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PROPOSED PLAN SITE 8 NAVAL UNDERSEA SYSTEMS CENTER (NUSC) DISPOSAL AREA NS NEWPORT RI

7/1/2012

NS NEWPORT

Proposed Plan

Site 8 – Naval Undersea Systems Center (NUSC) Disposal Area
Naval Station (NAVSTA) Newport
Newport, Rhode Island

The Proposed Cleanup

This Proposed Plan has been prepared in accordance with federal laws to present the Navy's proposed cleanup approach for Site 8, the NUSC Disposal Area, located at the Naval Station Newport, in Newport, Rhode Island. This plan describes the Navy's proposed cleanup (remedy) for the Site, which after careful study, consists of the following:

- Soil – Selective (limited) **excavation** of soil and waste anomalies and construction of a **soil cover**
- Groundwater – In-situ enhanced **bioremediation** and/or in-situ **chemical oxidation** followed by **monitored natural attenuation** (MNA)
- Sediment – **Dredging and offsite disposal** of sediment from Deerfield Creek and NUWC Pond
- **Land use controls** to limit access and use of the property and use of groundwater
- **Five-year reviews** of the remedy to ensure continued protection of human health and the environment.

This document provides the public with information about the proposed cleanup.

Let us know what you think!

Mark Your Calendar!

PUBLIC COMMENT PERIOD
July 16, 2012 to August 15, 2012

The Navy will accept comments on the Site 8 Proposed Plan during this period. Send written comments, postmarked no later than August 15, 2012, to:

Ms. Lisa Rama
Public Affairs Office
690 Peary Street
Naval Station Newport
Newport, RI 02841
Fax: (401) 841-2265
Lisa.Rama@navy.mil

PUBLIC MEETING AND PUBLIC HEARING
July 18, 2012, 6:30 p.m. to 8:00 p.m.
Hampton Inn & Suites
317 West Main Street
Middletown, Rhode Island

The Navy will hold a public meeting at 6:30 p.m. to provide information about this Proposed Plan. Following a presentation describing the planned site cleanup, the Navy will host an informal question-and-answer session. The Navy will then hold a formal Public Hearing at 7:30 p.m. until all comments on the Proposed Plan are heard. It is at this Hearing that an official transcript of comments will be entered into the record.

For more information, visit the public Information Repository listed at the end of this Proposed Plan.

Introduction

This Proposed Plan provides information on the Navy's preferred cleanup plan for the NUSC Disposal Area (Site 8), at NAVSTA Newport located in Middletown, Rhode Island. This Plan has been prepared to inform the community of the Navy's strategy for the proposed cleanup approach, and to encourage community input on the Proposed Plan and overall environmental cleanup process for Site 8. (Note: A glossary of terms is provided at the end of this document.)

Federal and state environmental laws govern cleanup activities at federal facilities. A federal law called the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), better known as "Superfund", provides procedures for investigating and cleaning up impacts from releases of hazardous materials to the environment. The Navy is implementing cleanup of designated sites at NAVSTA Newport to restore the environmental condition of the property in accordance with provisions of CERCLA. The Navy works closely with the U.S. Environmental Protection Agency (EPA) and the Rhode Island Department of Environmental Management (RIDEM) to achieve this objective. The Navy is the lead agency for all investigation and cleanup programs ongoing at NAVSTA Newport.

As the lead agency, the Navy has prepared this Proposed Plan for Site 8 in accordance with CERCLA Section 117(a) and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan. This Plan and its associated public involvement opportunities, which have been developed with support from the EPA and RIDEM, fulfill the Navy's public participation responsibilities under these laws.

The purpose of this Proposed Plan is to:

- Encourage public review and comment on the proposed remedy for the Site.
- Provide background information on the Site, which includes: a description of the Site, a summary of the results of investigations, and the conclusions of human health and ecological risk assessments.
- Describe cleanup alternatives (Remedial Action Alternatives) that have been considered for the Site.
- Identify and explain the Navy's preferred cleanup plan for the Site.

Once the public has had the opportunity to review and comment on this Proposed Plan, the Navy, EPA, and RIDEM will carefully consider all comments received and, based on the comments, could modify the cleanup plan or even select a plan different from the one currently proposed. Ultimately, the selected remedy will be documented in a Record of Decision (ROD) for the Site. The Navy will respond to all comments received during the comment period and public hearing in a document called the Responsiveness Summary. The Responsiveness Summary will be issued with the ROD.

This Proposed Plan presents the highlights of key information from previous investigations at Site 8, many of which have been presented to the public at Restoration Advisory Board (RAB) meetings. More detailed information about Site 8 can be found in key documents such as the Remedial Investigation and Feasibility Study (RI/FS), the related regulatory agency correspondence, and other documents, that form the Administrative Record for this Proposed Plan, and are available for review at the public Information Repository listed at the end of this Proposed Plan. The Navy encourages the public to review these documents to gain a better understanding of the environmental activities completed at Site 8 that support this Proposed Plan.

Scope and Role of the Response Action for Site 8

Site 8 is one of several sites identified at NAVSTA Newport for cleanup under the CERCLA process. Each of these sites progresses through the cleanup process independently of the others.

The Proposed Plan for Site 8 is not expected to have an impact on the strategy or progress of cleanup for the other sites at NAVSTA Newport. As these other sites progress through the cleanup process, separate Proposed Plans will be issued accordingly.

Site Background and Characteristics

Where is the Site?

The location of Site 8 is shown on Figure 1. Site 8 is within the Naval Undersea Warfare Center (NUWC), which is a tenant of the overall NAVSTA Newport facility. The NAVSTA facility extends through the City of Newport and the towns of Middletown, Portsmouth, and Jamestown, Rhode Island. Site 8 and NUWC are in Middletown. NAVSTA Newport has been in use by the Navy since the Civil War era and it currently remains in use today as a research, development, and training facility. NUWC is a Navy research and engineering complex which provides fleet support for submarines and underwater systems.

As shown on Figure 2, Site 8 occupies approximately 12.4 acres and is bounded to the west by the NUWC facility, to the south by undeveloped areas and wetlands, and to the north and east by the Wanumetonomy Golf and Country Club.

The southern portion of Site 8 includes the Building 179 Area. The central and northern portions of the site include the Building 185 Complex (storage areas), upland open fields, brush-covered slopes, Deerfield Creek, an unnamed stream, associated wetlands, and NUWC Pond (also known as Deerfield Pond).

What caused the contamination at Site 8?

Contaminants have been identified in soil, groundwater, and sediment at Site 8. Specific records of materials spilled or disposed since site operations began in the early 1950s are not available. However, it is known that the central, upland portion of Site 8 in the Building 185 area was used for equipment storage, temporary hazardous waste storage, and the disposal of miscellaneous materials including scrap lumber, tires, wire, cable, empty paint canisters, and several drums containing a tar-like substance. Several former NUSC operations also had the potential to generate hazardous materials (e.g., industrial plating, anodizing and chemical cleaning in a former nearby building, as well as PCB

storage at an unnamed location). The Building 185 Complex was also used to store torpedo fuels and, in 2004, a release of Otto Fuel was discovered and the impacted soil was removed.

The cause of the groundwater contamination in the North Meadow is unknown, but was likely to have been associated with the disposal of spent liquid solvents during past operations.

The Building 179 Area is a research and development facility and formerly had a 2,000-gallon concrete underground storage tank (UST) used to collect byproducts generated from the torpedo propulsion system tests. This UST likely received waste water mixed with engine oil, solvent-based cleaners, Otto Fuel, and combustion byproducts. In 1995, it was discovered that the UST had leaked, contaminating soil and groundwater in this area and necessitating cleanup.

Contaminants from these areas entered Deerfield Creek through overland storm water runoff/soil erosion and groundwater transport and resulted in impacts to sediment in the creek and in NUWC Pond.

A discussion of past removal actions is included on page 4 of this Proposed Plan.

What does Site 8 look like today?

NUWC is an active research and engineering industrial complex. Site 8 is located within a portion of NUWC and includes the Building 179 Area (research facilities), the Building 185 Complex (paved storage area), as well as undeveloped open fields and wooded areas, two shallow streams bounded by steep slopes, wetlands, and NUWC Pond. A low, concrete dam is present at the northern end of the 2-acre pond. A chain-link fence separates Site 8 from the Wanumetonomy Golf and Country Club to the northeast. A one-lane crushed gravel roadway runs along the Navy side of the fence and is used as a security patrol road as well as a walking/jogging path by NUWC employees.

What were the investigation results?

The Navy's investigations (see the text box "History of Site Investigations" on page 4) have shown that both organic and inorganic contaminants are present in soil, groundwater, and sediment. Contaminants of concern (COCs) include various polycyclic aromatic hydrocarbons (PAHs) and metals in soil, polychlorinated biphenyls (PCBs) and lead in sediment, and volatile organic compounds (VOCs) and metals in groundwater.

Details of the investigation results are addressed in the Remedial Investigation report, and summarized in the Feasibility Study.

Where are the Site 8 contaminants located?

The contaminants are located in three main areas of Site 8, identified as the North Meadow (which is along the east bank of NUWC Pond), the South Meadow (which is adjacent to the Building 185 area), and the Building 179 Area.

Elevated levels of PAHs and inorganics/metals are present in soil throughout the North and South Meadows (Figures 3 and 4). Soil contamination generally extends to a depth of 10 feet below ground surface, although it is deeper in some locations.

VOCs in groundwater primarily consist of chlorinated ethenes (e.g., trichloroethene, or TCE) in the North and South Meadows and chlorinated ethanes (e.g., 1,1,1-trichloroethane, or TCA) in the Building 179 Area (Figure 5). Most of the elevated levels of metals in groundwater are limited to one area of the South Meadow. Although the metals arsenic and manganese are present in groundwater throughout the site, their levels in groundwater are likely due to their naturally-occurring concentrations in soils which have been mobilized to, and dissolved in groundwater by the effects of the chlorinated solvents present in groundwater.

The sediment of NUWC Pond contains elevated levels of PAHs, PCBs, and lead to a depth of approximately 2 feet, based on available data (Figure 6). Elevated concentrations of lead are present in Deerfield Creek sediment.

