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Rhode Island Department of Environmental Management
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Reference: CLEAN Contract No. N62472-03-D-0057
Contract Task Order No. 132

Subject: Transmittal of Draft Proposed Plan
Site 09, Old Fire Fighting Training Area
Naval Station Newport, Newport RI

Dear Mr. Lim, Mr. Kulpa:

On behalf of Ms. Winoma Johnson, U.S. Navy NAVFAC, I am providing to you enclosed four copies of the Draft Proposed Remedial Action Plan (PRAP) prepared for the site referenced above. Due to the small file size, the electronic submittal is being made to you via electronic mail, and CDs are not going to be produced.

This Draft document has been prepared in accordance with comments/responses/resolutions reached on the Draft Final Feasibility Study Report (FS) for the site, and in accordance with the discussions held at the RPM Meeting March 17, 2010.

If you have any questions regarding this material, please do not hesitate to contact me.

Very truly yours,

Stephen S. Parker, LSP
Project Manager

SSP/lh

encl.

c: K. Finkelstein, NOAA (w/encl.)
P. Golonka, Gannett Fleming (w/encl.)
W. Johnson, NAVFAC Mid-Atlantic (w/encl.)
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File G01477-3.2 (w/o encl.) File G01477-8.0 (w/encl.)

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Proposed Plan

Site 9 – Old Fire Fighting Training Area
Naval Station Newport
Newport, Rhode Island

The Proposed Plan

This Proposed Plan has been prepared in accordance with federal laws to present the Navy's proposed cleanup approach for the Old Fire Fighting Training Area, which is Operable Unit 3 (OU-3) of the Naval Education Training Center Superfund Site at the Naval Station Newport, in Newport, Rhode Island. This plan describes the Navy's proposed remedy for the Site, which, after careful study consists of permeable asphalt/soil **cover and land use controls for soils, and use restrictions and monitoring for groundwater**. This document provides the public with information about the proposed remedy.

Introduction

This Proposed Plan provides information to the public on the preferred cleanup approach for the Old Fire Fighting Training Area (the Site) at the Naval Station Newport, located in Newport, Rhode Island. This plan has been prepared to inform the community of the Navy's basis for the preferred cleanup approach for the Site, and encourage community participation in the environmental cleanup process for the Site at Naval Station Newport.

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 environmental problems. Under this law, the Navy is pursuing cleanup of designated sites at Naval Station Newport to use the land for parking, roadways, and open space. 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 Naval Station Newport.

As the lead agency, the Navy has prepared this Proposed Plan for the Site in accordance with CERCLA Section 177(a) and Section 300.430(f) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This plan fulfills the Navy's public participation responsibilities under these laws.

Let us know what you think!

Mark Your Calendar!

PUBLIC COMMENT PERIOD

August 2, 2010 to September 1, 2010

The Navy will accept written comments on the Proposed Plan for the Old Fire Fighting Training Area during this period. Send written comments postmarked no later than September 1, 2010 to:

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

or email your comments to:
Lisa.Rama@navy.mil

PUBLIC INFORMATION SESSION AND PUBLIC HEARING – September 1, 2010

The Navy will hold a public information session from 7:00 p.m. to 7:30 p.m. that will include posters describing the Proposed Plan. A public meeting will follow from 7:30 p.m. to 8:00 p.m., during which the Navy will provide a presentation and host a question- and- answer session. Finally, the Navy will hold a formal public hearing from 8:00 p.m. until all comments are heard. At the formal hearing, an official transcript of comments will be recorded and entered into record. These activities will be held at the Officers Club, Naval Station Newport.

For more information, visit one of the Information Repositories listed at the end of this Proposed Plan.

The purpose of this Proposed Plan is to:

- Provide background information on the Site. This information includes: a description of the Site; a summary of the results of soil, groundwater, sediment, and shellfish investigations; and conclusions of human health and ecological risk assessments.
- Describe cleanup options considered for the Site.
- Identify and explain the Navy's preferred cleanup plan for the Site.
- Encourage public review and comment on this Proposed Plan.

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

The information presented in this Proposed Plan highlights key information from previous reports about the Site, which have been presented to the public at various Restoration Advisory Board (RAB) meetings. More detailed information about the Site can be found in the Remedial Investigation (RI), Feasibility Study (FS), and Conceptual Site Model (CSM) reports, related regulatory agency comments, and other documents located at the Information Repositories established by the Navy for Naval Station Newport (see list of Information Repositories on the last page of this plan).

Scope and Role of the Response Action

The Old Fire Fighting Training Area, also referred to as Site 9 and OU-3, is one of several sites identified at Naval Station Newport for cleanup under CERCLA. Each site undergoing cleanup under CERCLA progresses through the cleanup process independently of the others. The Navy's cleanup evaluation of the Site has concluded with a recommendation for asphalt/soil cover and land use controls for soils, and use restrictions and monitoring for groundwater.

The Response Action for the Site is not expected to have an impact on the strategy or progress of cleanup for other sites at Naval Station Newport.

Site Background and Characteristics

Where is the Site?

