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NAS PENSACOLA
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FINAL PROPOSED PLAN ANNOUNCEMENT FOR INSTALLATION RESTORATION
PROGRAM AT SITE 2 NAS PENSACOLA FL
6/1/2005
NAS PENSACOLA

**Naval Air Station Pensacola
Installation Restoration Program
Site 2 — Operable Unit 3
July 2005**



Navy Announces Proposed Plan

This proposed plan identifies the preferred alternative for sediment at Naval Air Station (NAS) Pensacola Site 2 (Operable Unit 3 — Waterfront Sediments) and provides the rationale for this preference. In addition, this plan includes summaries of other alternatives evaluated for use at this site. This document is issued by the U.S. Navy (the lead agency for site activities). The Navy, in consultation with Florida Department of Environmental Protection (FDEP) and the U.S. Environmental Protection Agency (USEPA), will select a final remedy for the site after reviewing and considering all information submitted during the 45-day public comment period advertised in this document. The Navy may modify the preferred alternative or select another response action presented in this plan based on new information or public comments. Therefore, the public is encouraged to review and comment on each alternative presented in the proposed plan.

This proposed plan summarizes information that is detailed in the 1997 *Remedial Investigation/Focused Feasibility Study (RI/FFS)*, 2004 *Remedial Investigation Report Addendum*, 2004 *Focused Feasibility Study Report Addendum*, and other documents contained in the Administrative Record file for this site. **The Navy, USEPA, and FDEP encourage the public to review these documents to gain a more comprehensive understanding of the site and Superfund activities that have been conducted at the site.**

Dates to Remember

**Public Comment Period:
July 1 — August 14, 2005**

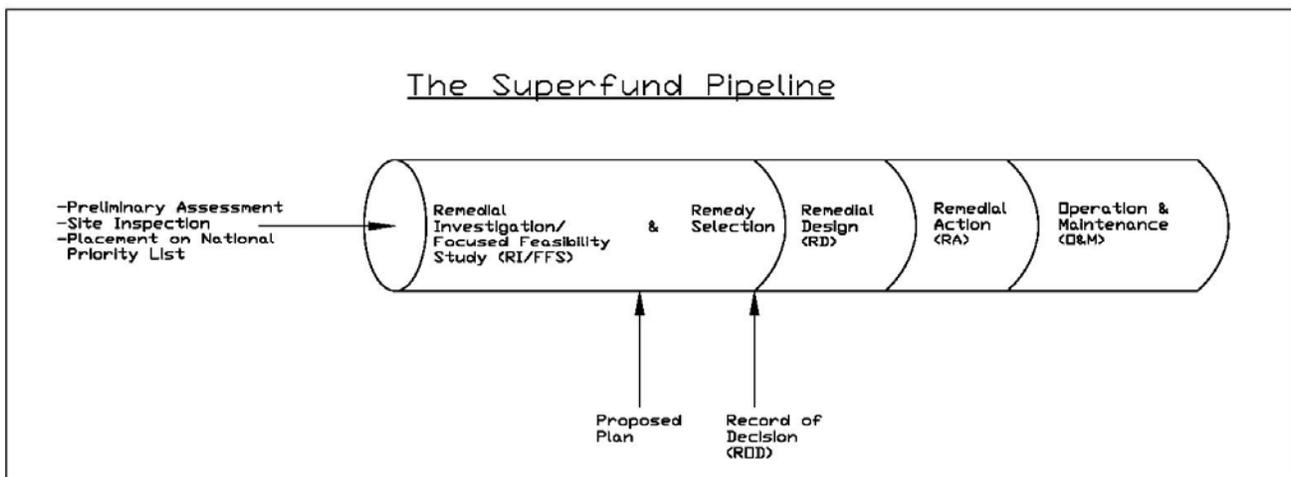
The Navy will accept written comments on the proposed plan during the public comment period.

For more information, see the Administrative Record at the following locations:

NAS Pensacola Library
Building 634
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
M-Thur: 8 a.m. to 10 p.m.
Fri: 8 a.m. to 6 p.m.
Sat: 10 a.m. to 6 p.m.
Sun: 1 p.m. to 5 p.m.

The Navy is issuing this Proposed Plan as part of public participation responsibilities listed under Section 300.430(f)(2) of the National Contingency Plan (NCP).