Summary of Site Risks

As part of the Remedial Investigation, Human Health and Ecological Risk Assessments were conducted using CERCLA methodologies. The Navy evaluated the potential effects of site contaminants on human health and the environment under both current and potential future land use scenarios.

HUMAN HEALTH RISKS

The Human Health Risk Assessment estimated the "baseline risk," which is the likelihood of health problems occurring if no cleanup actions were taken at the site. To estimate the baseline risk for human health, a four-step process was used:

Removal Actions at Site 8

The Navy conducted limited removal actions in 2005 and 2006 at the "Buried Container Area" (also called the "Paint Can Area") adjacent to Deerfield Creek and the "Buried Drum Area" in the South Meadow. That cleanup work was conducted as a "non-time-critical removal action" under CERCLA in accordance with an Action Memorandum issued in June 2005. The Navy also conducted a removal action for the Building 179 concrete UST in 1997/1998.

At the Buried Drum Area in the South Meadow, the Navy removed a total of 36 drums and 113 tons of contaminated soil during multiple phases. The drums were in various states of decay and contained a tar-like substance (Photo 1). The final excavated area measured approximately 25 feet by 60 feet by 6 feet deep. PAHs were detected in soil in this area.

At the Buried Container Area, an area measuring approximately 34 feet by 30 feet by 9 feet deep was excavated to remove what appeared to be empty aerosol spray paint cans, metal debris, and lead-contaminated soil (Photo 2). In a second phase of the excavation, an additional area measuring 6 feet by 12 feet by 8 feet deep was also excavated. However, some empty canisters at the southern end of the excavation could not be removed at that time without undermining the roadway culvert. A total of 157 cubic yards (236 tons) of soil and metal debris were removed from the excavation.

Prior to backfilling, the completed excavations in both areas were lined with plastic sheeting to separate the clean backfill from the underlying native soil. The excavated areas were subsequently backfilled with clean aggregate. Topsoil was placed over the backfill and the areas were graded to surrounding elevations. Slopes to the creek were covered with erosion-control matting and other areas were seeded with rye and fescue. Riprap (4- to 8-inch stone) was placed on the slope of the backfilled Buried Container Area (Deerfield Creek stream bank) as an erosion protection measure.

At the Building 179 Area, a propulsion test failure and explosion occurred in 1995, causing damage to the building. During reconstruction, railroad tracks, ties, and ballast material were removed and disposed. Various contaminants including VOCs, PAHs, metals, and petroleum products were also detected in this area. Contaminated soil and approximately 220 tons of concrete flooring were removed and disposed off-site at a permitted facility. Contaminated groundwater removed as part of dewatering activities during soil excavation efforts was treated on-site. The contents of the concrete UST were pumped out and the tank compartments were cleaned and closed in-place. The tank closure included removal of approximately 1,100 gallons of fluid, bottom sludge, and residual product.

Although these actions successfully reduced or removed the identified contaminant sources, the Navy, EPA, and RIDEM agreed that the residual COCs would need to be further addressed as part of the Site 8 CERCLA program.

History of Site Investigations

1983 – The Initial Assessment Study (IAS) was completed.

1989 – NAVSTA Newport was listed on EPA's National Priorities List (NPL) as the Naval Education and Training Center Superfund Site.

1990 – The Navy established the RAB for public involvement in the cleanup process.

1995-1996 – The Navy investigated soil and groundwater in the Building 179 Area as well as sediment and surface water of NUWC Pond.

1999 – The Navy conducted a Remedial Investigation (RI) of the Building 179 concrete UST and a nearby UST to the south (upgradient). A VOC plume was found to extend from the former concrete UST to the NUSC Disposal Area.

2002 – An Environmental Baseline Survey (EBS) Checklist for the NUWC Pond was conducted, including sampling of sediment and surface water.

2003 – The Navy conducted a Study Area Screening Evaluation (SASE) and concluded that a RI and Human Health and Ecological Risk Assessments should be performed for Site 8. Limited removal actions were recommended at the Buried Container Area located along a portion of the east bank of Deerfield Creek and at the Buried Drum Area in the South Meadow (see text box "Removal Actions at Site 8").

2004 – During construction work at Building 185, the Navy removed approximately 2,630 pounds of soil and 1,450 pounds of concrete suspected of Otto Fuel contamination.

2006 – The Navy conducted a background soil investigation for Site 8.

2008 – The Navy issued the final Base-Wide Background Study Report.

2009 – The Navy completed the Site 8 RI which included geophysical surveys, test pit excavations, hydrogeological studies, a wetland survey, fish and earthworm tissue sampling, and the sampling of soil, sediment, surface water, and groundwater.

2009 – The Building 179 Area was added to Site 8 due to the overlapping groundwater contaminant plumes.

2010 – The Navy conducted a Supplemental Remedial Investigation (SRI) for Site 8 to resolve data gaps in the soil and groundwater sampling data set.

2011-2012 – The Navy conducted groundwater sampling to further evaluate the natural attenuation of VOCs in groundwater.

Photo 1 – Removal of Buried Drums in 2005/2006

Photo 2 – Removal of Buried Canisters in 2005/2006

Step 1 - Identify Chemicals of Potential Concern. Chemicals of Potential Concern (COPCs) were defined as chemicals detected at Site 8 at concentrations that exceeded federal and state risk-screening levels. Chemicals with concentrations above these benchmarks were further evaluated in Step 2.

COPCs identified at Site 8 included the following:

- ***Soil –*** Various VOCs, semi-volatile organic compounds (SVOCs) (mainly PAHs), pesticides, PCBs, and metals were identified in surface and subsurface soil. This included the PAH benzo(a)pyrene at concentrations up to1,500 milligrams per kilogram (mg/kg), and lead up to 4,650 mg/kg.

- ***Groundwater –*** Various VOCs, one SVOC [benzo(b)fluoranthene], one pesticide (dieldrin), and various metals were identified in groundwater. The VOCs included trichloroethene (TCE) at concentrations up to 1,200 micrograms per liter (µg/L) and 1,1,1-trichloroethane (TCA) up to 1,600 µg/L which exceed federal drinking water standards. Trace levels of 1,4-dioxane were also detected (up to 8 µg/L). Elevated metals concentrations were only found in a limited number of the site's monitoring wells, except for arsenic and manganese which are believed to be largely due to the VOC plume mobilizing them from site soil.

- ***Sediment –*** Various PAHs, PCBs, metals, and one pesticide (dieldrin) were identified in the sediment of NUWC Pond. Lead in stream sediment was also detected at concentrations up to 27,200 mg/kg.

Although not evaluated in the risk assessments, residual petroleum was also detected in some soil and sediment samples. The specific source of the petroleum is unknown, but its presence appears to be consistent with the past disposal practices at the site. Generally, petroleum is excluded from regulation under CERCLA and therefore is not included in CERCLA risk calculations. It is normally cleaned up under other authorities such as applicable state petroleum regulations. At Site 8, however, the petroleum is comingled with other CERCLA contaminants which cannot effectively be cleaned up separately from the petroleum. Therefore, although these petroleum products are not identified as a concern for health and ecological risk under CERCLA, the Navy, EPA, and RIDEM have agreed that the proposed Site 8 cleanup will address the petroleum in compliance with State requirements in order to effectively address the comingled CERCLA contaminants.

Step 2 - Conduct an Exposure Assessment. The ways that humans could come into contact with (be exposed to) the identified COPCs were evaluated. Both current and reasonably foreseeable future exposure scenarios were considered as part of this process. For Site 8, potential exposures to COPCs include:

- Workers, trespassers, future recreational users, and future residents who could come into contact with site soil through direct contact, ingestion, or inhalation of soil particulates (dust).

- Workers or future residents who could come into contact with indoor air vapors (inhalation).

- Construction workers or future residents who could come into contact with groundwater through direct contact, ingestion, or vapor inhalation.

- Trespassers or future recreational users who could come into contact with sediment through direct contact or ingestion.

- Future recreational users who could ingest fish from the pond.

It should be noted that the current and planned future use of the site is industrial. There are no current or planned residential or recreational uses of the site and site groundwater is not used as a drinking water source. However, these uses are evaluated in the risk assessment process to provide a basis for the need for a cleanup action.

Step 3 - Complete a Toxicity Assessment. Possible harmful effects (toxicity) associated with potential exposure to the COPCs were assessed. Generally, these COPCs were separated into two groups: carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse health effects other than cancer).

Step 4 - Characterize the Risk. Here, the results of Steps 2 and 3 were combined to estimate overall risks from exposure to the COPCs. The terms used to define the estimated risk are explained in the text box on page 7, *How is Risk to People Expressed?*

Unacceptable risks were associated with the following exposure scenarios:

- Exposure to soil in the upland area of the site, for each of the evaluated receptor groups. PAHs and arsenic are the main contaminants contributing to this risk.

- Potable use of site groundwater by potential future residents. The primary risk drivers include the VOCs perchloroethene (PCE), TCE, and vinyl chloride, the PAH benzo(b)fluoranthene, and metals.

- Exposure to groundwater for future construction workers, primarily from exposure to metals.

- Exposure to sediment for future recreational users. Carcinogenic PAHs and arsenic were the major risk drivers; however, the concentrations were similar to background levels. Elevated concentrations of lead were detected in stream sediment.

- Ingestion of fish by future recreational users – PCBs and the pesticides 4,4'-DDE, dieldrin, and aldrin are the major contributors to the incremental cancer risk. These chemicals in fish tissue were not carried forward as COCs for remediation, due to significant uncertainties in the source of pesticides found in the fish tissue and in the uptake of PCBs from sediment to fish, as well as due to comparisons to similar fish tissue samples from local background/reference ponds.

Cancer and non-cancer risks for residential and industrial exposures via vapor intrusion were found to be within acceptable levels.

Potential risks associated with exposure to lead in soil, as calculated through blood-lead models, were found to be within acceptable levels.
The Human Health Risk Assessment did not evaluate groundwater within the Building 179 Area; however, sampling results indicate that some groundwater COC concentrations are higher in that area than in the areas to the north. Therefore, the risks from similar exposures to groundwater at the Building 179 Area are also assumed to be unacceptable, given the same exposure scenarios. Based on sampling data, 1,4-dioxane and the VOCs 1,1,1-TCA and 1,1-dichloroethene were detected in groundwater at concentrations above what would be expected to pose unacceptable risk to future residential receptors. Therefore, rather than calculate specific risk for them, these chemicals were adopted as COCs for the site.

