

Operable Unit (OU) 7, Potential Source of Contamination (PSC) 46, includes the active Defense Reutilization and Marketing Office (**DRMO**). It is an outparcel located on the opposite side of Roosevelt Boulevard (U.S. Highway 17) from the southwestern portion of the NAS Jacksonville main base as shown on Figure 1.

Surface features at **DRMO** are shown on Figure 2. The site is relatively flat and is surrounded on all sides by a chain link fence and razor wire. Its approximate dimensions are 650 feet (ft) wide on the southern end, 120 ft wide on the northern end, and 1500 ft long. As depicted on Figure 2, these dimensions approximate a wedge-shaped tract in plan view with long dimension oriented north-south. With the exception of a grass area in the southeastern part of the site, the surface is covered with pavement or buildings.

PSC 46 is nearly surrounded by shallow storm water ditches. These ditches usually contain water only during storm events, with the exception being a small area located at the southeast corner of the

facility where the ditch is lined with concrete. Storm water in these ditches eventually flows to the south toward Interstate 295 where rainwater soaks into the ground. There are no permanent surface water bodies in the near vicinity to **PSC 46**.

The **DRMO** is used to sell surplus Navy materials to the public and to dispose of waste. Surplus materials include scrap metals, appliances, hardware components, vehicles, unused construction materials, and some unused chemicals. In the past, **DRMO** also stored electrical transformers prior to surplus sales.

Prior to development of the site for **DRMO** operations, the site was used to dismantle World War II aircraft. The dismantling process included segregating airplane parts including rubber, leather, metal, and glass to be recycled or disposed. Parts made of aluminum were then melted (smelting) into aluminum ingots. Materials were then shipped off site by railroad cars from the west side of the site.

Past operations at the **PSC 46** have resulted in contamination of soil, surface water, and groundwater. Contamination includes chemical contamination and low-level radioactive contamination. The highest levels of contamination are located in soils in the storm water drainage ditches inside of the west and south fence lines and beneath paved areas at **PSC 46**. This Proposed Plan addresses the preferred cleanup plan for contamination at **PSC 46**.

A wide range of organic and inorganic compounds are present in shallow soils, groundwater, and surface water at **PSC 46**. **Semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), metals, polychlorinated biphenyls (PCBs), and radiological (RAD)** contaminants exceed Florida Department of Environmental Protection (FDEP) **Soil Cleanup Target Levels (SCTLs)** based on residential exposure, FDEP **Groundwater Cleanup Target Levels (GCTLs)**, United States Environmental

Site History

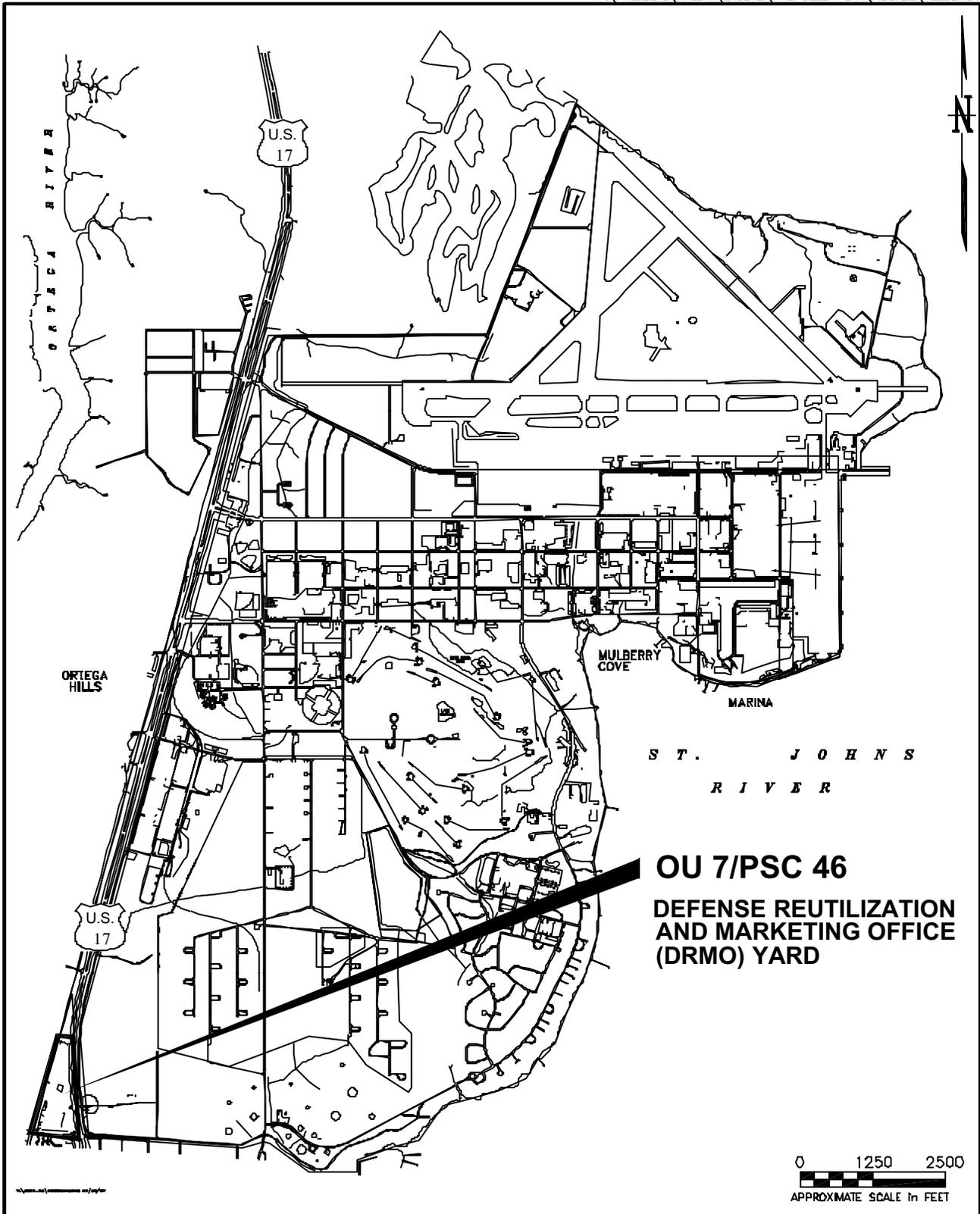
The following is a brief environmental history of **PSC 46**:

