



## Naval Air Station Pen: Installation Restoration Program (IRP)

*This is one in a series of fact sheets informing interested citizens about the environmental investigations and remedial actions at NAS Pensacola. Other fact sheets will be written at appropriate points in the program and in response to public interest. Distribution is coordinated through the Public Affairs Office at NAS Pensacola, (904) 452-2311.*

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### FACT SHEET 10: U.S. Navy Final Proposed Plan Site 2 (Operable Unit 3), Naval Air Station, Pensacola

#### INTRODUCTION

The U.S. Navy, as the lead agency cleaning up Naval Air Station (NAS) Pensacola, is issuing this **Proposed Plan** for Site 2 (Operable Unit 3) — Waterfront Sediments — to provide an opportunity for public comment on cleanup alternatives. The Navy, in consultation with the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP), will not select a final alternative until public comment has been considered.

The Navy issues this proposed plan as: 1) part of its public participation program as defined by the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** section 117(a), and 2) to encourage community involvement in the remedial alternative selection. The plan provides background information on the site, describes the alternatives evaluated, and presents the preferred alternative (monitoring). Also, this plan outlines the public's role in helping the Navy make a **final** decision.

Words that first appear in bold print are defined in the glossary, starting on page 7.

This plan summarizes information described in the *Final Remedial Investigation (RI) Report, Final Focused Feasibility Study (FFS)* and other documents contained in the Administrative Record. The record and **Information Repositories** for NAS Pensacola may be found at the following locations:

**NAS Pensacola Library**  
**Building 633**  
**Hours of Operation:**  
**M-F:** 8 a.m. to 6 p.m.  
**Sat:** 9:30 a.m. to 5 p.m.

**John C. Pace Library**  
**University of West Florida**  
**Hours of Operation:**  
**M-Th:** 8 a.m. to 10 p.m.  
**Fri:** 8 a.m. to 5 p.m.  
**Sat:** 9 a.m. to 5 p.m.  
**Sun:** 10 a.m. to 9 p.m.

#### COMMUNITY PARTICIPATION

The U.S. Navy relies on public comments to ensure that the selected alternative is fully understood and that community concerns have been considered. The U.S. Navy will be accepting written comments from December 8, 1997, to January 22, 1998, to encourage public participation in the selection process. The **comment period** includes the opportunity for a public meeting at which the Navy would present the Proposed Plan and supporting studies, answer questions, and receive comments from the public. The meeting will be held if there is a timely request from members of the public to have such a meeting. Comments will be summarized and responses provided in the **responsiveness summary** section of the **Record of Decision (ROD)**. Written comments can be sent to the following person, along with any requests for additional information:

Commanding Officer  
NAS Pensacola. Code 00500  
Attn: Ron Joyner  
190 Radford Blvd  
Pensacola, Florida 32508-5217

**SITEBACKGROUND**

NAS Pensacola was placed on USEPA's National Priorities List (NPL) in December 1989. CERCLA governs cleanup for sites on this list. In addition, an environmental permit was issued in 1988 under the Resource Conservation and Recovery Act (RCRA). This permit ensures that ongoing activities are environmentally sound and that any spills or leaks of hazardous waste and/or constituents are investigated and cleaned up. The Federal Facilities Agreement (FFA), signed in October 1990, outlines NAS Pensacola's regulatory path through these federal laws. Operable Unit 3, which consists of Site 2, is one of 13 operable units within NAS Pensacola. The purpose of each operable unit is defined in the FY 1997 Site Management Plan for NAS Pensacola, which is in the Administrative Record.

**Site 2 Description**

Site 2 is on the southeastern shoreline of NAS Pensacola, along Pensacola Bay (Figure 1). The site consists of near-shore sediments along the waterfront. From 1939 to 1973, untreated industrial wastes from Naval Aviation Depot and Naval Air Rework Facilities operations were routinely discharged into Pensacola Bay near Site 2. Over 34 years, an estimated 83 million gallons of the following materials were disposed of in the bay: waste-containing paint, paint solvents, thinners, ketones, trichloroethylene, alodine, mercury, and concentrated plating wastes (primarily chromium, cadmium, lead, nickel, and cyanide). Other potential impacts may have occurred from vessel operations at the pier and docks in the immediate area. Additionally, offsite sources (other non-Navy vessels or operations) may have impacted the site due to the fluctuating nature of bay waters and sediment.