ECOLOGICAL RISKS

To conduct the Ecological Risk Assessment, the following three-step process was used:

Step 1 - Problem Formulation. The primary objective of the Ecological Risk Assessment was to evaluate whether or not ecological receptors (animals and plants) are potentially at risk when exposed to contaminants at Site 8. The ecological risk assessment for Site 8 was completed to make sure that ecological receptors are able to exist and grow in ways similar to the surrounding area.

The ecological receptors evaluated for the Ecological Risk Assessment included:

- Terrestrial invertebrates
- Sediment invertebrates
- Aquatic organisms
- Insectivorous mammals and birds
- Piscivorous mammals and birds

Similar to the Human Health Risk Assessment, COPCs were identified by comparing Site 8 chemical concentrations to risk-based screening levels. These COPCs were evaluated further in Step 2.

Based on sediment sampling results, PAHs, PCBs. pesticides, and lead in sediment, as well as some metals in soil were identified as of possible concern and were further evaluated in the risk assessment.

Step 2 - Risk Analysis. The potential exposures to the COPCs and the resulting possible harmful effects were evaluated. Exposure was determined by estimating or measuring the amount of a chemical in soil, surface water, sediment, or plant or animal tissue, and evaluating exposure to these chemical concentrations by ecological receptors.

Step 3 - Risk Characterization. The results from Step 2 were evaluated for the likelihood of harmful effects to ecological receptors at Site 8.

How is Risk to People Expressed?

In evaluating risks to humans, estimates for risk from carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse effects other than cancer) are expressed differently.

For carcinogens, risk estimates are expressed in terms of probability. For example, exposure to a particular carcinogenic chemical may present a 1 in 10,000 increased chance of causing cancer over an estimated lifetime of 70 years. This can also be expressed as $1x10^{-4}$. The EPA acceptable risk range for carcinogens is $1x10^{-6}$ (1 in 1,000,000) to $1x10^{-4}$ (1 in 10,000). In general, calculated risks higher than this range would require consideration of clean-up alternatives.

For non-carcinogens, exposures are first estimated and then compared to a reference dose (RfD). The RfD is developed by EPA scientists to estimate the amount of a chemical a person (including the most sensitive person) could be exposed to over a lifetime without developing adverse health effects. The exposure dose is divided by the RfD to calculate the measure known as a hazard index (a ratio). A hazard index greater than 1 suggests that adverse effects may be possible.

Risk from exposure to lead is evaluated by using the slope-factor approach developed by the EPA. The approach is based on effects to a fetus through exposure to the mother. For fetuses born to mothers exposed to lead, a probability that the fetal blood-lead concentration exceeds 10 micrograms per deciliter (µg/dL) is calculated. If the probability is less than 5 percent, it is accepted that lead does not pose a risk to humans.

How is Ecological Risk Expressed?

The risk to ecological receptors is expressed as a Hazard Quotient. A receptor's exposure estimate (e.g., amount of chemical in media or ingested in food) is compared to benchmarks for the chemicals that are designed to be protective. When the Hazard Quotient is below 1, toxicological effects are unlikely to occur and no significant risk is present. When the Hazard Quotient is above 1, there is a potential for significant risk to be present.

The Ecological Risk Assessment concluded that there is unacceptable risk to the following ecological receptors: stream invertebrates from total PCBs and lead; and to invertebrates in soil from cadmium and chromium.

Cleanup Objectives

Based on the results of the risk assessments and comparisons to federal and state regulations, the following COCs (and associated media) were identified for remediation at Site 8:

- Soil – Selected SVOCs (mainly PAHs) and metals
- Groundwater – Selected VOCs and metals
- Sediment – PCBs and lead (and overall toxicity levels to aquatic organisms based on the combined effects of PCBs, PAHs, metals, and pesticides in sediment)

Cleanup goals (also known as preliminary remediation goals, or PRGs) for the COCs in soil, sediment, and groundwater were developed in the Feasibility Study, based on calculations of acceptable risk levels, regulatory criteria, and background concentrations. The PRGs for the major COCs at Site 8 are listed below. See the Feasibility Study for a complete list of PRGs.

- Groundwater (PRGs are based on risk levels and regulatory standards)
  - 1,1,1-Trichloroethane (200 µg/L)
  - 1,1-Dichloroethane (2.3 µg/L)
  - Trichloroethene (5 µg/L)
- Soil (PRGs are based on risk levels, regulatory standards, and background levels)
  - Arsenic (18 mg/kg)
  - Lead (500 mg/kg)
  - Benzo(a)pyrene (0.21 mg/kg)
- Sediment (PRGs are based on risk levels)
  - Lead (1,233 mg/kg) (stream)
  - Total PCBs (150 / 451 micrograms per kilogram [µg/kg]) (pond / stream)

Cleanup Objectives (also known as Remedial Action Objectives) are the site-specific goals that the cleanup plan should achieve. The goals are designed to be protective of human health and the environment and to comply with pertinent federal and state regulations. The cleanup objectives are developed to address all the identified COCs in the affected media (soil, groundwater, and sediment). The following objectives were identified for Site 8:

- Prevent the incidental ingestion of and direct contact with surface and subsurface soil containing COCs that exceed human health cleanup goals.
- Prevent the use of site groundwater for human consumption until groundwater cleanup goals have been achieved.
- Restore groundwater quality to its beneficial use.
- Prevent insectivorous mammals and birds from exposure to surface soil containing COCs that exceed ecological cleanup goals.
- Prevent the migration of sediment COCs that could cause unacceptable ecological risk to pond and stream sediment via groundwater transport and overland runoff.
- Prevent pond and stream invertebrates from exposure to sediments containing COCs that exceed ecological cleanup goals.
- Prevent human exposure to stream sediment containing lead above cleanup goals.

Summary of Cleanup Alternatives

Remedial alternatives (cleanup options) were developed and evaluated in the Site 8 Feasibility Study. The alternatives, briefly described below, were developed to meet the Cleanup Objectives listed above. Full details are available for review in the Feasibility Study, located in the public Information Repository described at the end of this Proposed Plan.

The following four cleanup options were evaluated for Site 8 soil (Alternatives SO1 through SO4) and are summarized in Table 1 (note that some common elements of each alternative are described later in this Proposed Plan):

Soil Alternative SO1 – No Further Action

Under this option, the site would be left as it is today and no further cleanup or monitoring would be performed. Only administrative reviews of the site status would be conducted every 5 years, in accordance with CERCLA. Although the Navy has not considered this to be an appropriate response action for the Site, it is a statutory requirement under CERCLA that a "no action" alternative be evaluated. Thus, this alternative is used as a baseline for comparison with other alternatives.

Soil Alternative SO2 – Excavation, Ex-Situ Treatment, Removal of Anomalies, Offsite Disposal, Land Use Controls (LUCs), and Monitoring

This alternative would include the removal of unpaved soil containing COCs at levels exceeding industrial standards to a depth of 2 feet, as well as the removal of soil exceeding state leachability standards. Soil containing PAHs would be treated using a "low-temperature thermal desorption" (LTTD) technology and placed back on-site as clean fill. The LTTD system would heat soil/debris to between 90 and 320°C (200 to 600°F) to separate out the organic constituents. The off-gas generated may require treatment in order to capture contaminants prior to its discharge through a stack. Excavated soil containing elevated levels of metals would be disposed off-site at a permitted facility. Clean fill would be placed back to restore the site grade, including 6 inches of clean topsoil which would be seeded and maintained as a grassy field.

Soil Alternative SO3 – Soil Cover, Selective Excavation and Removal of Anomalies, Offsite Disposal, LUCs, and Monitoring

This alternative would include the construction of a soil cover over the identified limits of unpaved soils where COC concentrations exceed industrial cleanup goals, specifically, the North and South Meadows. The cover would be constructed to prevent contact with subsurface soil/debris and to resist environmental forces, such as erosion. Armor stone would be placed on the steep slopes of the soil cover next to the pond and streams. Some cutback of the slope may be required to ensure stability of the cover system. The completed soil cover would be 2 feet thick, and would be comprised of 18 inches of common fill and 6 inches of topsoil that would be maintained as a grassy field. Soil with COC levels exceeding state leachability standards would be excavated and disposed offsite prior to construction of the soil cap.

Soil Alternative SO4 – Excavation, Consolidation, Soil Cover, Removal of Anomalies, LUCs, and Monitoring

This alternative would include excavation of soil/debris with COC concentrations exceeding residential criteria in the North Meadow. Soil would be excavated to depths ranging from 2 feet to approximately 10 feet and would be moved and consolidated in the South Meadow area. Similar to Alternative SO3, a 2-foot soil cover consisting of 18 inches of common fill and 6 inches of topsoil would be constructed over the South Meadow area to contain this soil as well as the South Meadow soil that

exceeds cleanup goals. The soil cover would be maintained as a grassy field. Soil with COC levels exceeding state leachability standards in selected areas would be excavated and disposed offsite prior to construction of the soil cap. Upon completion, the North Meadow would be suitable for unrestricted use, and the remainder of the site soil, including the South Meadow, would be suitable for continued industrial use.

The following four cleanup options were evaluated for Site 8 groundwater (Alternatives GW1 through GW4) and are summarized in Table 2 (note that some common elements of each alternative are described later in this Proposed Plan):

Groundwater Alternative GW1 – No Action

Under CERCLA, a "no action" alternative must be evaluated in order to serve as a baseline for comparison with the other alternatives. Under this option, the site would be left as it is today, and no further cleanup or monitoring would be performed. Only administrative reviews of the site status would be conducted every 5 years, in accordance with CERCLA.