Site History

NAS Pensacola was placed on USEPA's National Priorities List (NPL) in December 1989. The Comprehensive, Environmental Response, Compensation, and Liability Act (CERCLA) governs cleanup for sites on the NPL. 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 spills or leaks of hazardous waste and/or their constituents are investigated and cleaned up. The Federal Facilities Agreement, signed in October 1990, outlines NAS Pensacola's regulatory path through these federal laws. Site 2 is one of a number of areas at the base being investigated under these programs.

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.

2004 Remedial Investigation Addendum

Before sampling in 2000, the Navy, in conjunction with USEPA and FDEP, developed a decision matrix that is detailed in the *Data Quality Objective Summary* document prepared by the NAS Pensacola Tier 1 Team (January 2001). The matrix outlined the scoring of various potential test responses and developed eight potential conditions for the sediment. Because surface water was not identified as a concern in the 1997 report, only sediment was sampled in 2000. Sediment chemistry, toxicity, and benthic assessment samples were collected from the upper 6 inches of the sediment. In addition, sediment samples were collected at depth for chemistry analysis to determine the condition of the underlying material.

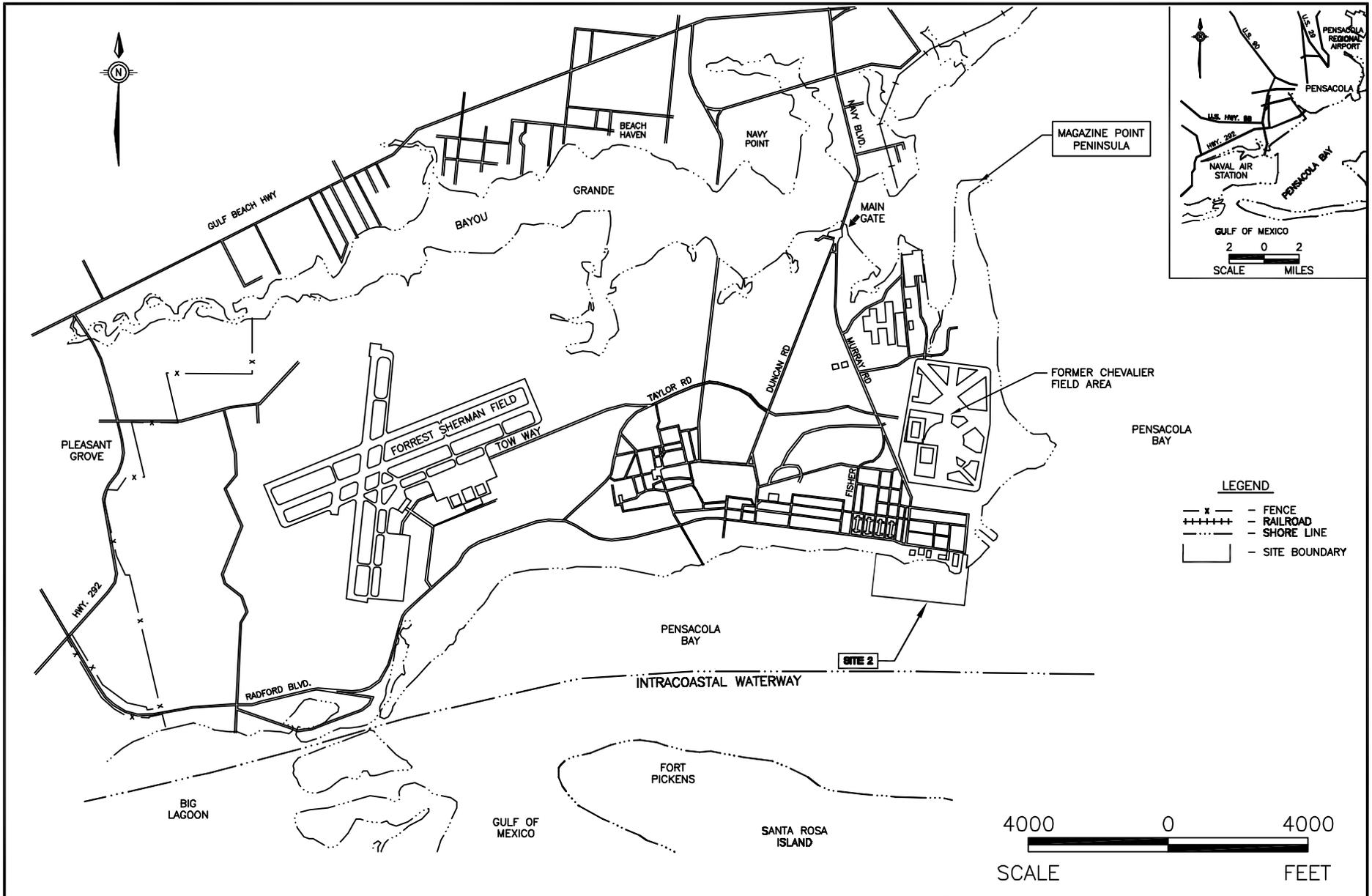
Sediment samples collected in 2000 found contamination at levels that potentially stress the ecology in two of 11 decision units (DUs): areas approximately 150 feet by 150 feet each (see Figure 2). Alternatives to address this contamination were analyzed in the 2004 *Focused Feasibility Study Addendum*. This document outlines the information contained in these new documents and presents a preferred alternative based on the reevaluation.