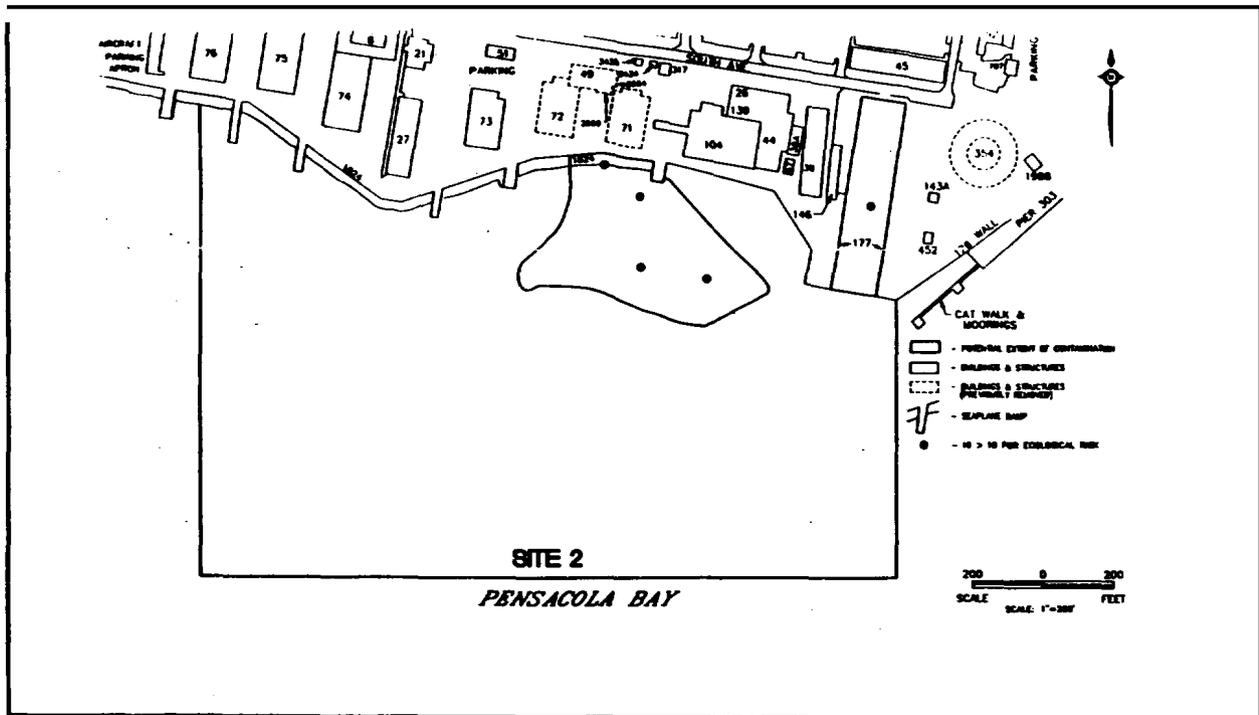


Figure 1 Site Map

**REMEDIAL INVESTIGATION (RI) SUMMARY**

According to the final RI report, most contaminants were in the northeast portion of Site 2. Findings from the final RI report are categorized by environmental medium (such as surface water and sediment) and discussed below.

**Surface Water:** Pensacola Bay is a surface water body. Analytical data indicate surface water is not contaminated at or near Site 2. Only two chemicals exceeded federal or state criteria in surface water. Silver exceeded the state criteria in 18 of 21 samples. However, the detections may be the result of the salt content in the bay water. The other chemical (2,4,6-trichlorophenol; 10 ppb) was detected and exceeded the criteria (6.5 ppb) in only one of the 21 samples, indicating it is not widespread.