Groundwater Alternative GW2 – MNA and LUCs

This alternative would include a long-term groundwater monitoring program to verify that natural attenuation processes are effectively reducing contaminant concentrations. Monitored natural attenuation (MNA) is not a "no action" option, but is instead a careful examination of the site geochemistry and contaminant plume conditions, with a focus on the natural microbial degradation of contaminants. The presence of organic contaminants in groundwater, such as the VOCs at Site 8, can alter the aquifer's geochemistry such that naturally occurring metals in soil can leach to groundwater. Therefore, once the VOC plume is sufficiently remediated and the aquifer geochemistry is restored to more aerobic conditions, it is expected that concentrations of metals in groundwater will return to background levels. The Navy would continue the MNA program until remedial goals are achieved for VOCs and metals in groundwater.

Groundwater Alternative GW3 – In-Situ Enhanced Bioremediation, MNA, and LUCs

This alternative involves the introduction of specific biological amendments, such as a carbon substrate into the most contaminated portions of the plumes to stimulate the activity and growth of naturally-occurring microbes that can break down (metabolize) the organic COCs. The introduction of a microbial food source will promote the anaerobic (low oxygen) conditions needed for microbes to degrade the contaminants in groundwater. This will result in the degradation or transformation of the contaminants into less toxic or non-toxic forms. The biological amendments would be introduced into groundwater through a series of wells. Plume conditions will be monitored over time and additional amendments will be added, as needed, to complete the process. For example, a second substrate injection could be applied within two years of the initial injection. Other subsurface parameters such as pH may also be adjusted to enhance the process, if necessary. MNA would be used as a polishing step for the residual contaminants in groundwater (metals and low-level organics) following the cleanup of the most impacted areas.

Groundwater Alternative GW4 – In-Situ Chemical Oxidation, MNA, and LUCs

This alternative would involve the introduction of a chemical oxidant into the most contaminated portions of the plumes to destroy organic contaminants. Oxidants that are expected to be effective for the COCs present at Site 8 include sodium or potassium permanganate, sodium persulfate, or "Fenton's Reagent" (a mix of hydrogen peroxide and an iron catalyst). The chemical oxidant to be used would be selected during the Remedial Design phase. During the cleanup phase, the oxidant would be introduced into the groundwater plume through a series of wells. Groundwater monitoring would be performed to evaluate the progress of the chemical oxidation and the need for additional injection events. It is assumed that two injection events would be required to achieve cleanup goals. MNA would be used as a polishing step for the residual contaminants (metals and low level organics) following the cleanup of the most impacted areas.

The following four cleanup options were evaluated for Site 8 sediment (Alternatives SD1 through SD4) and are summarized in Table 3 (note that some common elements of each alternative are described later in this Proposed Plan):

Sediment Alternative SD1 – No Action

Under CERCLA, a "no action" alternative must be evaluated in order to serve as a baseline for comparison with the other alternatives. Under this option, the site would be left as it is today, and no further cleanup or monitoring would be performed. Only administrative reviews of the site status would be conducted every 5 years, in accordance with CERCLA.

Sediment Alternative SD2 – Selective Sediment Removal and Offsite Disposal, Enhanced Natural Recovery of Pond Sediment, LUCs, and Monitoring

Under this alternative, a 6-inch sediment cover (cap) would be constructed over the existing pond sediment in order to contain and prevent contact with contaminants in sediment. Over time, it is expected that the thickness of the cap would increase, due to natural transport and deposition of sediment from upstream areas. The cover would be constructed of

a clean, fine-grained material. In order to maintain the flood capacity (volume) of NUWC Pond, some sediment would first be removed from the most impacted portions of the pond. Impacted sediment in Deerfield Creek would also be removed. Dredged sediment would be dewatered and disposed off-site at a permitted facility. Sediment contaminant concentrations would be monitored over time and the cap and dam would be maintained.

Sediment Alternative SD3 – Selective Sediment Removal and Offsite Disposal, Pond Sediment Cover, LUCs, and Monitoring

This alternative would construct a more substantial, 12-inch sediment cover over the existing pond sediment, in order to contain and prevent contact with contaminants in sediment. The cover would be constructed of 6 inches of a fine-grained material (sand) and 6-inches of a coarser material (gravel). The cover would also be underlain by a geotextile liner intended to further prevent the migration of, and exposure to, the covered sediment. In order to maintain the flood capacity (volume) of NUWC Pond, some sediment would first be removed from the most impacted portions of the pond. Impacted sediment in Deerfield Creek would also be removed. Dredged sediment would be dewatered and disposed off-site at a licensed facility. Sediment contaminant concentrations would be monitored over time and the cap and dam would be maintained.

Sediment Alternative SD4 – Sediment Removal and Offsite Disposal

This alternative involves the complete removal of the contaminated sediment across NUWC Pond and Deerfield Creek. Sediment may be removed using a combination of hydraulic (pumping) and mechanical means. Pond sediment could be dredged to a depth of 2 feet, although additional sampling would be performed prior to dredging to verify the appropriate depth. Post-removal, confirmatory samples would be collected to verify that the contamination has been removed. Dredged sediment would be dewatered and disposed off-site at a permitted facility. Upon completion, no further sediment monitoring or maintenance would be required.

Common Elements

With the exception of the No Action alternatives, each of the cleanup options also includes the following common elements as part of the overall site remedy:

- The Navy will conduct additional investigations during the design phase of the site remedy including: soil sampling to verify that metals levels do not exceed Rhode Island leachability standards; soil borings to verify that a VOC source is not present in North Meadow soil; and pilot/bench-scale studies to determine the type of amendment to be used for in-situ groundwater treatment (bioremediation or chemical oxidation).

- Areas of "geophysical anomalies" identified from magnetic surveys, and believed to be buried waste debris, will be removed and disposed off-site as part of the soil alternatives. In addition, selected soils will be excavated, specifically, in areas where contaminants have been identified at levels exceeding state leachability standards for the protection of groundwater. Selected excavation will include geophysical anomalies in the Paved Storage Area, known remaining buried drum fragments in the South Meadow, remaining buried canisters in the Buried Container/Paint Can Area, and isolated locations to the west of Deerfield Creek and NUWC Pond, to the south of the main site area, and in the South Meadow.

- The existing pavement over the storage areas by the Building 185 Complex will be retained to serve as a Waste Management Area. Except for identified geophysical anomalies, the remaining soil and debris located underneath the pavement will not be excavated. Groundwater cleanup standards applicable to the rest of the site will not have to be achieved within the Waste Management Area, provided that LUCs are established to prevent groundwater use within the area. Groundwater monitoring will be performed around the paved area to verify that COCs are not migrating from that area at levels that exceed PRGs.

- The Navy will conduct long-term monitoring of the overall groundwater plume and the areas associated with the soil and asphalt covers.

- The Navy will restore any wetland areas that are impacted by the selected remedial action.

- The Navy will implement LUCs for soil, sediment, and groundwater to restrict any uses of the site that would pose unacceptable risk to human health. For example, residential use of the site would not be allowed, constructed covers would be maintained, and the use of groundwater would not be allowed until cleanup goals are achieved. The Navy will also coordinate with the State and the owner of the adjacent private property in order to prevent installation of groundwater extraction wells next to Site 8. Under Alternative SO4, LUCs would not need to include the North Meadow, as in Alternatives SO2 and SO3. Under Alternative SD4, the pond sediment will not require a LUC because COCs would be removed. If the property were ever to be transferred out of federal ownership, then the LUCs would be recorded as deed restrictions meeting state property law standards.

- 5-Year Reviews – In accordance with CERCLA, a detailed review of site conditions would be conducted every 5 years in coordination with federal and state regulatory agencies for as long as COCs remain at concentrations that do not allow for unrestricted use and unlimited exposure.

Evaluation of Alternatives

EPA has established nine criteria for use in comparing the advantages/disadvantages of each cleanup alternative. These criteria fall into three groups: (1) "threshold criteria" that any selected alternative must meet; (2) "primary balancing criteria" that are used to differentiate between alternatives; and (3) "modifying criteria" that may be used to modify the recommended remedy. In the Feasibility Study, each alternative identified above was individually analyzed with respect to the established criteria. Next, the alternatives were compared to each other with respect to each criterion. Tables 1, 2, and 3 at the end of this Proposed Plan summarize the evaluations of the soil, groundwater, and sediment alternatives.

Preferred Action Alternatives

The Navy is proposing a combination of soil Alternative SO3, groundwater Alternative GW3 and/or GW4, and sediment Alternative SD4 for the whole-site remedial action. This combination is recommended because it offers the best balance among the nine evaluation criteria (see Tables 1, 2, and 3).

Soil

The proposed soil Alternative SO3 includes selective (limited) excavation, and construction of a 2-foot-thick soil cover in the North and South Meadows. Alternative SO3 is preferred because it is the most implementable and cost-effective option for addressing the identified risks and it is consistent with the continued industrial use of the site. There are no plans for non-industrial use of the site. Some of the debris buried in site soil may be contributing to groundwater contamination; therefore, the removal of such debris will help to expedite the groundwater remedy. Additional excavation of the Paint Can Area will remove the likely source of lead contamination to stream sediment. The asphalt cover of the Waste Management Area and the soil cover constructed in the other areas of the site will be maintained over time. LUCs and monitoring will ensure the continued protection of human health and the environment. LUCs will include the cover areas where soil COCs exceed residential standards.

In accordance with the Toxic Substances Control Act (TSCA), the status of residual (low level) PCBs to remain in soil at the site was evaluated. The human health and ecological risk evaluations concluded that leaving PCBs in-place (disposal), under a cover with LUCs and long-term monitoring, at the present concentrations does not pose an unreasonable risk to public health or the environment, based on current and proposed future use. The preferred remedy will include the construction of a soil cover, which would provide additional protection to possible site receptors. Accordingly, and based on the provisions of 40 CFR § 761.61(c), EPA is proposing to make a determination to be included in the ROD that the in-place management of PCBs in soil will not pose an unreasonable risk to public health or the environment.

Groundwater

Active groundwater remediation is needed in the most contaminated portions of the plume, to complete the overall site remediation within a reasonable timeframe. The proposed groundwater remedy includes in-situ treatment of highest VOC concentrations in the groundwater plume, followed by MNA of the residual, low-level COC concentrations. In-situ treatment will consist of either enhanced bioremediation (Alternative GW3) or a combination of Alternative GW3 and Alternative GW4 (in-situ chemical oxidation). The conditions in different portions of the plume may warrant different remedial approaches; therefore, the Proposed Plan includes this provision to use either bioremediation or chemical oxidation, to be determined based on the results of additional bench-scale studies which will be conducted during the Remedial Design phase. For example, bioremediation could be selected for the entire plume, or it could be used only for the southern portion of the site, while chemical oxidation would be applied in the northern portion of the site. The design studies will likely include hydraulic testing of the aquifer to determine the best method for injecting the biological or chemical amendments.