Naval Station Newport is located approximately 25 miles south of Providence, Rhode Island. The facility layout is long and narrow, following the western shoreline of Aquidneck Island for nearly 6 miles facing the east passage of Narragansett Bay. The Site is located at the northern end of Coasters Harbor Island (see Figure 1).

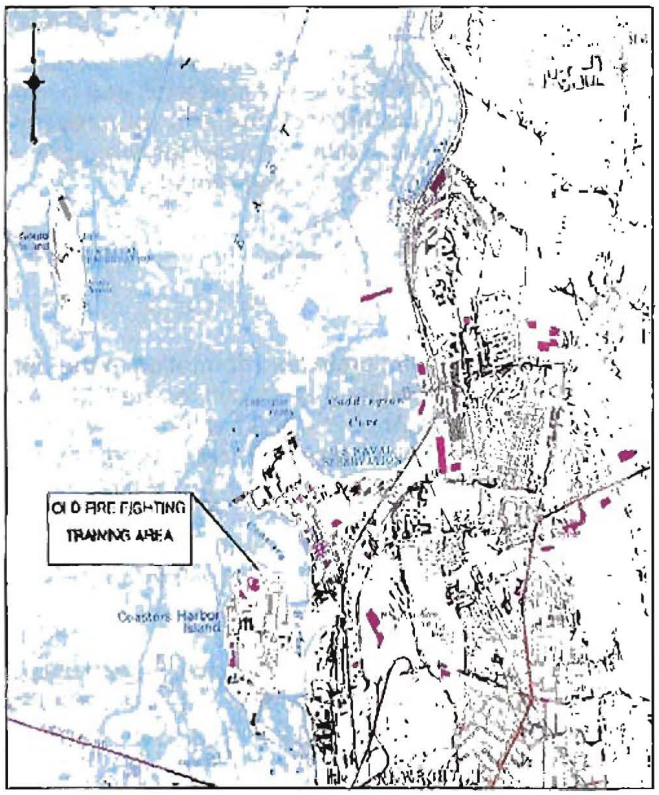

Figure 1 – Site Location at the northern end of Coasters Harbor Island.

What was the Site used for?

Activity on Coasters Island dates back to Colonial times. The north end of the island appears to have been developed in the mid 20th century. The site was home to a Navy fire fighting training facility from World War II until 1972. During the training operations, fuel oils were ignited at the site in various

structures that simulated shipboard compartments, and then were extinguished by sailors. It was reported that a water/oil mixture was injected into buildings and the oil was then ignited for firefighting practice purposes. Underground piping reportedly carried the water/oil mixture from tanks to the buildings. Unburned fuels and water were carried from the buildings to an oil water separator.

The fire fighting training facility was closed in 1972. Upon closure, the training structures were demolished and buried in mounds on the site, and then the entire area was covered with topsoil. The site was then converted into a recreational area comprised of a playground, a baseball field, and a picnic area with an open pavilion and barbecue grills. The field was dedicated on July 4, 1976 and the area was used for recreation until its closure in October 1998, because of potential environmental and human health concerns.

In 2003, the Surface Warfare Officers School (SWOS) Applied Instruction Building was constructed near the site.

What does the Site look like today?

The area is generally flat, with surface elevations ranging from 8 to 12 feet above mean low water.

Access to the original Old Fire Fighting Training Area Site, much of which is covered with gravel or soil, is restricted by a chain link fence along its eastern, southern, and western boundaries. The southern portion of the Site is currently covered by Taylor Drive and paved parking areas (Figure 2). Land use at OFFTA is anticipated to be industrial/commercial in the future. Current plans are to redevelop the site for parking.

How big is the Site?

The Site is approximately 8.2 acres, consisting of the area north of Taylor Drive as well as the parking areas for the Surface Warfare Officers School (SWOS).

What were the Investigation results?

During the environmental studies performed at the Site, (see *Environmental Investigations* text box) soil, marine sediment, groundwater, and shellfish samples were collected. These samples were analyzed for fuel components including gasoline-range organics (GRO), diesel-range organics (DRO), semi-volatile organic compounds (SVOCs) and polycyclic aromatic hydrocarbons (PAHs), metals, and volatile organic compounds (VOCs), pesticides, and polychlorinated biphenyls (PCBs).