**Sediment:** Metals, PAHs, pesticides, and polychlorinated biphenyls (PCBs) were present in Site 2 sediment. Based on contaminant distribution, the final RI report indicates five locations that pose a risk to ecological receptors.

**RISK CHARACTERIZATION**

Federal regulations require a Baseline Risk Assessment (BRA) to determine if an NPL site poses an unacceptable human health or environmental threat if no cleanup measures are taken. This study provides a basis for determining whether cleanup is needed and what the cleanup levels should be. The BRA for Site 2 addresses both ecological and human health exposure. This study is in the Final Remedial Investigation Report.

Incremental lifetime cancer risk (ILCR) refers to the cancer risk over and above the background cancer risk in unexposed individuals. ILCRs are determined by multiplying the intake level with the cancer potency factor. Child and adult exposure to potential carcinogens is combined for a lifetime weighted average (LWA) to calculate ILCR. The calculated risk probability is typically expressed in scientific notation (e.g., 1E-6). For example, an ILCR of 1E-4 means that one additional person out of ten thousand may be at risk of developing cancer due to excessive exposure at a site if no actions are conducted. The USEPA acceptable target risk range is 1E-4 to 1E-6. Florida's acceptable risk is 1E-6. Potential concern for noncarcinogenic effects of a single contaminant in a single medium is expressed as the hazard quotient (HQ). By adding the HQs for all contaminants within a medium or across all media to which a given population may reasonably be exposed, the hazard index (HI) can be generated. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. The HI refers to noncarcinogenic effects and is the ratio for the level of exposure to an acceptable level for a contaminant of potential concern. An HI greater than or equal to 1.0 indicated that there may be a concern for noncarcinogenic health effects. Table 1 summarizes the total ILCRs and HIs calculated for Site 2.

**Human Health:** Because Site 2 is in Pensacola Bay and the area is not suitable for recreational swimming because of the shipping channel, there is no viable pathway for human exposure to contaminants detected at Site 2. The only potential excess risk to humans at Site 2 is from recreational crabbing. Table 1 summarizes the risk projections based on tissue ingestion. The ILCR is based on the maximum levels detected, and would therefore, overestimate risk.

**Table 1  
Risk Projections for COPCs Based on Crab Tissue Ingestion**

	Child	Adult
HI	<b>0.7</b>	<b>0.2</b>
ILCR LWA		<b>3E-06</b>

**Notes:**

- HI = hazard index
- ILCRLWA = Incremental Lifetime Cancer Risk Lifetime Weighted Average (Combined Child and Adult Exposure)

Bold values indicate risk levels that exceed acceptable levels.

**Ecological Risk:** Effects to marine organisms have occurred or are presently occurring due to sediment contaminant concentrations in certain areas across Site 2. Contaminant levels greater than an HQ of 1 did not correlate to observed benthic community changes or to the results of the toxicological tests. The ecological risk assessment determined five areas or stations (A2, F3, H1, H3, and I0) where adverse ecological effects are likely to occur based on a hazard index greater than 10. The ecological effects matrix is summarized in Table 2.

Because contaminated sediment poses an unacceptable risk to the ecological environment at Site 2, remedial alternatives have been developed to address this risk. The remedial objective for Site 2 sediments is to protect the ecological environment from adverse effects due to sediment contamination.

**Table 2  
Ecological Effects Assessment Matrix**

<b>Variable</b>	<b>A2</b>	<b>D2</b>	<b>D4</b>	<b>F1</b>	<b>F3</b>	<b>H1</b>	<b>H3</b>	<b>I0</b>	<b>Q2</b>	<b>U2</b>
<b>Total H1 &gt; 10</b>	*				*	*	*	*		
<b>Metals HI &gt; 10</b>	*						*	*		
<b>Organics H1 &gt; 10</b>								*		
<b>BEHPHI &gt; 10</b>								*		
<b>&lt; mean Diversity Index</b>	*			*	*	*	*	*		*
<b>&gt; mean % Polychaeta</b>	*					*		*		
<b>&gt; 40% Indicator Species</b>	*				*	*	*	*		
<b>Mysid Toxicity</b>				*	*	*	*	*		
<b>Fish Toxicity</b>	*				*	*	*	*	*	*