In general, bioremediation is preferred, as it is a more cost-effective and environmentally-friendly approach for treating the moderate contaminant concentrations present in Site 8 groundwater. However, for reducing COC concentrations, bioremediation would be somewhat slower than chemical oxidation and it would also be more sensitive to the site geochemistry, with respect to controlling microbial activity. Although effective, chemical oxidation technologies are often better suited to higher-concentration plumes, and may present more risks to site workers and more concerns for facility operations, due to the use of large volumes of the chemical oxidants. The chemical oxidants may also present more risks to the nearby pond and wetland ecosystem if some of the injected oxidants were to discharge to those areas along with the natural discharge of groundwater.

Active treatment of the most contaminated zones would be followed by MNA of the residual, low-level plume. The available site data indicate that MNA is already occurring to some degree, especially in the southern portion of Site 8. Implementing bioremediation is expected to promote the desired groundwater conditions (geochemistry) to support subsequent MNA. Bioremediation will create reducing conditions that promote the breakdown of chlorinated solvents within the aquifer. Upon completion of active bioremediation, those conditions will persist for a time, and enhance the continued natural attenuation of the residual COC plume. Although it is possible that the modified aquifer conditions may mobilize some soil constituents (such as arsenic and manganese) into groundwater, it is expected that this effect will be temporary, and that the concentrations will return to background levels over time. Implementing LUCs where groundwater COCs exceed cleanup goals will ensure continued protection of human health by preventing the use of groundwater until the cleanup goals are achieved.

Groundwater cleanup standards applicable to the rest of the site will not have to be achieved within the Waste Management Area, provided the LUCs prevent groundwater use within the area. Groundwater currently is not used as a drinking water source and there are no plans for such a use in the foreseeable future.

Sediment

The proposed sediment Alternative SD4 includes removal and offsite disposal of contaminated sediment from Deerfield Creek and from the NUWC Pond. This is the preferred alternative because dredging of the pond and stream will eliminate sediment contamination and render those areas suitable for unrestricted use and unlimited exposure. This restoration will allow the ecological community to reestablish itself, with no need for long-term maintenance of a sediment cover system, which would be subject to deterioration over time.

Summary

Section 404 of the Clean Water Act and Executive Orders 11990 (Protection of Wetlands) and 11988 (Protection of Floodplains), as incorporated under Federal Emergency Management Agency regulations that are relevant and appropriate to the cleanup, require a determination that there is no practical alternative to taking federal actions affecting federal jurisdictional wetlands, aquatic habitats and floodplain. EPA and the Navy are requesting public comment concerning the finding that the proposed cleanup alternative for sediments is the least environmentally damaging practicable approach for protecting wetlands and aquatic habitats. EPA and the Navy are also proposing a finding under TSCA, that the risk-based PCB cleanup level for sediments and the covering of soils containing low levels of PCBs will not pose an unreasonable risk of injury to health or the environment.

In accordance with the Clean Water Act, the Navy has determined that the combination of Alternatives SD4/SO3/GW3/GW4 is the Least Environmentally Damaging Practicable Alternative to protect wetland resources because it provides the best balance of addressing contaminated sediment within and adjacent to wetlands and waterways with minimizing both temporary and permanent alteration of wetlands and aquatic habitats on site. Although each of the sediment cleanup options would impact the wetland and pond areas during cleanup activities, Alternative SD4 will permanently remove COCs in sediment, which will be of long-term benefit to the restored wetland area. Alternative SD4 will also increase the water volume capacity of NUWC Pond, which will benefit the recovery of aquatic life in the pond. Alternative SO3 involves the least disturbance (least excavation) to the upland areas abutting the wetlands. Alternatives GW3/GW4 will reduce the groundwater contaminant concentrations faster than Alternative GW2.

Based on information currently available, the Navy believes the Preferred Alternative meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives, with respect to the balancing and modifying criteria. The Navy expects the Preferred Alternative to satisfy the following statutory requirements of CERCLA §121(b): (1) be protective of human health and the environment; (2) comply with Applicable or Relevant and Appropriate Requirements (ARARs); (3) be cost-effective; (4) utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and (5) partially satisfy the preference for treatment as a principal element, to the extent practicable.

Next Steps

Community consideration of this Proposed Plan is the next step in the cleanup process for Site 8. The public is encouraged to review this Plan and submit comments to the Navy. The Navy will accept written comments on the Proposed Plan during the public comment period, from July 16, 2012 to August 15, 2012. The Navy will accept oral comments during a Public Hearing that follows a Public Information Session to be held on July 18, 2012 at the Hampton Inn & Suites, 317 West Main Street, Middletown, Rhode Island. You do not have to be a technical expert to take part in the process. The Navy would like to know your thoughts before making a final decision on whether or not to implement the proposed remedy for Site 8.

Once the community has commented on this Proposed Plan, the Navy, EPA, and RIDEM will consider all comments received. It is possible that this Proposed Plan could change as a result of comments received from the community. The Navy will provide written responses to all comments received on the Proposed Plan. The responses to public comments will be provided in a document called a Responsiveness Summary, which will be submitted with the ROD prepared for Site 8.

The ROD will contain the rationale for the Navy's and EPA's decision for Site 8. The Navy and EPA anticipate that all comments will be reviewed and the ROD will be signed by September 2012. The ROD will then be made available to the public via the public Information Repository described at the end of this Proposed Plan. The Navy will announce the availability of the ROD through local newspapers and to the NAVSTA Newport RAB.

After the Record of Decision

After the ROD is signed, the Navy will design and implement the selected alternatives. The Navy will be conducting additional pre-design investigations (as described in this Proposed Plan), as well as using the available data and information to prepare an engineering design of the selected actions.

After the design is completed, and assuming there is no major opposition to the proposed action, the Navy will oversee the construction and land use control activities to ensure that the actions are properly implemented. Long-term groundwater monitoring and 5-year reviews will be conducted to ensure that the remedies remain protective over time.

Commitment to the Communities

The Navy is committed to keeping the communities informed on the environmental cleanup program at NAVSTA Newport. The RAB, composed of the community and government agency representatives, meets regularly to discuss the environmental cleanup program at NAVSTA Newport. At these meetings, community RAB members can provide input and offer suggestions on program activities. Upcoming RAB meetings are publicized in the local news media and are open to the public. If you would like further information about the RAB or the environmental restoration program at NAVSTA Newport, please contact the Navy Public Affairs Office at the address provided on page 1 of this Proposed Plan. If you would like further information about the specific investigations conducted at Site 8, please contact the Navy Project Manager at the phone number listed at the end of this Proposed Plan.

For More Information

This Proposed Plan summarizes information that can be found in greater detail in the Remedial Investigation and Feasibility Study for Site 8. These and other site documents, which form the Administrative Record for this Proposed Plan, are available online at http://go.usa.gov/Tsy or http://www.rabnewportri.org (click on the link for the NAVFAC Website). The public is invited to review these documents and comment on this Proposed Plan during the public comment period. A copy of the ROD, which selects the final remedy and includes the Responsiveness Summary, will also be made available on the website.

Important Dates

30-Day Public Comment Period
July 16, 2012 to August 15, 2012

Public Information Session
July 18, 2012 (6:30 p.m. to 7:30 p.m.)

Public Hearing
July 18, 2012 (7:30 p.m.)

Your Comments Are Important!

Public comments are used to improve the decision-making process. The Navy will hold a 30-day comment period for receiving written comments and will hold a Public Hearing for receiving oral comments. All comments, whether oral or written, received during the public comment period and Public Hearing will become part of the official public record. The Navy will respond to all these comments in writing. See page 1 of this Proposed Plan for information on how to submit a comment to the Navy.

All public comments and the Navy's responses will be issued in a document called a Responsiveness Summary that will accompany the Record of Decision (cleanup plan) for Site 8. Copies of the Responsiveness Summary will be mailed or emailed to everyone who gave comment(s). The Navy will consider all comments in making the final decision for the Site. The Navy will announce the final decision through the local newspapers.

The public is encouraged to participate during this period as your thoughts and opinions will help in making the final decision. You do not have to be a technical expert to take part in the process.

TABLE 1
COMPARISON OF SOIL CLEANUP ALTERNATIVES

	Alternative SO1	Alternative SO2	Alternative SO3	Alternative SO4
ALTERNATIVE DESCRIPTION/COMPONENTS				
Evaluation Criteria	No Further Action	Excavation, Ex-Situ Treatment, Removal of Anomalies, Offsite Disposal, LUCs, Monitoring	Soil Cover, Selective Excavation and Removal of Anomalies, Offsite Disposal, LUCs, Monitoring	Excavation, Consolidation, Soil Cover, Removal of Anomalies, LUCs, Monitoring
ESTIMATED TIMEFRAMES FOR CLEANUP (YEARS)				
Time to achieve cleanup goals	Not Applicable	2	2	2
***CRITERIA ANALYSIS:* Threshold Criteria – Selected alternative must meet these criteria**				
Protects Human Health and the Environment – *Will it protect people and animal life? Is it permanent?*	⊘	●	●	●
Compliance with ARARs – *Does this alternative meet federal and state environmental laws, regulations, and requirements?*	⊘	●	●	●
Primary Balancing Criteria – Used to differentiate between alternatives meeting threshold criteria				
Provides Long-Term Effectiveness and Permanence – *Do risks remain onsite? If so, are the controls adequate and reliable?*	⊘	●	●	●
Reduces Mobility, Toxicity, and Volume Through Treatment – *Does the alternative reduce the harmful effects of the contaminants, their ability to spread, and the amount of contaminated material present?*	⊘	○	⊘	⊘
Provides Short-Term Protection – *How soon will risks be reduced? Are there short-term hazards to workers, residents, or the environment that could occur during cleanup?*	⊘	○	●	○
Implementability – *Is the alternative technically feasible? Are necessary goods and services (treatment equipment, space, etc.) available?*	●	○	●	○
Costs (see Notes a and b below) *Capital Costs (initial costs)* *O&M Costs (total long-term, 30-year)* *Total Present Worth Cost (total cost in today's dollars)*	$0 5-year reviews only $118,000	$4,863,000 $3,500 $5,059,000	$1,926,000 $3,500 $2,123,000	$2,269,000 $3,500 $2,464,000
Modifying Criteria – May be used to modify recommended cleanup				
State Agency Acceptance – *Do state environmental agencies agree with Navy's recommended alternative?*	To be determined following the public comment period.			
Community Acceptance – *What objections, modifications, or suggestions does the public offer during the public comment period?*	To be determined following the public comment period.			