Site Characteristics

According to the original RI, an estimated 83 million gallons of materials were disposed of in the bay over a 34-year period, ending in 1973. The RI investigated both sediment and surface water at Site 2 for impact. Impact to sediment is screened by comparing the detected concentrations to sediment screening values (SSVs). Compounds with levels that decrease below the SSVs for this site are not of concern; therefore, they are not discussed in this proposed plan.

According to both the 1997 *RI Report* and 2004 *RI Addendum*, sediment is the only medium impacted. The materials that entered the bay included waste-containing paint, paint solvents, thinners, ketones, trichloroethylene, Alodine, mercury, and concentrated plating wastes (primarily chromium, cadmium, lead, nickel, and cyanide).

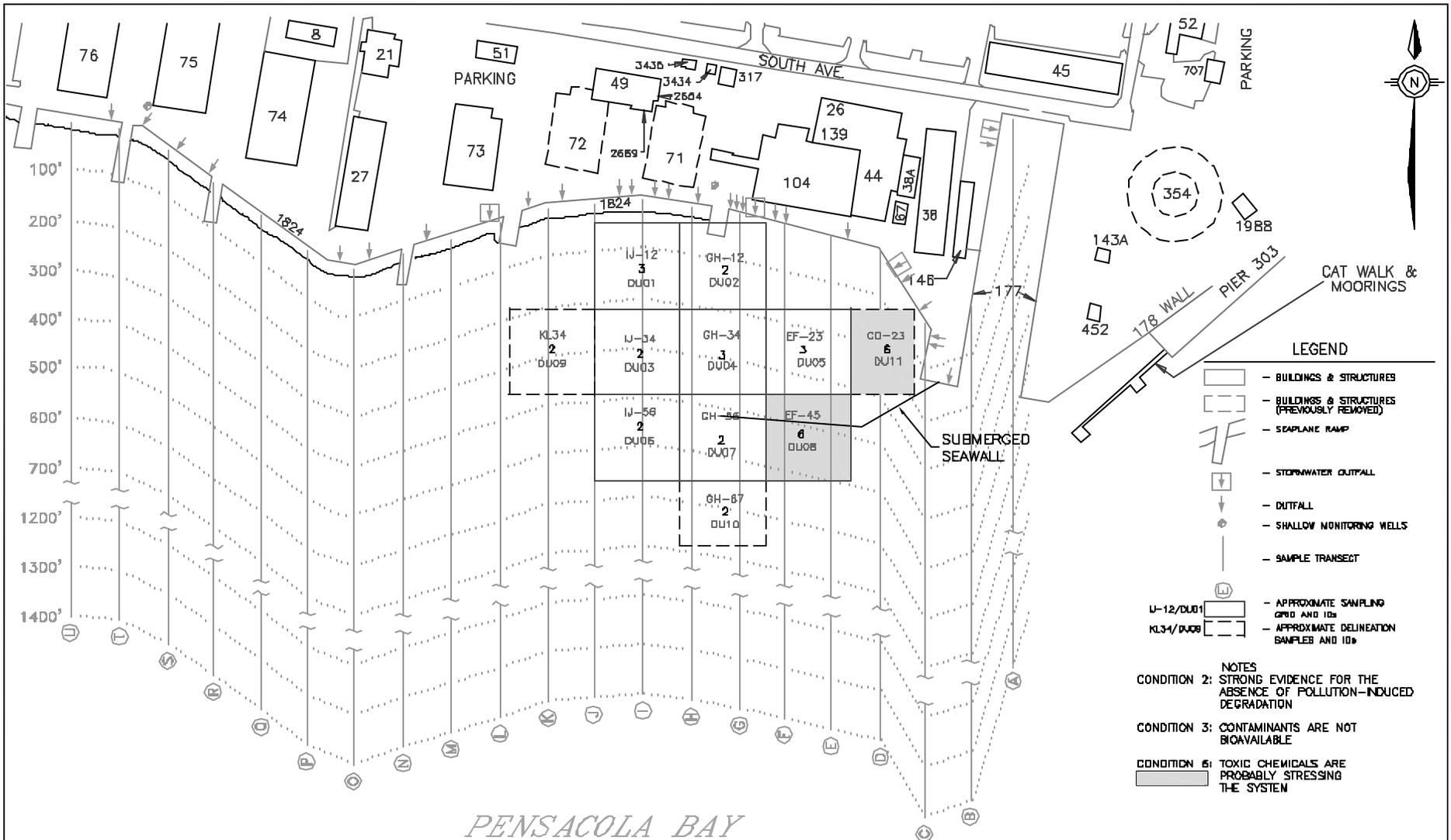
Other potential impacts may have occurred from vessel operations at the pier and docks in the immediate area. Additionally, offsite sources (other non-Navy vessels or operations in Pensacola Bay) may have impacted the site due to the fluctuating nature of bay waters and sediment.