**Notes:**

- \* = Indicates a positive response to selected variable.
- > = greater than
- < = less than

**COMPARISON OF ALTERNATIVES**

This section presents four remedial alternatives identified in the Site 2 FFS for cleaning up this site; for a detailed analysis of these alternatives, refer to the Site 2 Final Focused Feasibility Study, in the record. All four were evaluated on nine criteria, and one alternative (Monitoring) has been proposed as the alternative of choice. No decision will be made until after public comments have been considered.

**\*Alternative 1 – No Action:** Consideration of this alternative is required. Under the no-action alternative, contaminated sediment would be left in place. This alternative poses no risk to people.

**•Alternative 2 – Capping:** Subtidal capping involves placing a clean sand layer over the sediment to isolate contaminants and limit their migration upward and into the water. In addition to limiting migration, a cap would also limit the potential for marine organisms to reach the contaminated sediment. Capping would cause an immediate acute adverse impact to the bottom-dwelling organisms in that area because it would bury them, but, would ultimately limit the long-term impacts.

**•Alternative 3 – Dredging and Offsite Disposal:** The five hot spots associated with the site could be dredged to remove the contaminated sediment, eliminating future adverse effects to the ecological system. Dredged sediment would be disposed of offsite in an approved facility. Although this alternative would result in an immediate adverse impact to the bottom-dwelling organisms, it would ultimately limit the long-term effects to the ecological system in that area.

**•Alternative 4 – Monitoring:** This alternative is not the same as 'no action,' even though the contaminated sediment would be left in place. A monitoring program will assess whether sediment levels are decreasing, if new sediment is being deposited, and whether toxic effects to organisms are decreasing. This alternative poses no risk to people and no excess risk to the ecosystem.

## Criteria for Evaluating Remedial Alternatives

In selecting a preferred cleanup alternative, the Navy uses the following criteria to evaluate each of the alternatives developed in the Feasibility Study. The first two criteria are essential and must be met before an alternative is considered further. The next five are used to further evaluate all options that meet the first two criteria. The final two criteria are used to further evaluate the Navy's proposed plan after the public comment period has ended and comments from the community, USEPA, and Florida have been received. All nine criteria are explained in more detail here.

•**Overall Protection of Human Health and the Environment** – Assesses degree to which alternative eliminates, reduces, or controls health and environmental threats through treatment, engineering methods, or institutional controls.

•**Compliance with Applicable or Relevant and A — Requirements (ARARs)** – Assesses compliance with Federal/State requirements.

•**Cost – weighing of benefits** of a remedy against the cost of implementation.

•**Implementability** – Refers to the technical feasibility and administrative case of a remedy.

•**Short-Term Effectiveness** – Potential impacts of construction or implementation of the remedy, in the process of achieving cleanup goals.

•**Long-Term Effectiveness and Performance** – Degree to which a remedy can maintain protection of health and environment once cleanup goals have been met.

•**Reduction of Toxicity, Mobility, or Volume Through Treatment** – Refers to expected performance of the treatment technologies to lessen harmful nature, movement, or amount of contaminants.

•**State Acceptance** – Consideration of State's opinion of the preferred alternatives.

•**Community Acceptance** – Consideration of public comments on the Proposed Plan.

### Overall Protection of Human Health and the Environment

No human health risks are expected at Site 2 due to sediment contamination. Access controls are currently enforced at the site and there is no direct contact with the contaminated sediment. Therefore, compliance with this criterion for each alternative does not have to be further demonstrated.

Each of the four alternatives protects the environment in varying degrees. The no-action alternative does not address contaminants in sediment. Alternative 4 seeks to quantify threats to the environment from the Site 2 area and involves monitoring. Alternatives 2 and 3 afford long-term protection of the environment, but will initially destroy the ecology in those areas where the alternatives are being implemented.