Notes:

a) For purposes of cost estimation, all O&M costs represent 30-year timeframes, only. Actual total costs may be higher.

b) The No Action Alternative costs include conducting 5-year reviews.

ARARs: Applicable or relevant and appropriate requirements
LUCs: Land Use Controls
O&M: Operation and Maintenance

● Meets
○ Partially Meets
⊘ Does not Meet

TABLE 2
COMPARISON OF GROUNDWATER CLEANUP ALTERNATIVES

	Alternative GW1	Alternative GW2	Alternative GW3	Alternative GW4
ALTERNATIVE DESCRIPTION/COMPONENTS				
Evaluation Criteria	No Action	MNA and LUCs	In-Situ Enhanced Bioremediation, MNA, and LUCs	In-Situ Chemical Oxidation, MNA, and LUCs
ESTIMATED TIMEFRAMES FOR CLEANUP (YEARS)				
Time to achieve cleanup goals	Not Applicable	40 – 55	20 – 40	10 – 35
***CRITERIA ANALYSIS:* Threshold Criteria – Selected alternative must meet these criteria**				
Protects Human Health and the Environment – *Will it protect people and animal life? Is it permanent?*	⊘	●	●	●
Compliance with ARARs – *Does this alternative meet federal and state environmental laws, regulations, and requirements?*	⊘	●	●	●
Primary Balancing Criteria – Used to differentiate between alternatives meeting threshold criteria				
Provides Long-Term Effectiveness and Permanence – *Do risks remain onsite? If so, are the controls adequate and reliable?*	⊘	●	●	●
Reduces Mobility, Toxicity, and Volume Through Treatment – *Does the alternative reduce the harmful effects of the contaminants, their ability to spread, and the amount of contaminated material present?*	⊘	⊘ (passive remediation only)	○	○
Provides Short-Term Protection – *How soon will risks be reduced? Are there short-term hazards to workers, residents, or the environment that could occur during cleanup?*	⊘	○	●	○
Implementability – *Is the alternative technically feasible? Are necessary goods and services (treatment equipment, space, etc.) available?*	●	●	○	○
Costs (see Notes a and b below) *Capital Costs (initial costs)* *O&M Costs (total long-term, 30-year)* *Total Present Worth Cost (total cost in today's dollars)*	 $0 $0 See soil alternatives	 $16,500 $274,000 $1,880,000	 $3,764,000 $274,000 $7,104,000	 $3,398,000 $274,000 $6,839,000
Modifying Criteria – May be used to modify recommended cleanup				
State Agency Acceptance – *Do state environmental agencies agree with Navy's recommended alternative?*	To be determined following the public comment period.			
Community Acceptance – *What objections, modifications, or suggestions does the public offer during the public comment period?*	To be determined following the public comment period.			

Notes:

a) For purposes of cost estimation, all O&M costs represent 30-year timeframes, only. Actual total costs may be higher.
b) The No Action Alternative costs include conducting 5-year reviews.

ARARs: Applicable or relevant and appropriate requirements
LUCs: Land Use Controls
MNA: Monitored Natural Attenuation
O&M: Operation and Maintenance

● Meets
○ Partially Meets
⊘ Does not Meet

TABLE 3
COMPARISON OF SEDIMENT CLEANUP ALTERNATIVES

	Alternative SD1	Alternative SD2	Alternative SD3	Alternative SD4
ALTERNATIVE DESCRIPTION/COMPONENTS				
Evaluation Criteria	No Action	Selective Sediment Removal an Offsite Disposal, Enhanced Natural Recovery of Pond Sediment, LUCs, Monitoring	Selective Sediment Removal an Offsite Disposal, Pond Sediment Cover, LUCs, Monitoring	Sediment Removal and Offsite Disposal
ESTIMATED TIMEFRAMES FOR CLEANUP (YEARS)				
Time to achieve cleanup goals	Not Applicable	1	1	1
***CRITERIA ANALYSIS:* Threshold Criteria – Selected alternative must meet these criteria**				
Protects Human Health and the Environment – *Will it protect people and animal life? Is it permanent?*	⊘	●	●	●
Compliance with ARARs – *Does this alternative meet federal and state environmental laws, regulations, and requirements?*	⊘	●	●	●
Primary Balancing Criteria – Used to differentiate between alternatives meeting threshold criteria				
Provides Long-Term Effectiveness and Permanence – *Do risks remain onsite? If so, are the controls adequate and reliable?*	⊘	○	○	●
Reduces Mobility, Toxicity, and Volume Through Treatment – *Does the alternative reduce the harmful effects of the contaminants, their ability to spread, and the amount of contaminated material present?*	⊘	○	○	○
Provides Short-Term Protection – *How soon will risks be reduced? Are there short-term hazards to workers, residents, or the environment that could occur during cleanup?*	⊘	○	○	○
Implementability – *Is the alternative technically feasible? Are necessary goods and services (treatment equipment, space, etc.) available?*	●	●	●	●
Costs (see Notes a and b below) *Capital Costs (initial costs)* *O&M Costs (total long-term, 30-year)* *Total Present Worth Cost (total cost in today's dollars)*	 $0 $0 See soil alternatives	 $1,367,000 $19,000 $1,908,000	 $2,098,000 $22,000 $2,703,000	 $2,197,000 $16,000 $2,293,000
Modifying Criteria – May be used to modify recommended cleanup				
State Agency Acceptance – *Do state environmental agencies agree with Navy's recommended alternative?*	To be determined following the public comment period.			
Community Acceptance – *What objections, modifications, or suggestions does the public offer during the public comment period?*	To be determined following the public comment period.			

Notes:

a) For purposes of cost estimation, all O&M costs represent 30-year timeframes, only. Actual total costs may be higher.
b) The No Action Alternative costs include conducting 5-year reviews.

ARARs: Applicable or relevant and appropriate requirements
LUCs: Land Use Controls
O&M: Operation and Maintenance