- **1939** – The site was developed as an aircraft decommissioning facility.
- **Late 1940's** – The site was adapted for its current use as the **DRMO**.
- **1997** – Results of soil sample analysis showed **SVOCs, pesticides, PCBs, and metals** contamination in surface soil and in soil located in the drainage ditches.
- **1997** – Results of surface water and groundwater sampling showed **metal** contamination.

- **1998** – Results of a radiological survey indicated that soil was contaminated with low level radioactive material at **PSC 46**.
- **1999** – A Sampling Event Report (SER) documents the prior analytical results and historical site operations.
- **2001 to 2002** – A **Remedial Investigation (RI)** determined the nature and extent of contamination. **SVOC, VOC, metal,** and Radium 226 contamination was found in surface soil and soil from the drainage ditches at **PSC 46** at levels potentially harmful to human health. **RAD** constituents and **VOCs** were found at levels potentially harmful to human health in groundwater.
- **2003** – A **Focused Feasibility Study (FFS)** was prepared to consider soil and groundwater cleanup options. A final **RI/FFS** document was issued.

*This document summarizes the Navy's preferred cleanup plan. For detailed information on the options evaluated for **PSC 46**, the documents are available for review at the **information repository** located at Webb Wesconnet Branch, Jacksonville Public Library, 6887 103rd Street, Jacksonville, Florida.*

Bolded terms throughout this Proposed Plan are explained in the Glossary of Terms beginning on Page 9.