PROPOSED PLAN
NAS PENSACOLA
PENSACOLA, FLORIDA

FIGURE 1
LOCATION MAP

DATE: 11/22/04 NAME: 0059001B020



PENSACOLA BAY



PROPOSED PLAN
 NAS PENSACOLA
 PENSACOLA, FLORIDA

FIGURE 2
 EXTENT OF CONTAMINATION BASED
 ON 2000 SAMPLING DATA
 OPERABLE UNIT 3, SITE 2

The materials entering the bay contained contaminants that fall into the following categories:

- *Inorganic chemicals* are naturally occurring metals that can be toxic in large doses (e.g., mercury, chromium).
- *Semivolatile organic compounds (SVOCs)* are common components of asphalt, coal, tar, and jet and diesel fuels (e.g., thinners, ketones).
- *Polynuclear Aromatic Hydrocarbons (PAHs)* are created when organic matter such as coal, gas, or garbage is burned incompletely. PAHs may move into the environment from the breakdown of asphalt.
- *Polychlorinated biphenyls (PCBs)* are man-made substances once widely used in electrical components.

According to the 2004 *RI Addendum*, metals, PAHs, pesticides, and PCBs were present in Site 2 sediment. Based on contaminant distribution, toxicity testing, and benthic assessment, the following interpretations were made:

Three of the 11 DUs were determined to have contaminants that were not bioavailable. Six of the 11 DUs had strong evidence for the absence of pollution-induced degradation, and two of the 11 150-foot by 150-foot DUs had indications that contaminants are probably stressing the system. Those two DUs showed mean survival rates in the amphipod toxicity tests of 78% and 73%, below the acceptable level of 80%.

RISK ASSESSMENT

Summary of Site Risks

Federal regulations require that a baseline risk assessment (BRA) be conducted to determine if an NPL site poses an unacceptable threat, now or in the future, to human health or the environment. Human health risk assessment was performed for the Site 2 study area. As part of the BRA, studies were conducted to determine where cleanup may be necessary and what the protective levels should be. The full study can be found in the 1997 *RI Report*, which is in the Administrative Record.

Human Health Risk Assessment — To determine potential risks to human health from exposure to contaminants at the site, the BRA was prepared as part of the 1997 *RI Report*. The BRA evaluated both surface water and sediment at the site. Although Site 2 is in Pensacola Bay, the area is not suitable for recreational swimming because of the shipping channel. The 1997 BRA identified recreational crabbing, and subsequent ingestion of the crabs, as the only potential risk to humans. Since that time, fishing and other boating activities are prohibited in the area because the site is located within a Homeland Security restricted zone. Therefore, there is no viable pathway for human exposure to contaminants detected at Site 2.

Ecological Risk Assessment — Effects to marine organisms have occurred or are presently occurring due to sediment contaminant concentrations within two of the 150-foot by 150-foot decision units within Site 2.