### Compliance with Federal/State ARARs

Alternatives 1 and 4 comply with ARARs. Alternatives 2 and 3 incur restrictions for dredge and fill material in navigable waters. Both Alternatives 2 and 3 protect the environment against chronic effects; Alternative 2 removes the risk to bottom-dwelling organisms by capping the site, thus preventing organisms from burrowing into the contaminated sediment layer while Alternative 3 eliminates risk to the environment through dredging the contaminated sediment and disposing of it offsite. Alternative 4, as a management alternative, monitors the site. Compliance with action- and location-specific ARARs for Alternatives 2 and 3 is anticipated and easily attainable.

### Long-Term Effectiveness and Permanence

Alternatives 1 and 4 have no long-term effectiveness, because no remedial actions are taken. Alternative 2 isolates the contaminated sediment, reducing contact with marine life. However, it is anticipated that the sand-and-gravel cap will need to be monitored and repaired. Risk to the environment is eliminated in Alternative 3 by dredging and removing sediment contamination.

**Treatment to Reduce Toxicity, Mobility, or Volume**

Alternatives 1 and 4 do not reduce toxicity, mobility, or volume of contaminants through treatment. Alternative 2 could reduce mobility by preventing movement and immobilizing metals. Alternative 3 is the only alternative which includes a treatment technology to reduce the volume of contaminated sediment.

**Short-Term Effectiveness**

No short-term effectiveness issues are associated with Alternatives 1 or 4. Both Alternatives 2 and 3 have short-term issues associated with implementation. In both alternatives, all marine life would initially be destroyed in areas where the remedial actions are being implemented. In these alternatives, exposures to workers and the Site 2 surroundings can be controlled using engineering controls and proper personal protective equipment during dredging and capping. Duration of field activities for both Alternatives 2 and 3 is relatively short.

**Implementability**

All four alternatives are implementable at Site 2. Each alternative is technically and administratively feasible. The capping alternative would require a remedial design investigation before implementation. Current velocities and directions, and the potential for possible erosion of the cap need to be evaluated. The dredging alternative requires multiple handling of the contaminated sediment, dewatering, soil washing, and transportation to an offsite facility. However, these alternatives do not require extraordinary services or materials. Alternative 4 would require monitoring and a management plan for making decisions regarding monitoring parameters and objectives of sampling.

**Cost**

Capital (direct and indirect), operations and maintenance (O&M), and net present-worth costs for all four alternatives are presented in Table 3:

Table 3

Alternative	Variables	Direct and	Annual O&M	Total Net
Alternative 1	None	\$0	\$0	\$0
Alternative 2	No net erosion	\$903,000	\$10,000	\$913,000
	10% material loss	\$903,000	\$98,500	\$2,259,000
	20% material loss	\$903,000	\$187,000	\$3,477,000
	Each additional 10% loss	—	+ \$88,500	+ \$1,218,000
Alternative 3	1-foot excavation depth	\$1,007,000	—	\$1,007,000
	2-foot excavation depth	\$1,857,000	—	\$1,857,000
	Each additional foot of	\$850,000	—	\$850,000
Alternative 4	Initial event + monitoring	\$103,000	\$41,600	\$203,000

**Note:**

a = Present worth is based on 30-year's O&M using a 6% discount rate.

**State Acceptance**

The state has been involved in activities at the site. The Navy will obtain concurrence from Florida on the selected alternative.

**Community Acceptance**

The community's acceptance will be assessed following the public comment period.

**PREFERRED ALTERNATIVE**

Based on the comparison of alternatives in the FFS, the Navy has identified Alternative 4 as its preferred course of action. This alternative would be protective, cost-effective, and attains all federal and state requirements. Because this remedy results in hazardous substances remaining onsite above ecological health-based levels, a review will be conducted within five years of the start of the remedial action to ensure that the remedy continues to protect human health and the environment. However, the Navy, in consultation with the USEPA and the FDEP, will not select a final alternative until public comment has been considered. The public comment period is described on Page 1 of this fact sheet.