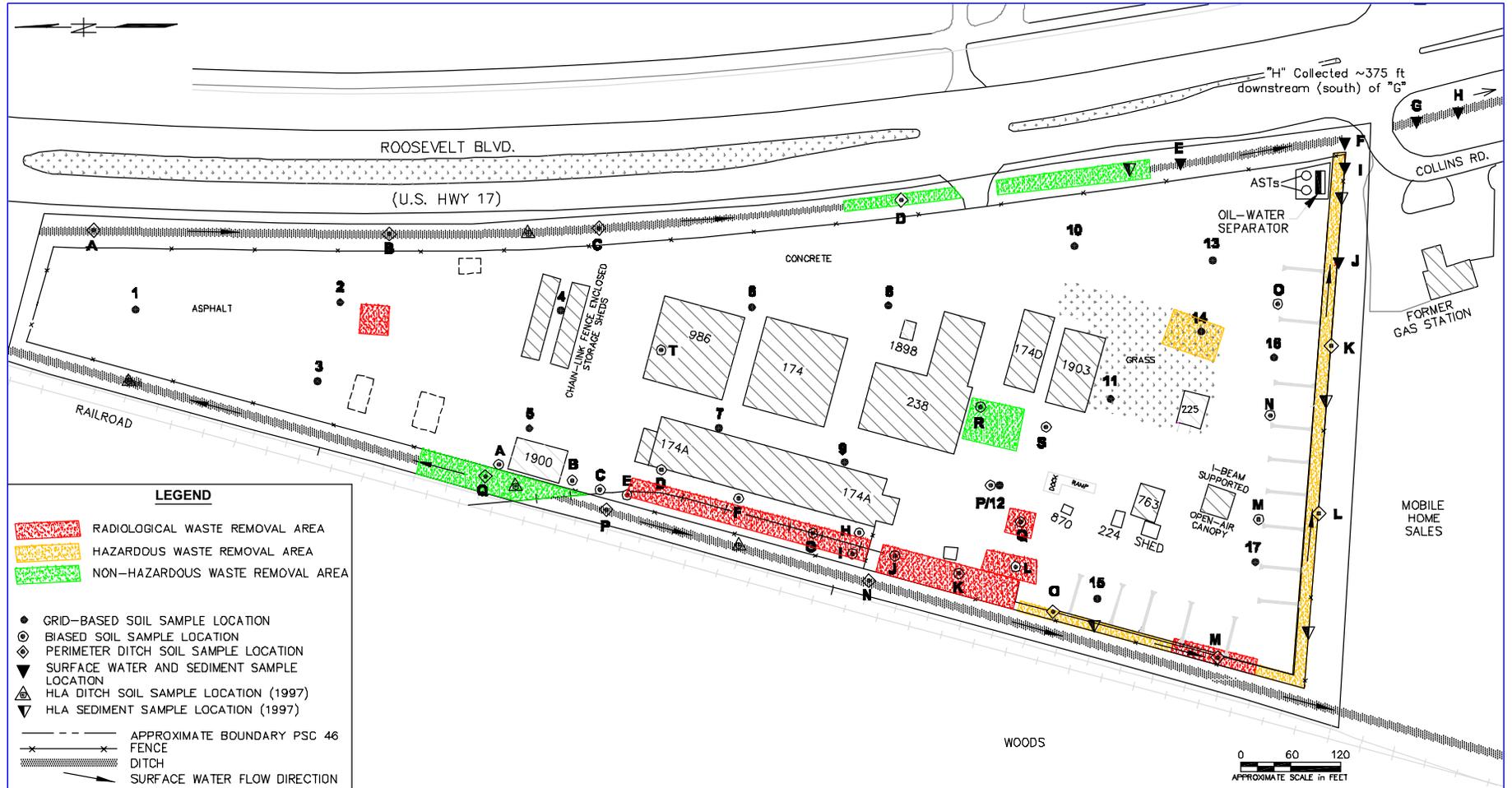
OU 7/PSC 46
DEFENSE REUTILIZATION
AND MARKETING OFFICE
(DRMO) YARD

DRAWN BY LLK	DATE 4/18/02
CHECKED BY	DATE
COST/SCHED-AREA	
SCALE AS NOTED	



SITE LOCATION MAP
 PSC 46
 DEFENSE REUTILIZATION AND
 MARKETING OFFICE (DRMO) YARD
 NAS JACKSONVILLE
 JACKSONVILLE, FLORIDA

CONTRACT NO.	N4229
APPROVED BY	DATE
APPROVED BY	DATE
DRAWING NO.	FIGURE 1
REV.	0



LEGEND

- RADIOLOGICAL WASTE REMOVAL AREA
- HAZARDOUS WASTE REMOVAL AREA
- NON-HAZARDOUS WASTE REMOVAL AREA
- GRID-BASED SOIL SAMPLE LOCATION
- ⊙ BIASED SOIL SAMPLE LOCATION
- ⊕ PERIMETER DITCH SOIL SAMPLE LOCATION
- ▼ SURFACE WATER AND SEDIMENT SAMPLE LOCATION
- ⊕ HLA DITCH SOIL SAMPLE LOCATION (1997)
- ▼ HLA SEDIMENT SAMPLE LOCATION (1997)
- APPROXIMATE BOUNDARY PSC 46
- x-x- FENCE
- ▬ DITCH
- SURFACE WATER FLOW DIRECTION

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY: LLK DATE: 3/9/01
 CHECKED BY: DATE:
 COST/SCHED-AREA:
 SCALE: AS NOTED



AREAS EXCEEDING INDUSTRIAL SCTLs AND RADIOLOGICAL CRITERIA PSC 46 - DEFENSE REUTILIZATION AND MARKETING OFFICE (DRMO) YARD NAS JACKSONVILLE JACKSONVILLE, FLORIDA

CONTRACT NO.	0522
APPROVED BY	DATE
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DRAWING NO.	FIGURE 2
REV.	0

FORM CADD NO. SDIV_BH.DWG - REV 0 - 1/20/98

Protection Agency (USEPA) Region IV freshwater Screening Values, and FDEP Class III Surface Water Criteria.

The area of surface soil contamination at **PSC 46** is shown in Figure 2. The amount of contaminated soil has been calculated at approximately 1,625 cubic yards. During the **RI**, groundwater contamination was found to be limited in occurrence such that a defined groundwater **contaminant plume** could not be established. An estimate of 105,386 gallons of contaminated groundwater was calculated.

Surface water occurrence is limited to the southeast corner of the site where the drainage ditch is lined with concrete. Surface water was found to be contaminated above regulatory surface water criteria.

About This Document

Per Section 117 of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**, this document summarizes the Navy's preferred alternative for site cleanup to help the public understand and comment. This plan has been developed by the Navy, in agreement with the USEPA and the FDEP. The Navy will implement the remedy for **PSC 46** after considering and addressing significant comments from the public.

The purpose of this plan is to request the public's views and comments on the preferred cleanup alternative. This plan highlights information from the **RI** and **FFS** report, but does not include all of the information contained in that document. The document is maintained at the **information repository**, which is located at the Webb Wesconnet Branch of the Jacksonville Public Library.

What do you think?

The Navy, as the lead agency, is accepting formal public comments on this proposal from September 1, 2003, to September 30, 2003. You don't have to be a technical expert to comment. If you have a comment, the Navy wants to hear it before beginning the cleanup. To comment formally:

Offer oral or written comments during the public meeting scheduled for September 9, 2003, at the Holiday Inn (US 17 and I-295) from 7:00 to 9:00 p.m.

Send written comments postmarked no later than September 30, 2003, to:

Mr. Bill Dougherty
Public Affairs Office, Box 2
Naval Air Station Jacksonville
Jacksonville, Florida 32212-5000
Phone: (904) 542-4032, Fax: (904) 542-2413

E-mail comments by September 30, 2003, to:
doughertyb@cnrse.navy.mil

Summary of Site Risks

The risk assessment analysis assumes that the site would remain an industrial area on NAS Jacksonville, which is its anticipated future use. The groundwater at the site is not used at this time, and NAS Jacksonville does not anticipate future use. Understanding this, the people that could be exposed to the soil and groundwater contamination are construction, maintenance, and occupational workers and adolescent trespassers. It is reasonable to assume that the same groups could be exposed under the future industrial use scenarios.