Relationships between contaminant concentrations and effects were not clear; however, protective levels for total PAHs in surface sediment were developed. The protective levels ranged from 1,599.8 micrograms per kilogram ($\mu\text{g}/\text{kg}$) to 2,576.5 $\mu\text{g}/\text{kg}$ based on the amphipod test results. The total PAH concentrations in the two DUs identified as causing toxic effects were 2,910.5 $\mu\text{g}/\text{kg}$ and 2,710.5 $\mu\text{g}/\text{kg}$. Relationships could not be identified for the mysid survival, mysid growth or the leptocheirus growth results, nor could they be identified for metals, pesticides, PCBs, and SVOCs.

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 from sediment contamination.

Summary of Remedial Alternatives

Remedial alternatives for Site 2 are presented as follows. The alternatives are numbered to correspond with the FFS addendum report. There are fewer remedial options available for sediment contamination than for other media (i.e., soil, groundwater, and air). Consequently, the available technologies for remediating sediment are very similar.

This section summarizes the four remedial alternatives for this site. For a detailed analysis of these alternatives, refer to the Site 2 *Final Focused Feasibility Study Report Addendum*, in the Administrative Record. All four alternatives were evaluated on nine criteria, and one alternative (Alternative 1: No Action) has been proposed as the alternative of choice. No decision will be made until after public comments have been considered.

Alternative 1: No Action/Sediment Left in Place

Estimated Capital Cost: \$0

Estimated Present Worth of 5-Year Reevaluation for 30 Years: \$45,000

Estimated Present Worth Cost: \$45,000

Estimated Construction Time Frame: None

Regulations governing the CERCLA program require that the no-action alternative be evaluated to establish a baseline for comparison. Under this alternative, the Navy would take no action at the site to mitigate exposure to sediment contamination. The NCP requires any alternative that leaves contamination onsite to be reevaluated every 5 years to ensure adequacy of the alternative. Natural processes (decay, sedimentation, dilution) are expected to reduce site contamination over time.

Alternative 2: Sediment Capping with Constructed Controls

Estimated Capital Cost: \$973,400

Estimated Present Worth of 5-Year Reevaluation for 30 Years: \$208,200

Estimated Present Worth Cost: \$1,834,000

Estimated Construction Time Frame: 1 to 2 years

Under Alternative 2, a 24-inch coarse sand and gravel layer would be placed atop the current sediment at the two 150-foot by 150-foot DUs. Subtidal capping isolates contaminants and limits 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 adverse impact to the bottom-dwelling organisms in that area because it would bury them, but it would ultimately limit the long-term impacts.

Alternative 3: Dredging and Offsite Disposal

Estimated Capital Cost: \$953,800

Estimated Present Worth of 5-Year Reevaluation for 30 Years: \$1,283,000

Estimated Present Worth Cost: \$1,283,000

Estimated Construction Time Frame: 1 to 2 years

In Alternative 3, the two 150-foot by 150-foot DUs can be dredged to remove the surface sediment from the site, eliminating future adverse effects to the ecological system. Because subsurface sediments are potentially contaminated, the dredged areas would be covered with a sand replacement cover. The dredged sediment would be disposed offsite, presumably in an approved Subtitle D facility. Although this alternative would result in an immediate acute adverse impact to the benthic organisms, it would ultimately limit the long-term effects to the ecological system in these areas.

Alternative 4: Long-Term Sediment Monitoring

Estimated Capital Cost: \$64,000

Estimated Present Worth of 5-Year Reevaluation for 30 Years: \$227,000

Estimated Present Worth Cost: \$227,000

Estimated Construction Time Frame: None

Under this alternative, site sediments would remain in place, controls would be implemented to limit access to the site, and the site would be monitored once every 5 years for changes that may affect risk. This alternative poses no risk to human health because of restricted access and relies on the continued prohibition of waste disposal at this site and natural processes within the bay to mitigate risk to benthic organisms. This alternative is different than “no action” because it includes sampling and analysis activities that monitor potential changes in site characteristics. Goals would be set for progress and, if those goals are not met, a decision would be made whether to abandon monitoring in favor of another alternative.

Evaluation of Alternatives

Nine criteria are used to evaluate the different remediation alternatives individually and against each other in order to select a remedy. This section of the proposed plan profiles the relative performance of each alternative against the nine criteria, noting how it compares to the other options under consideration. The nine evaluation criteria are discussed below along with the comparison of each alternative to these criteria. The “Detailed Analysis of Alternatives” can be found in the FFS addendum.