● Meets
○ Partially Meets
⊘ Does not Meet

Figure 1 – Site Location Map

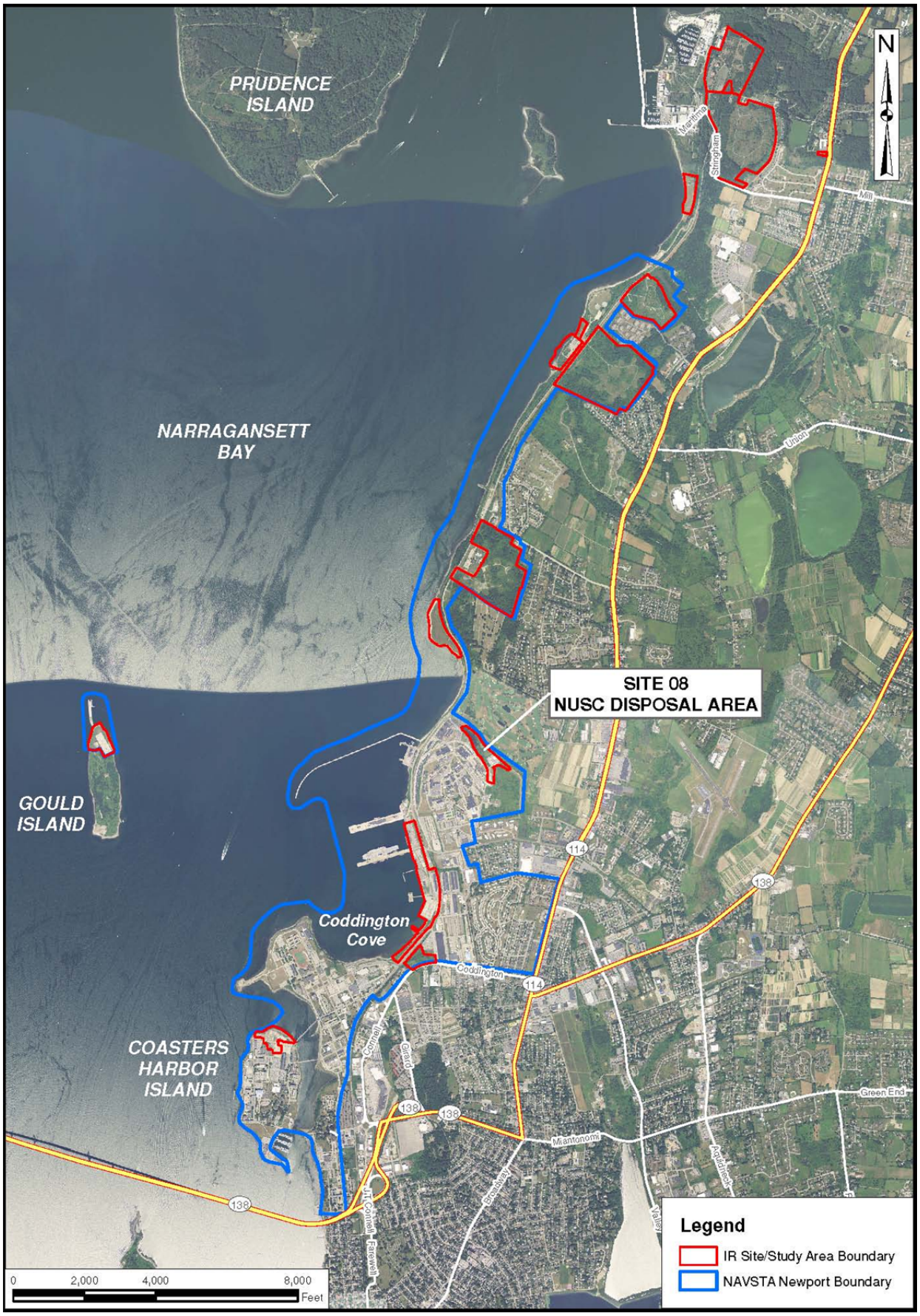


Figure 2 – Site Detail Map

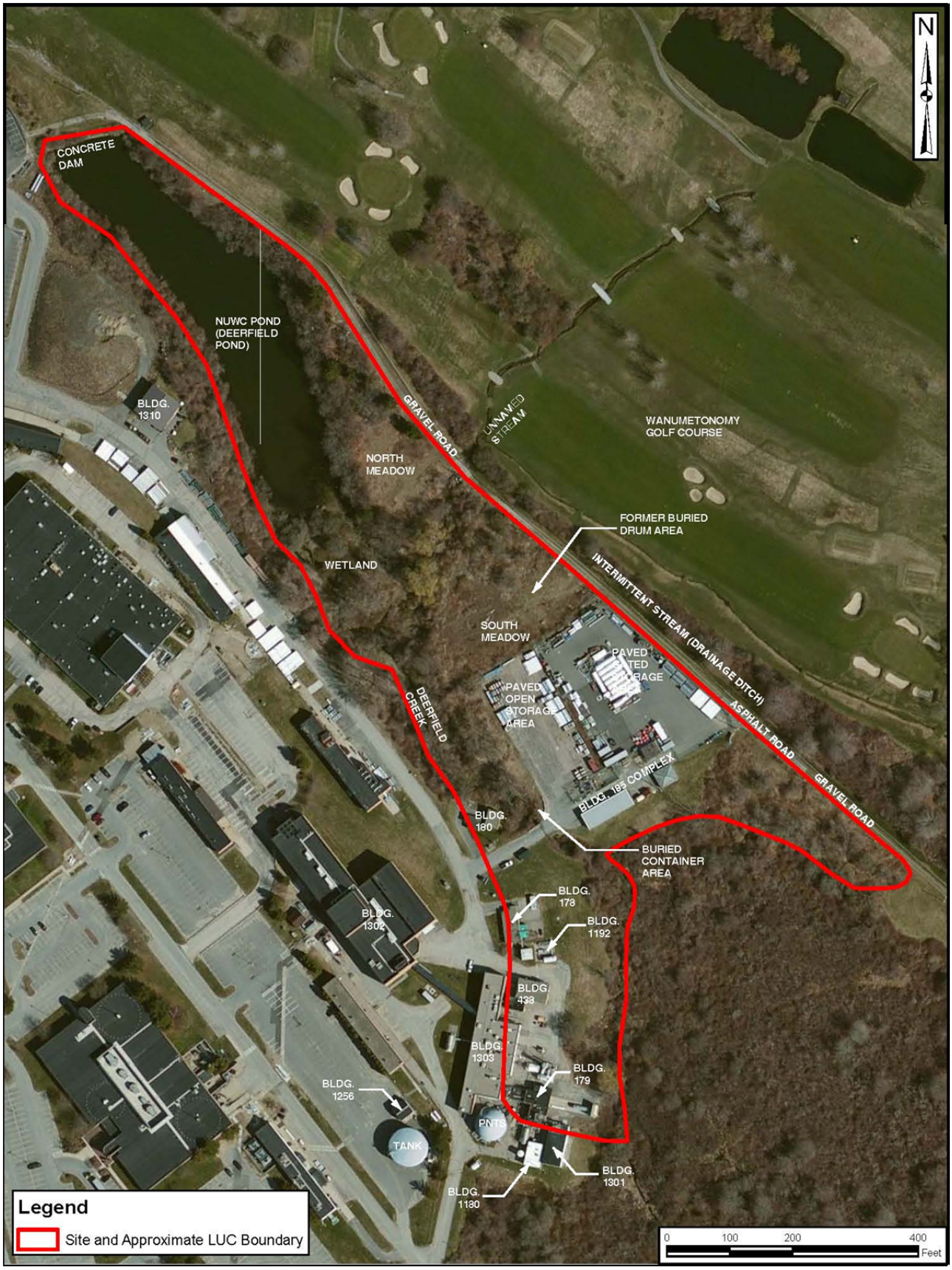


Figure 3 – Extent of Surface Soil Contamination

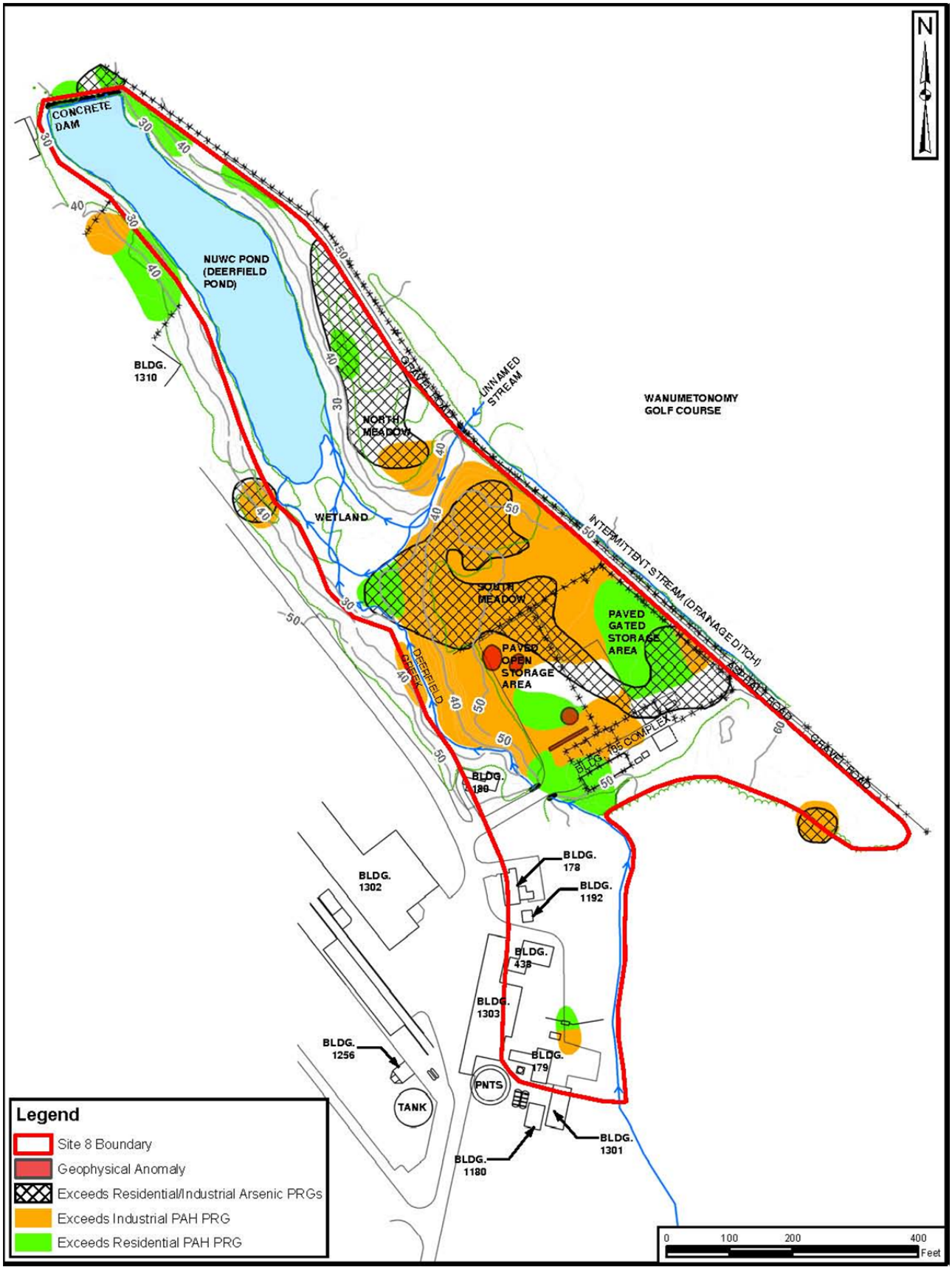


Figure 4 – Extent of Subsurface Soil Contamination

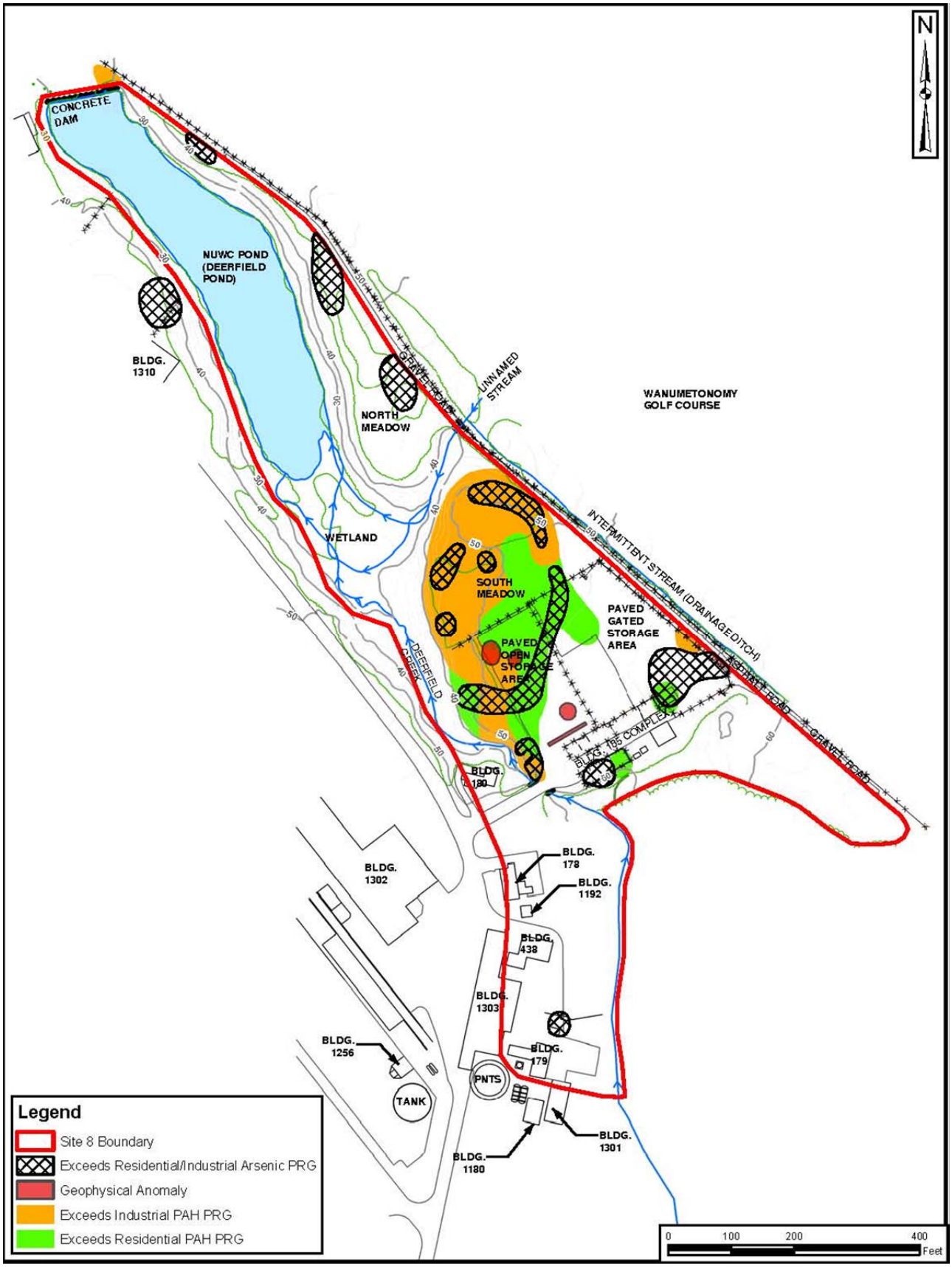
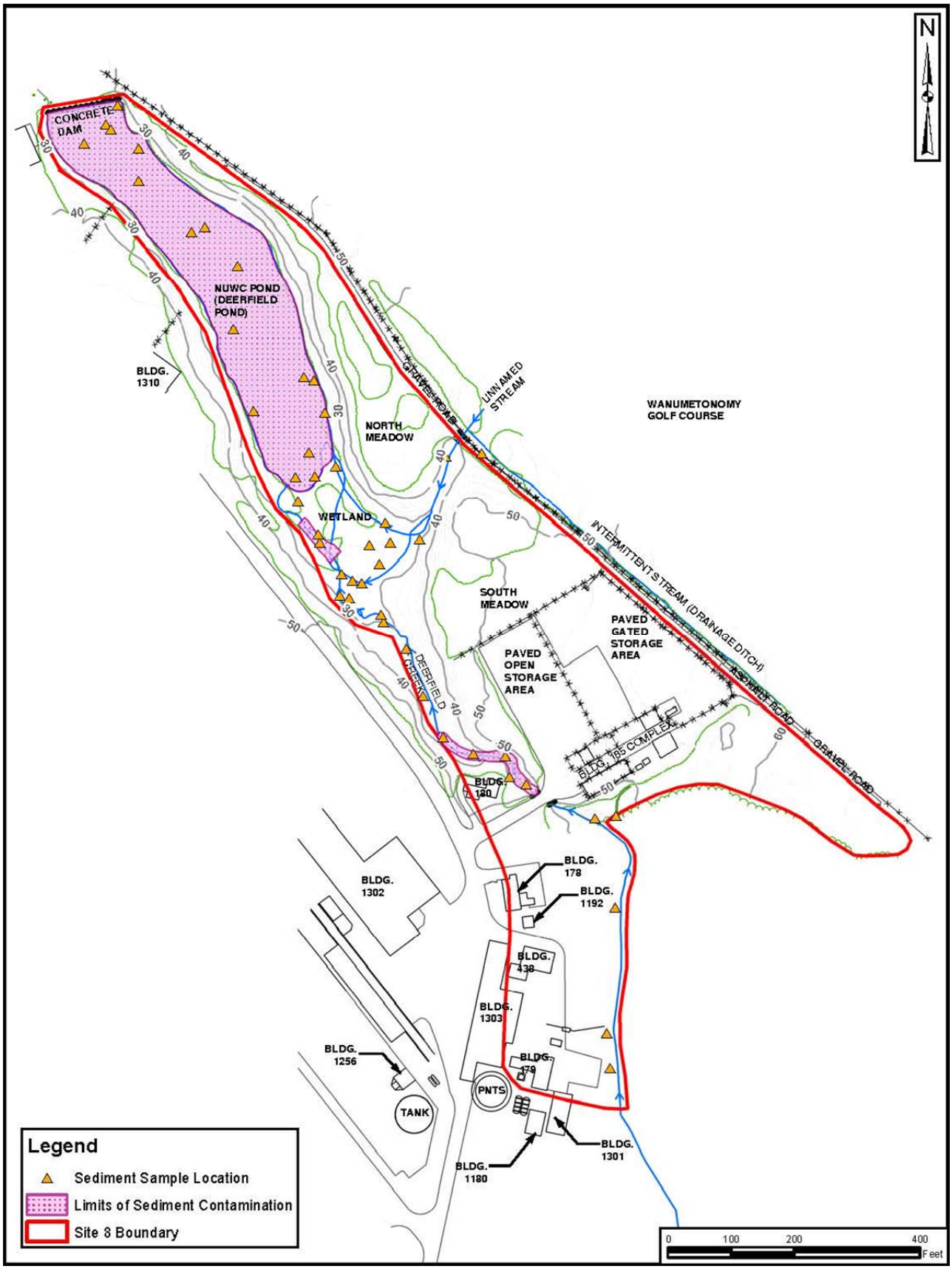


Figure 5 – Extent of Groundwater Contamination

Figure 6 – Extent of Sediment Contamination



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COMMENT SHEET
Proposed Plan for Site 8, NUSC Disposal Area

Use this space to write your comments or to be added to the mailing list.

The Navy encourages your written comments on the Proposed Plan for Site 8 (NUSC Disposal Area) at the Naval Station (NAVSTA) Newport, Newport, Rhode Island. You can use the form below to send written comments. If you have questions about how to comment, please contact the Navy's Public Affairs Office (Ms. Lisa Rama) at (401) 841-3538. This form is provided for your convenience.

Please fax or mail this form, or additional sheets of written comments, postmarked no later than August 15, 2012, to the address shown below:

Ms. Lisa Rama
Public Affairs Office
690 Peary Street
Naval Station Newport
Newport, RI 02841
Fax: (401) 841-2265

Comment Submitted by: _____

Address: _____

_____

_____

_____

Affix
Postage

Ms. Lisa Rama
Public Affairs Office
690 Peary Street
Naval Station Newport
Newport, RI 02841

(Fold on dotted line, staple, stamp, and mail)

GLOSSARY OF TERMS

Administrative Record: The collection of documents supporting the decision for the proposed cleanup alternative. A copy of the Administrative Record is available for public review at the local Information Repository.

Applicable Relevant and Appropriate Requirements (ARARs): Federal environmental and state environmental and facility siting statutes and regulations that must be complied with for each alternative. The ARARs vary depending on the alternative being proposed.

Contaminants of Concern (COCs): Chemicals identified in risk assessments as the primary drivers of unacceptable risks.

Chemicals of Potential Concern (COPCs): Chemicals which are found at concentrations above federal and state risk-screening levels and, therefore, are included in further risk assessments.

Chlorinated Solvent: An organic compound that is frequently used for degreasing or dry cleaning. Examples of chlorinated solvents include trichloroethene (TCE) and perchloroethene (PCE).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA). These laws created a system and funding mechanism for investigating and cleaning up abandoned and/or uncontrolled hazardous waste sites. The Navy's cleanup of sites regulated by CERCLA/SARA is funded by the Department of Defense under the Defense Environmental Restoration Fund.