A Human Health Preliminary Risk Evaluation (HHPRE) evaluated the potential impacts of the site contamination on construction, maintenance, and occupational workers; adolescent trespassers; and residents. Exposure to soil, sediment (mud), groundwater, and water in the drainage ditches were evaluated as potential ways to be exposed to contamination. Based on this evaluation, the **HHPRE** found arsenic, beryllium, chromium, lead, and three **SVOC** compounds [benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene] in surface soil as a cancer risk greater than what is acceptable by the FDEP (1.0EE-06 or one in one million) for occupation workers as well as to child, adult, and lifelong residents. The **HHPRE** also identified contamination in groundwater that causes unacceptable cancer risks for child, adult, and lifelong residents. However, for the foreseeable future, **PSC 46** is considered by the station to be an industrial area, and no residential development of **PSC 46** is expected. Table 1 shows the chemicals with cancer risks greater than what is acceptable by the FDEP. In addition, the **HHPRE** reports a number called the hazard index. This value represents non-cancer risks associated with contamination. The FDEP and USEPA agree that if a calculated hazard index is greater than 1.0, then the risk presented by the contamination is not acceptable. The **HHPRE** reported that the total hazard index for the child resident was greater than 1.0. The hazard index for each receptor is presented in Table 1. A more detailed explanation of these terms is included in the **HHPRE**, which is part of the **RI/FFS**.

An Ecological Risk Assessment (ERA) was performed as part of the **RI** to estimate potential impacts of the contaminants on the environment, such as various plant and animal life. The results of the **ERA** showed that contamination in soils/sediment and surface water should not pose a significant risk to wildlife. This finding was due to the poor quality of habitat present and the lack of connection of the storm water ditches to a surface water body. The **ERA** determined that if the site use of **PSC 46** remains unchanged, further action is not necessary.

It is the Navy's position that the preferred cleanup alternative identified in this plan is necessary to protect human health and the environment.

The Proposed Cleanup Plan

To clean up contaminated soil and groundwater at **PSC 46**, the Navy proposes the following:

- Excavate and remove soil from areas at the site indicating unacceptable risks to site workers. The excavation will include areas on the south central and west sides of the site and the adjacent drainage ditches. The soils will be disposed at a licensed disposal facility.

- Use **institutional controls** to prevent residential development of the site and limit the potential exposure to remaining soil contamination and to groundwater contamination. Effectiveness of these controls would be verified by regular site inspections.
- Monitor groundwater to evaluate decreases in contaminant concentrations and measure compounds.
- Allow **natural attenuation** to occur, which removes contaminants through biological and other natural processes.
- Perform a site review every 5 years to verify the proposed remedy is working. If this is not the case, another more aggressive cleanup approach may be used.

<p align="center">Table 1 HHPRE Summary</p> <p align="center">Proposed Plan, DRMO Naval Air Station Jacksonville Jacksonville, Florida</p>				
Media	Receptor	Compound*	Cancer Risk ⁽¹⁾	Hazard Index ⁽²⁾
Soil/Sediment	Occupational Worker	Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Iron, Manganese, Nickel, Vanadium,	2.5 E-05	5.7
	Residential	Arochlor 1254 and 1260, Dieldrin, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-cd)pyrene	9.1 E-05	267
Groundwater	Residential	Chloromethane, Vinyl Chloride, 1,1-Dichloroethylene, 1,2-Dichloroethane	3.0 E-05	0.9
<p>Notes:</p> <p>⁽¹⁾ Acceptable cancer risks have been established by the FDEP (1.0E-06) and USEPA (1.0E-04).</p> <p>⁽²⁾ The FDEP and USEPA have established an acceptable Hazard Index at 1.0.</p> <p>* Compounds defined based on an individual Cancer risk > 1.0 E-06 or an individual Hazard Index > 1.0.</p>				

Why is Cleanup Needed?

The Navy's studies of **PSC 46** have resulted in the following conclusions:

- As a result of past waste disposal practices, multiple chemicals that could be harmful to human health and the environment were found at **PSC 46**.
- Several contaminants are present in the surface soil at the site and in the ditches as well as groundwater of the **surficial aquifer** at levels considered unacceptable by the regulators. In addition, soil and groundwater contamination levels exceed **SCTLs** and **GCTLs**.
- It is the Navy's position that the preferred cleanup alternative presented in this Proposed Plan will protect public health and the environment.

What are the Cleanup Objectives and Levels?

Using the site investigation information and the results of the **HHPRE** and **ERA** based on industrial land use scenarios (assumes institutional controls are used to prevent future residential land use), the Navy identified the following **Remedial Action Objectives (RAOs)** at **PSC 46**:

- Prevent unacceptable risks from human exposure to constituents of concern (**COCs**) or constituents of potential concern (**COPCs**) in soil at **DRMO**.
- Prevent unacceptable risks from human exposure to **COCs/COPCs** in groundwater at **DRMO**.
- Prevent contaminant migration from **COCs/COPCs** in soil to groundwater and surface water at **DRMO**.

Table 2 shows the **COCs/COPCs** background screening values and **preliminary remedial goals (PRGs)**.

Cleanup Alternatives for PSC 46

The **PSC 46 RI/FFS** reviews options that the Navy considered for cleanup of **PSC 46**. These options, referred to as "Cleanup Alternatives," are different combinations of plans to restrict access and to contain, remove, or treat contamination in order to protect human health and the environment.

Soil Cleanup Alternatives

The preferred cleanup alternative for soil is Alternative 2, Excavation, Disposal, and Institutional Controls, with an estimated Capital Cost of \$1,177,000; an Operation and Maintenance cost of \$472,000; and a Total Present Worth Cost equaling \$1,649,000.

Excavation, Disposal, and Institutional Controls

Soil Cleanup Alternative 2: Excavation, Disposal, and Institutional Controls

Soil contaminated with concentrations of **COCs** exceeding regulatory standards and background screening criteria (FDEP direct exposure industrial **SCTLs**) would be excavated. Pre-excavation sampling would be conducted in order to verify the extent of contamination, and determine whether the soil should be disposed as non-hazardous, hazardous, and radiologically contaminated. Soils contaminated with **COCs** above residential **SCTLs** and background screening criteria will be left in place and will be subject to institutional controls to prevent potential future exposure.