Evaluation Criteria for Superfund Remedial Alternatives

Overall Protection of Human Health and the Environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.

Long-term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment evaluates an alternative’s use of treatment to reduce harmful effects of principal contaminants, the contaminant’s ability to move in the environment, and the amount of contamination present.

Short-Term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Cost includes estimated capital and annual operations and maintenance costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today’s dollar value. Cost estimates are expected to be accurate within a range of +50 to -30%.

State/Support Agency Acceptance considers whether the state agrees with the Navy’s analyses and recommendations, as described in the RI/FFS and the proposed plan.

Community Acceptance considers whether the local community agrees with the Navy’s analyses and preferred alternative. Comments received on the proposed plan are an important indicator of community acceptance.

Criteria	Alternative 1: No Action	Alternative 2: Capping	Alternative 3: Dredging and Offsite Disposal	Alternative 4: Monitoring
Overall Protection of Human Health and the Environment	No reduction in risk to humans or ecological receptors beyond natural processes. However, the site is practically inaccessible because of physical controls and Homeland Security restrictions. Natural processes will slowly lower contaminant levels.	Currently no risk to humans. Capping would likely exterminate benthic organisms in the area, although they would be expected to recolonize in time.	No risk to humans. Remediation workers would have adequate protection. Soil posing risk to be removed and replaced with 12 inches of sand. Benthic organisms would likely be exterminated with dredging but would recolonize.	Using this alternative poses no risk to human health or the environment. Existing sediments are practically inaccessible to people because of physical controls and Homeland Security restrictions. Natural processes will slowly lower contaminant levels.
Compliance with ARARs	No promulgated chemical-specific ARARs are identified for sediment. Does not trigger additional action or location-specific ARARs.	Would require permit, and would trigger Florida and federal requirements. This alternative is expected to comply with these ARARs.	Would require permits from several entities, including DOT for offsite transportation of waste. Compliance is attainable.	No promulgated chemical-specific ARARs are identified for sediment. Does not trigger additional action or location-specific ARARs.
Long-term Effectiveness and Permanence	Long term, contaminants are expected to diminish through natural processes and dilution since the contaminant source stopped over 35 years ago. Toxicity to benthic organisms will also decrease over time.	If the cap is maintained properly, risk to human health and the environment would not be expected. Maintenance of a sand cap in a tidal environment will require considerable attention.	Provides permanent exposure reduction by removing sediments. Navy would have long-term liability from landfilled wastes.	Long term, contaminants are expected to diminish through natural processes and dilution since the contaminant source stopped over 35 years ago. Toxicity to benthic organisms will also decrease over time.
Reduction of Toxicity, Mobility, or Volume through Treatment	No active reduction in toxicity, mobility, or volume. Also, natural processes reduce toxicity and volume over time.	Capping would not remove, treat, or reduce the amount of site sediments. However, capping would immobilize some metal contaminants.	Dredging does not meet statutory preference for reducing toxicity, mobility, or volume through treatment.	Toxicity, mobility, and volume are not treated under this alternative. Natural processes will break down and bury contaminants over time.
Short-Term Effectiveness	No short-term risks.	Capping would likely exterminate benthic organisms in the area, although they would be expected to recolonize.	In the short term, dredging would exterminate benthic organisms, which would be expected to recolonize.	In the short term, this plan would not change current risks to ecology. Human access would remain unlikely as access controls are in place.
Implementability	Feasible and easily implemented. Requires reevaluation every 5 years.	Feasible and can be implemented.	Feasible and easily implemented. Dredging is a common remediation technique for sediments	Feasible and easily implemented. A monitoring program would have to be developed.
Cost	\$45,000	\$1,834,000	\$1,283,000	\$227,000
Support Agency Acceptance	FDEP and USEPA involved in process and have opportunity to comment on the proposed plan.	FDEP and USEPA involved in process and have opportunity to comment on the proposed plan.	FDEP and USEPA involved in process and have opportunity to comment on the proposed plan.	FDEP and USEPA involved in process and have opportunity to comment on the proposed plan.
Community Acceptance	Established after public comment period on the proposed plan.	Established after public comment period on the proposed plan.	Established after public comment period on the proposed plan.	Established after public comment period on the proposed plan.