## GLOSSARY

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

**Baseline Risk Assessment:** A study that supplements a remedial investigation to determine the nature and extent of contamination at an NPL site and the risks posed to public health and/or the environment.

**Cleanup:** Actions taken to deal with a release or threatened release of hazardous substances that could affect public health and/or the environment. The noun "cleanup" is often used broadly to describe various actions or phases such as Remedial Investigation/Feasibility Study.

**Comment period:** A time for the public to review and comment on various documents and actions taken, either by the Department of Defense installation or the USEPA. For example, a comment period is provided when USEPA proposes to add sites to the National Priorities List. A minimum 45-day comment period is held to allow community members to review the Administrative Record and review and comment on the Proposed Plan.

**Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):** A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act created a special tax that goes into a trust fund, commonly known as "Superfund," to investigate and clean up abandoned or uncontrolled hazardous waste sites.

Under the program the USEPA can either:

- Pay for site cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work.
- Take legal action to force parties responsible for site contamination to clean up the site or pay the federal government for the cost of the cleanup.

**Information Repository:** A file containing information, technical reports, and reference documents regarding an NPL site. Information repositories for NAS Pensacola are at The John C. Pace Library at the University of West Florida and the NAS Pensacola Library at Building 633, Naval Air Station, Pensacola, Florida.

**National Priorities List (NPL):** The USEPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response using money from the trust fund.

**Polycyclic Aromatic Hydrocarbons (PAHs):** Semivolatile organic compounds that are by-products of combustion of organic matter (e.g., foods, tobacco, garbage, wood, coal, and petroleum products). PAHs may also be found in asphalt.

**Proposed Plan:** A public participation requirement of SARA in which the lead agency summarizes the preferred cleanup strategy, and the rationale for the preference, reviews the alternatives presented in the detailed analysis of the remedial investigation/feasibility study, and presents any waivers to cleanup standards of Section 121(d)(4) that may be proposed. This may be prepared either as a fact sheet or as a separate document. In either case, it must actively solicit public review and comment on all alternatives under agency consideration.

**Record of Decision (ROD):** A public document that explains which cleanup alternative(s) will be used at NPL sites. The Record of Decision is based on information and technical analysis generated during the remedial investigation/feasibility study and consideration of public comments and community concerns.

**Remedial Investigation/Feasibility study (RI/FS):** Investigation and analytical studies usually performed at the same time in an interactive process. They are intended to: (1) gather the data necessary to determine the type and extent of contamination at a NPL site; (2) establish criteria for cleaning up the site; (3) identify and screen cleanup alternatives for remedial action; and (4) analyze in detail the technology, and costs of the alternatives.

**Resource Conservation and Recovery Act (RCRA):** A federal law *that* established a regulatory system to track hazardous substances from the time of generation to disposal. The law requires safe and secure procedures to be used to treat, transport, store, and dispose of hazardous substances. RCRA is designed to prevent new, uncontrolled hazardous waste sites.

**Responsiveness Summary:** A summary of oral and written public comments received by the lead agency during a comment period on key documents, and the response to these comments prepared by the lead agency. The responsiveness summary is a key part of the ROD, and highlights community concerns for USEPA decision-makers.



*Fold on dotted line, staple, stamp and mail*

Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_ Zip \_\_\_\_\_

Place Stamp Here
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**Commanding Officer  
NAS Pensacola, Code 00500  
Attn: Ron Joyner  
190 Radford Blvd  
Pensacola, Florida 32508-5217**

DEPARTMENT OF THE NAVY

COMMANDING OFFICER  
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**MAILING LIST ADDITIONS/CORRECTIONS**

**If you would like your name and address placed (or corrected) on the mailing list for the Installation Restoration Program at NAS Pensacola, please complete this form and return to Ron Joyner, NAS Pensacola, 190 Radford Boulevard, Code 00500, Pensacola, Florida 32508-5217.**

**NAME:** \_\_\_\_\_

**AFFILIATION:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_