The areas highlighted on Figure 2 would be excavated down to an estimated depth of 1 ft below land surface (bls), except for one location shown on the figure at sample location R where excavation would be to an estimated 3 ft bls. Excavation of the drainage ditches

**Table 2
COCs, COPCs, and PRGs**

Proposed Plan, DRMO
Naval Air Station Jacksonville
Jacksonville, Florida

COCs/COPCs	Range of Detections	Background Screening Values	PRGs ⁽¹⁾ Residential/Industrial	Common Uses
COCs/COPCs for Soil (mg/kg)				
Aluminum	45.4 – 152,000	1340	72,000	Metal commonly occurring in nature. Many uses.
Arsenic	0.26 – 55.6	0.8	0.8/3.7	
Antimony	0.39 – 45.8	NL	26	
Barium	1.4 – 302	11.2	110	
Beryllium	0.02 – 1347	NL	120/800	
Cadmium	0.04 – 254	NL	75	
Chromium	0.44 – 1240	6.6	210 ⁽²⁾ /820 ⁽²⁾	
Copper	0.11 – 24,300	5.8	110	
Lead	0.87 – 1690	14.4	400/920	
Nickel	0.08 – 1200	11	110	
Iron	92.6 – 86,000	852	23,000	
Manganese	3.2 – 2190	99.8	1,600	
Vanadium	0.37 – 46	3.8	15	
Dieldrin	0.64J – 103J	NL	70	
Benzo(a)anthracene	7J – 4700	NL	1,400	Lubricants.
Benzo(a)pyrene	9J – 4300	NL	100/500	
Benzo(b)fluoranthene	15J – 8600	NL	1,400/4,800	
Indeno(1,2,3-cd)pyrene	58 – 2800	NL	1,500	
Dibenzo(a,h)anthracene	15J – 1400	NL	100	
Arochlor 1254	4.9J – 2000	NL	500	Oil used in transformers.
Arochlor 1260	4.9J – 2100	NL	500/2,100	Used in paint on WWII aircraft.
Radium 226	1.43 – 93.9	NL	5 pCi/g ⁽³⁾	
COCs for Groundwater (µg/L)				
Vinyl Chloride	1J – 2J	NL	1	Used to make PVC. ⁽⁴⁾
1,1-Dichlorethene	0.6J – 8	NL	7	Used to produce solvents and in chemical mixtures. ⁽⁴⁾
Arsenic	1.4 – 167	13.2	10 ⁽⁵⁾	Metal commonly found in nature. Many uses.
Notes:				
⁽¹⁾ Chapter 62-777, Florida Administrative Code (FAC), Residential and Industrial direct exposure SCTLs for soil and GCTLs for groundwater.				
⁽²⁾ Based upon value for hexavalent chromium.				
⁽³⁾ Based upon site specific RAD analysis at DRMO and as agreed upon by the NAS Jacksonville Partnering Team .				
⁽⁴⁾ This chemical is also a breakdown product of other chlorinated compounds (e.g., trichloroethene).				
⁽⁵⁾ Proposed value.				
mg/kg = milligrams per kilogram		µg/L = micrograms per liter		
pCi/g = picocuries per gram		NL = no listing		

would be conducted as a maintenance activity since the drainage ditches are storm water conveyance features.

Institutional controls would be used to prevent residential development and unauthorized excavation or development at **PSC 46**. Soil sampling would not be used because **metal** concentrations in soil are not expected to change for a long time. Warning signs would be placed near contaminated soil to alert NAS Jacksonville personnel and workers of the hazards associated with site surface soil. **PSC 46** would be added to the current **Land Use Control Implementation Plan (LUCIP)** at NAS Jacksonville. In addition, NAS Jacksonville has procedures in place for construction/excavation projects to be reviewed and approved by the installation Facilities and Environmental Department (FED) before they are performed. FED would review these projects for potential problems. Under the **LUCIP** program, **PSC 46** would be monitored several times a year to assure that the measures are

effective. Every five years, the Base-wide Five-year Review would evaluate the continued effectiveness of the cleanup alternative and to determine if additional actions are needed.

One other soil cleanup alternative was evaluated (No Action). The Navy determined that no other soil cleanup actions would be evaluated during the **FFS**. This decision was based on the wide variety of **COCs** present which make it technically not feasible to treat the soils via other methods.

No Action

Soil Cleanup Alternative 1: No Action

Evaluation of the No Action alternative is required by law as a basis for comparison with other alternatives. There are no costs associated

with this alternative. This action is not preferred since it would not address the potential health risks to site workers.

Groundwater Cleanup Alternatives

The preferred cleanup alternative for groundwater is Alternative 2, Monitored **Natural Attenuation**, with estimated capital cost of \$23,000; a present worth Operation and Maintenance cost of \$166,000; and a Total Present Worth Cost of \$208,000.

Monitored Natural Attenuation

Groundwater Cleanup Alternative 2: Natural Attenuation, Monitoring, and Institutional Controls

This cleanup action includes **institutional controls**, monitoring, and **natural attenuation**. **Natural attenuation** is the naturally occurring breakdown of contamination. Microorganisms within the aquifer reduce contaminant levels naturally. **Institutional controls** would restrict use of the **surficial aquifer** groundwater. Monitoring would consist of sampling and analyzing groundwater to check the decrease in contamination and to verify that the chemicals are not moving away from the site. The proposed sampling schedule in the **RI/FFS** for costing purposes was quarterly during the first year, semi-annually during the second and third years, and annually after that. Groundwater milestone dates will be used to check the progress of **natural attenuation**. Every five years, the Base-wide Five-year Review would evaluate the effectiveness of this cleanup alternative. If **natural attenuation** and **institutional controls** fail to adequately protect human health and the environment, additional cleanup measures would be evaluated.