Summary of the Preferred Alternative

The preferred alternative for Site 2 is Alternative 1, No Action. This alternative was selected based on the nine criteria analysis. There is no risk to humans. Risk to the ecological system is being reduced because the identified Navy source of contamination was stopped, and natural processes are causing decay and dilution of the contamination. Alternative 1 achieves risk reduction through natural processes, will reduce risk in a reasonable time frame, and at a lower cost than the other alternatives, along with providing long-term reliability. In addition, Alternative 1 does not cause short-term damage by exterminating existing benthic organisms.

Based on the information available at this time, the Navy, USEPA, and FDEP agree that this preferred alternative complies with ARARs, is protective of human health and the environment, is cost effective, and uses permanent solutions to the maximum extent practicable. The preferred alternative can change in response to public comment or new information.

Community Participation

The Navy provides information regarding the cleanup of Site 2 to the public through the Administrative Record file for the site, and announcements published in the *Pensacola News Journal*. The Navy, USEPA, and FDEP encourage the public to gain more comprehensive understanding of the site and the Superfund activities that have been conducted at the site.

The dates for public comment period and the locations of the Administrative Record files are provided on the front page of this proposed plan. If a public meeting is requested before the end of the public comment period, the date, location, and time of the meeting will be appropriately announced in the *Pensacola News Journal*.

For further information on Site 2, please contact Greg Campbell at (850) 452-4611, ext. 103.

Glossary

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

Applicable or Relevant and Appropriate Requirements (ARARs) — The federal and state environmental laws that a selected remedy will meet. These requirements may vary among sites and alternatives.

Baseline Risk Assessment (BRA) — A study conducted as a supplement to a remedial investigation to determine the nature and extent of contamination at a site and the risks posed to public health and/or 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 phrases such as RI/FFS.

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 the USEPA proposes to add sites to the NPL. A minimum 45-day comment period is held to allow community members time 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 trust fund, commonly known as “Superfund,” to investigate and cleanup abandoned or uncontrolled hazardous waste sites. Under CERCLA the USEPA can either:

- pay for cleanup when parties responsible for the contamination cannot be located or are unwilling or unable to do the work.
- take legal action to force parties responsible for site contamination to cleanup the site or pay back federal government for cost of the cleanup.

Groundwater — Underground water that fills pores in soils or openings in rocks to the point of saturation. Groundwater is often used as a source of drinking water via municipal or domestic wells.

Information Repository — A file containing information, technical reports, and reference documents regarding an NPL site. The information repository for Site 2 is at the NAS Pensacola Library, Building 634, Naval Air Station Pensacola.

Monitoring — Ongoing collection of information about the environment that helps gauge the effectiveness of a cleanup action.

National Contingency Plan (NCP) — A federal regulation that guides the *National Priorities List* program.

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.

Present Worth Analysis — A method of evaluating expenditures that occur over different time periods. By discounting costs to a common base year, the costs for different remedial action alternatives can be compared on the basis of a single figure for each alternative.

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 RI/FFS and consideration of public comments and community concerns.

Remedial Investigation/Focused Feasibility Study (RI/FFS) — Investigation and analytical studies usually performed at the same time in an interactive process and together referred to as the "RI/FFS." They are intended to (1) gather the data necessary to determine the type and extent of contamination at an 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. Alternately, FFSA means focused feasibility study addendum.

Resource Conservation and Recovery Act (RCRA) — The federal act that established a regulatory system to track hazardous wastes from the time they are generated to their final disposal.

PROPOSED PLAN
PUBLIC COMMENT SHEET
Site 2



Fold on dashed lines, staple, stamp, and mail

Place
Stamp
Here

Name
Address
City _____ State ___ Zip

Greg Campbell
Remedial Project Manager
NAS Pensacola
Code 2200, Building 1754
190 Radford Blvd.
Pensacola, FL 32508-5000



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:

**Harry White
NAS Pensacola Public Affairs Office
Code 00B00
190 Radford Boulevard, Building 191
Pensacola, FL 32508-5217**

NAME:

ADDRESS:

TELEPHONE:

AFFILIATION (If any):

DEPARTMENT OF THE NAVY

COMMANDING OFFICER
CODE 00B00
NAS PENSACOLA
190 RADFORD BLVD.
PENSACOLA, FLORIDA 32508-5217

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