Feasibility Study: A description and engineering study of the potential cleanup alternatives for a site.

Groundwater: Groundwater is the water found beneath the earth's surface that fills pores and cracks between such materials as sand, soil, gravel, or rock.

Information Repository: A public file containing site information, documents of onsite activities, and general information about a site.

Injection Wells: Wells that are used for adding liquid, solid, and/or gaseous substances into the ground for purposes of site cleanup.

Land Use Control: A legal or administrative restriction that prevents access or certain uses of land.

Monitoring Wells: A monitoring well is drilled at a specific location on or off a waste site. Groundwater can be sampled at selected depths and studied to determine the direction of groundwater flow and the types and quantities of chemicals present in groundwater.

Otto Fuel: A type of propellant used to drive torpedoes.

Proposed Plan: A CERCLA document that summarizes the preferred cleanup remedy for a site and provides the public with information on how they can participate in the remedy selection process.

Record of Decision: A CERCLA legal, technical, and public document that explains the rationale and final cleanup decision for a site. It contains a summary of the public's involvement in the cleanup decision.

Remedial Action Objectives: Goals that are set to protect human health and the environment, and provide the basis to select cleanup methods.

Remedial Investigation: A step in the CERCLA process that is completed to gather sufficient information to support selection of a cleanup approach to a site. The Remedial Investigation involves site characterization or the collection of data and information necessary to characterize the nature and extent of contamination at a site. The Remedial Investigation also determines whether or not the contamination presents a significant risk to human health or the environment.

Responsiveness Summary: A document containing the responses to the public comments on the Proposed Plan. This summary is issued as part of the Record of Decision.

Restoration Advisory Board (RAB): A forum for the exchange of information and partnership among citizens, community representatives, the Navy, and regulatory agencies for the environmental cleanup programs at NAVSTA Newport.

Volatile Organic Compound: An organic chemical that easily forms vapors under normal temperatures and pressures.

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For More Information…

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Information Repository

Documents in the Administrative Record relating to environmental cleanup activities for the NAVSTA Newport property are available for public review at the following Information Repository:

Visit our Website at:
http://go.usa.gov/Tsy
or
http://www.rabnewportri.org/
and click on the link for the "NAVFAC Website"