It is expected that groundwater contamination will decline after the soil excavation has occurred. Since shallow soils serve as an apparent source of contamination in groundwater, monitoring will continue until cleanup criteria have been achieved over four monitoring events.

As required by law, the **RI/FFS** also evaluated no action as a groundwater cleanup alternative. The Navy agreed that no other remedial alternatives would be evaluated. This decision was based on the lack of consistent detection of the **COCs** (each **COC** was only detected above FDEP **GCTLs** in a single well), and the levels of the **COCs** is only marginally above regulatory standard levels.

No Action

Groundwater Cleanup Alternative G1: No Action

Evaluation of the No Action alternative is required by law as a basis for comparison with other alternatives. There are no costs associated with this alternative.

Use of Applicable or Relevant and Appropriate Requirements (ARARs) in Evaluation Process

ARARs are Federal and State environmental requirements used to evaluate the level of site cleanup, to formulate cleanup alternatives, and to control the cleanup action process. Potential chemical-specific, location-specific, and action-specific **ARARs** that apply to **PSC 46** are discussed in the **FFS**, which can be found in the **information repository**. Each alternative has been evaluated to determine its compliance with **ARARs**. The preferred cleanup alternative complies with all **ARARs**.

Detailed Analysis of Cleanup Alternatives

Per **CERCLA**, a detailed review of each cleanup alternative must be performed by using nine evaluation criteria. The first eight criteria were reviewed during the **FFS**, and a summary is presented on Table 3 for the soil and groundwater cleanup alternatives. Consult the **PSC 46 RI/FFS** report for more detailed information.

As indicated on Table 3, Alternative 1, No Action does not meet seven of the eight criteria. Alternative 2, Excavation, Disposal, and **Institutional Controls**, meets all criteria except one (Reduction of Toxicity, Mobility, and Volume through Treatment). Alternative 2 involves moving the contamination from one location to another and only will reduce mobility. Soil Cleanup Alternative 2 will be protective of human health and the environment and provide short and long term protection through restricted site use and contaminant removal. It is easily implemented, meets the **ARARs** and is regulatory approved. Therefore, considering cost and potential risk, the Navy prefers Soil Cleanup Alternative 2.

The levels of contaminants in the groundwater are very low and limited in extent, which has been proven to be difficult to cleanup in a cost-effective manner. Groundwater contamination at sites similar to **PSC 46** is often allowed to naturally attenuate if there is no significant health or environmental risk. At **PSC 46** the **HHPRE** and the **ERA** indicate that the risks posed are small if the site is properly controlled. At **PSC 46**, Groundwater Cleanup Alternative 2 best meets the cleanup alternatives (see Table 3). Considering the chemical concentrations and the potential risk scenarios, the Navy prefers Groundwater Cleanup Alternative 2, which will be protective of human health and the environment, provides short-term protection through restricted use of groundwater, meets Federal and State requirements, and will reduce **COCs** naturally, which will provide long term protection and permanence and comply with the requirement to reduce toxicity, mobility, or volume through passive treatment.

The FDEP and USEPA were involved in the selection of the preferred cleanup alternative. However, formal acceptance will be made after the public comment period with their approval of the **Record of Decision (ROD)**. As part of the community acceptance process, the Navy welcomes comments on the preferred cleanup plan and on the other alternatives that were evaluated.

A Closer Look at the Navy's Proposed Cleanup Plan

1. Institutional Controls

Remedies that include land use controls (LUCs) leave hazardous substances in place that pose a potential future risk and will require land use controls for an indefinite period of time. NAS Jacksonville, in conjunction with the USEPA and FDEP, has developed a Land Use Control Assurance Plan (LUCAP) to ensure that land use restrictions are maintained and periodically verified. The site-specific **LUCIP** referenced in this Proposed Plan will provide specific measures required for LUCs. NAS Jacksonville is responsible for implementing, monitoring, maintaining, reporting on, and enforcing the LUC element of the cleanup action. The **LUCIP** will remain effective as needed to be protective of human health and the environment.

For soil contamination, base maps, land-use plans, and the **LUCIP** for land in the vicinity of **PSC 46** will state that exposure to soil may pose a health risk. The purpose of the LUC is to prevent residential development and unauthorized construction

Table 3
Summary of Comparison of Soil and Groundwater Cleanup Alternatives

Proposed Plan, DRMO
Naval Air Station Jacksonville
Jacksonville, Florida

Nine Criteria ⁽¹⁾	Soil Cleanup Alternative		Groundwater Cleanup Alternative	
	1 No Action	2 Excavation, Disposal, and Institutional Controls*	1 No Action	2 Institutional Controls, Monitoring, and Natural Attenuation*
Protects human health and the environment	X ⁽²⁾	✓	X ⁽²⁾	✓
Meets Federal and State requirements	X ⁽²⁾	✓	X ⁽²⁾	✓
Provides long-term protection and permanence	X	✓	X	✓
Reduces toxicity, mobility, or volume through treatment	X	X	X	X
Provides short-term protection	X	✓	✓	✓
Implementability	✓	✓	✓	✓
State acceptance	X	✓	X	✓
Community acceptance	To be determined after the public comment period and discussed in the ROD.			
Estimated cost (present worth)	\$0	\$1,649,000	\$0	\$208,000
Time to reach cleanup goals (in years)	5 ⁽³⁾	1	5 ⁽³⁾	5 ⁽³⁾
Notes:				
⁽¹⁾ Remedial alternatives are examined with respect to the nine criteria set forth by CERCLA and factors described in the USEPA RI/FFS Guidance Manual.				
⁽²⁾ Mechanisms would not be in place to determine whether the alternative would comply with ARARs or achieve the RAO .				
⁽³⁾ Due to the low level of groundwater contamination, it is anticipated that groundwater contamination will be mitigated by removal of impact soil and will be below cleanup criteria in a relatively short time factor. For costing purposes, the Navy has included five years of monitoring. Monitoring may be discontinued if cleanup criteria are achieved in four successive monitoring events.				
X : Does not meet criterion ✓ : Meets criterion * : Preferred cleanup alternative				

and excavation. **PSC 46** would be included in the current **LUCIP** at NAS Jacksonville and monitored four times a year to assure that measures, such as signs, are maintained. Routine site sampling will not occur because metal concentrations in the soil are not expected to change for several decades. Warning signs will be posted along the boundary of **PSC 46** to warn NAS Jacksonville personnel and workers of the hazards associated with the site.

For groundwater contamination, **PSC 46** will be added to the **LUCIP** program and land-use plans would show that groundwater is not safe to drink. The Navy will formally request that the St. Johns River Water Management District (SJRWMD) not issue permits for the installation of potable wells in the **surficial aquifer**. SJRWMD would be reminded annually of the **PSC 46** groundwater contamination and groundwater use restrictions. These restrictions would be removed only when a five-year review indicates, based on the groundwater monitoring results, that the **PSC 46** cleanup levels have been achieved.

2. Natural Attenuation and Long-Term Monitoring

Groundwater will be monitored for contamination breakdown to assess the effectiveness of **natural attenuation** as a treatment for the **surficial aquifer** at **PSC 46**. Eight existing or replacement monitoring wells would be used for groundwater monitoring. These wells are shown on Figure 2. The proposed monitoring program will begin with quarterly sampling for the first two years and semi-annual sampling in years three and four. The Navy

will evaluate the monitoring frequency for changes after the fifth year. Chemical concentrations and movement of the groundwater will be monitored. Groundwater monitoring will continue until cleanup is complete or, unless during a five-year review, site conditions suggest that a different cleanup method should be considered.

Surface water monitoring will not be performed at **PSC 46** as part of the **CERCLA** process. Potential contamination of surface water from soils will be greatly reduced by the removal of contaminated soils in the ditches. Since the ditches are storm water conveyance features, surface water monitoring will be conducted in accordance with the Navy's **National Pollution Discharge Elimination System (NPDES)** permit.

3. Groundwater and Surface Water Monitoring Reporting

Groundwater monitoring reports will be prepared to document contamination levels and **natural attenuation** conditions after each monitoring event. The concentrations of **COCs** will be compared to the **PRGs** to evaluate if concentrations are being reduced within the expected duration of the cleanup.

4. Five-Year Reviews

The cleanup alternative selected for **PSC 46** will be reviewed along with the other Installation Restoration sites during the five-year reviews. Statutory five-year reviews are required at NAS Jacksonville due to the Superfund Amendments and Reauthorization Act (SARA) of 1986. The next scheduled five-year review for NAS Jacksonville is due on March 6, 2005.

Based on the information currently available, the Navy believes that the above proposed cleanup plan provides the best cleanup method and expects it to satisfy the following statutory requirements of **CERCLA** §121(b): (1) be protective of human health and the environment; (2) comply with **ARARs**; (3) be cost effective; (4) use permanent solutions to the maximum extent practical; and (5) satisfy the preference for active clean up.

Agency Concurrence

The Navy selected the preferred cleanup alternative in concurrence with both the USEPA and FDEP. These agencies will issue formal acceptance after public participation is concluded.

What Impacts Would the Selected Cleanup Alternative Have on the Local Community?

The local community beyond the borders of **PSC 46** and NAS Jacksonville are not expected to be affected by the cleanup. However, with any contaminated site there are a few potential situations that may affect the local community. The following are impacts of the preferred cleanup alternative:

- Soil Cleanup Alternative 2 and Groundwater Cleanup Alternative 2 actions do not immediately achieve safe levels as determined by the FDEP and USEPA and will require administrative action (**LUCIP**) to restrict land (prevent residential use) and groundwater use. For Soil Cleanup Alternative 2, the site would be restricted for hundreds of years.
- Soil Cleanup Alternative 2 and Groundwater Cleanup Alternative 2 will involve removing contaminated material off-site for disposal and may pose a risk to nearby communities. However, measures (e.g., use of experienced transporters, use of containers to prevent releases) will be taken to reduce and control these risks.

Why Does the Navy Recommend this Proposed Plan?

The preferred cleanup alternative is recommended for the following reasons:

- With the controlled access at **PSC 46** and the **LUCIP** program currently in place at NAS Jacksonville, it is expected that the proposed cleanup actions provided by Soil Cleanup Alternative 2 are satisfactory for the protection of human health. If the land use changes from industrial to residential, other cleanup strategies may be considered.
- Due to the wide range of **COCs** in soil, on-site treatment technologies are not feasible. As a result, excavation and disposal represent the only method that will meet the **PRGs**.
- **PSC 46** does not currently provide a significant ecological habitat and future land use is expected to remain industrial in nature.
- Groundwater at **PSC 46** is contaminated above regulatory criteria and presents a potential human health hazard. However, the levels of **COCs** are relatively low and the extent of contamination is limited. **Natural attenuation** has been evaluated at **PSC 46** and appears to be an effective cleanup method. Therefore, Groundwater Cleanup Alternative 2 is recommended as a feasible and cost effective alternative for the cleanup of groundwater at **PSC 46**.

Next Steps:

The Navy will consider and address all significant public comments received during the comment period. The responses to written comments will be included in the Responsiveness Summary, included in the **ROD**. After the **ROD** is signed, it will be made available to the public at the **information repository** at Webb Wesconnet Branch of the Jacksonville Public Library, 6887 103rd Street, Jacksonville, Florida.

Glossary of Terms

This glossary defines the terms used in this Proposed Plan. The definitions in this glossary apply specifically to this Proposed Plan and may have other meanings when used in different circumstances.

Applicable or Relevant and Appropriate Requirements (ARARs): The Federal, State, and local environmental rules, regulations, and criteria that must be met by the selected cleanup action under **CERCLA**.

Chemicals of Concern (COCs): A substance detected at a level and/or in a location where it could have an adverse effect on human health and the environment.

Chemicals of Potential Concern (COPCs): A substance detected at a level and/or location that was determined during the **RI** to possibly have the potential for adverse effects on human health and the environment.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A Federal law also known as "Superfund." This law was passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). This law created a special tax that goes into a trust fund to investigate and cleanup abandoned or uncontrolled hazardous waste sites. However, Federal facilities are funded separately.

Contaminant plume: An area of groundwater with levels of one or more **COCs** greater than those authorized by federal, state, and local environmental regulations.

Defense Reutilization and Marketing Office (DRMO): A Navy organization responsible for the sale of surplus materials to the general public.

Ecological Risk Assessment (ERA): An evaluation of current and future potential for adverse environmental effects from exposure to site contaminants.

Focused Feasibility Study (FFS): A report that presents the development, analysis, and comparison of cleanup alternatives.

Groundwater Cleanup Target Levels (GCTLs): Groundwater quality levels established by the Florida Administrative Code. Contaminant levels exceeding these values must be reduced to below these values.

Human Health Preliminary Risk Evaluation (HHPRE): An evaluation of current and future potential for adverse human health effects from exposure to site contaminants.

Information Repository: The public location for community access of documents regarding the installation cleanup activities. The NAS Jacksonville **information repository** is located at the Webb Wesconnet Branch of the Jacksonville Public Library, 6887 103rd Street, Jacksonville, Florida.

Institutional Controls: Administrative measures taken to restrict site access, current land use or future development, or groundwater use. Typical **institutional controls** consist of deed restrictions. **Institutional controls** concerning land development are also referred to as land use controls.

Land Use Control Implementation Plan (LUCIP): The institutional control program in place at NAS Jacksonville that prohibits land use and restricts site access.

Metals: A naturally occurring inorganic mineral.

National Pollution Discharge Elimination System (NPDES): Federal regulation designed to control point sources and non-point source discharges to land surfaces and surface water bodies.

National Priorities List: The list of select national **CERCLA** sites.

Natural Attenuation: A cleanup technique, which relies on the natural breakdown of groundwater contamination to significantly reduce the levels of contaminants in soil or groundwater.

Operable Unit (OU): **CERCLA** designation used for remedial actions which apply to the entire site. Used for site/project planning and tracking.

Pesticides: A chemical used to kill pests, especially insects.

Polychlorinated Biphenyls (PCBs): A toxic chemical commonly used in lubricants with high insulating capacity.

Potential Source of Contamination (PSC): An area where environmental contamination was identified.

Preliminary Remedial Goal (PRG): An acceptable level of contaminants based on environmental regulatory guidelines.

Radiological (RAD): A naturally occurring inorganic mineral which emits ionizing radiation.

Record of Decision (ROD): An official document that describes the selected cleanup action for a specific site. The **ROD** documents the cleanup selection process and is issued by the Navy following the public comment period.

Remedial Action Objective (RAO): A cleanup objective agreed upon by the **NAS Jacksonville Partnering Team**. One or more **RAOs** are typically formulated for each environmental site.

Remedial Investigation (RI): A report that describes the site, documents the type and location of environmental contaminants, and presents the results of the risk assessment.

Semi-volatile Organic Compounds (SVOCs): Organic compounds that slightly evaporate at normal air temperatures. Typical **SVOCs** include naphthalenes.

Soil Cleanup Target Levels (SCTLs): These are regulatory levels established to guide cleanups for sites in Florida.

Surficial Aquifer: A layer of groundwater that is separated from deeper groundwater by a confining formation. At **PSC 46**, the **surficial aquifer** typically extends from approximately 5 feet below ground surface to approximately 50 feet below ground surface.

Volatile Organic Compounds (VOCs): Organic compounds that evaporate readily at normal air temperatures. Typical **VOCs** include the light fraction of gasoline (benzene, toluene, xylenes) and low molecular weight solvents, such as trichloroethene.

Submitting Formal Comments

During the 30-day comment period, the Navy will accept written comments and hold a public meeting where community members can ask questions or voice concerns.

Written comments should be sent to:

Mr. Bill Dougherty
Public Affairs Office, Box 2
Naval Air Station Jacksonville
Jacksonville, Florida 32212-5000
Phone: (904) 542-4032, Fax: (904) 542-2413

The Navy will review comments received at the meeting and written comments received during the comment period before making a final clean-up decision. Written comments will be included in the Responsiveness Summary contained in the **ROD**.

For More Detailed Information

To help the public understand and comment on the preferred cleanup alternative for the site, this document summarizes a number of reports and studies. The technical and public information documents prepared to date for the site are available at the following **information repository**:

Webb Wesconnet Branch
Jacksonville Public Library
6887 103rd Street
Jacksonville, Florida
(904) 778-7305