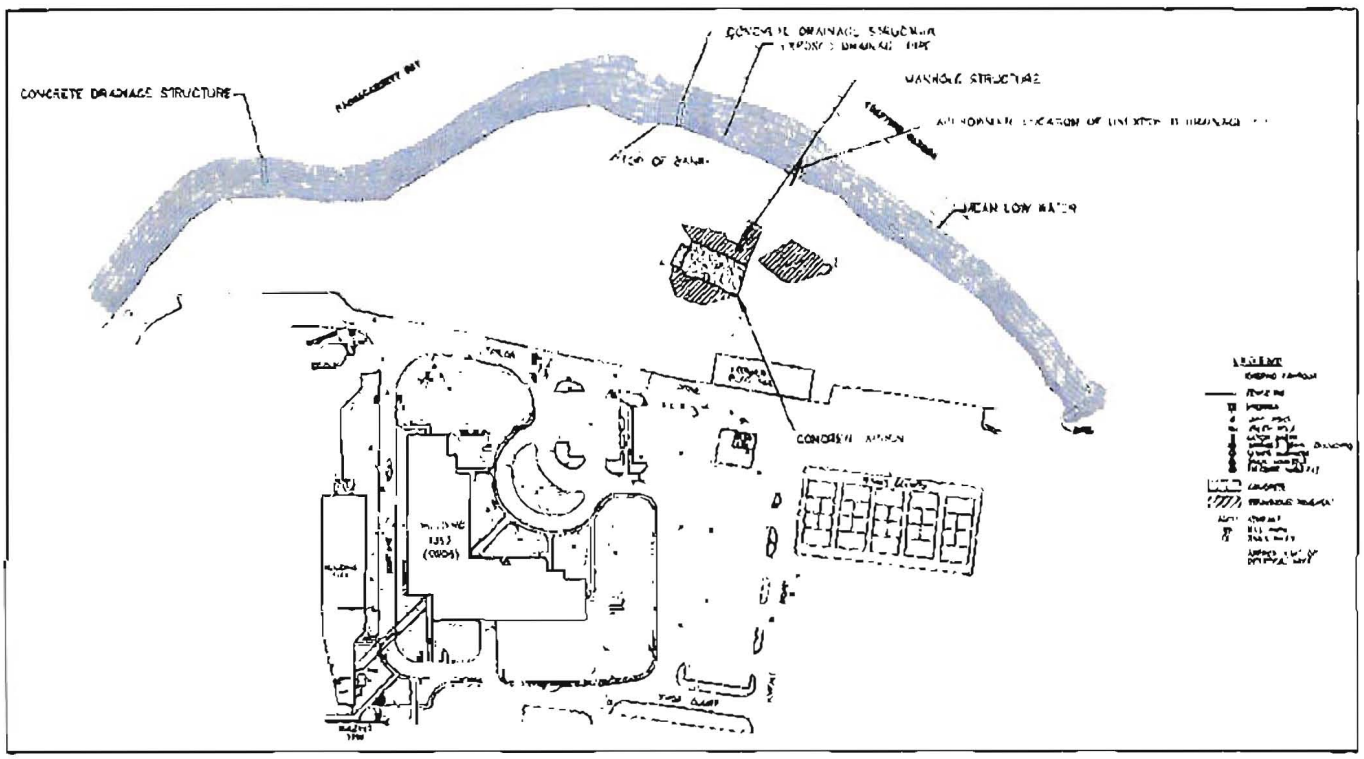

Figure 2 – Current features at the Old Fire Fighting Training Area.

Environmental Investigations and Removal Actions

1983: Initial Assessment Study conducted.

1987: The Remedial Investigation for the Site was initiated.

1988: Endangered species survey conducted by RIDEM.

1990 and 1994: Sampling events conducted for Remedial Investigation.

1994: Remedial Investigation Report published.

1996: University of Rhode Island conducted Doppler current-profiling in Coasters Harbor.

1997: Source Area Removal Investigation conducted.

1997-1998: Sampling events conducted for Marine Ecological Risk Assessment.

2000: Marine Ecological Risk Assessment and Background Soil Investigation were published.

2001: Remedial Investigation updated to include the Baseline Human Health Risk Assessment.

2001-2002: Sampling events conducted to update groundwater and sediment conditions.

2002: Groundwater Risk Evaluation published.

2002: Sediment pre-design investigations and forensic investigation conducted to refine contaminant source and quantity of affected sediment.

2005: Soil pre-design investigations conducted to refine quantity of affected soil.

2004-2006: Removal of soil and debris mounds from the site.

2007: Supplemental Risk Evaluation prepared, and a Draft Revised Feasibility Study was prepared.

2007: Inspection conduced to support the design of a replacement stone revetment.

2007 -2008: Soil removal action conducted to remove drain pipes, oil-water separator and oil-contaminated soil.

2009: Design completed for replacement stone revetment at shoreline

2010: Revised Feasibility Study finalized.

The sample results are summarized in detail below.

- ***Petroleum (GRO and DRO)*** – Petroleum is not regulated under CERCLA, but has been investigated because contaminants regulated under CERCLA are comingled with petroleum at this site as a result of the former site use.

  Petroleum has been found in subsurface soils in the central and eastern portions of the site, and in areas inland. In the central portion of the site, petroleum constituents were identified in soils near the water table.

  No measurable light non-aqueous phase liquid (LNAPL) was detected in any of the site monitoring wells; however, sheens have been noted in water purged from monitoring wells.

  Dissolved petroleum was detected in groundwater from 10 wells sampled in 2004. This indicates that a slight dissolution of petroleum from soil to groundwater is occurring in this area.

  Oil sheens or oil seepages have not been observed in surface waters along the shoreline adjacent to the site during any of the documented site investigations

- ***Semivolatile Organic Compounds (SVOCs) Including Polycyclic Aromatic Hydrocarbons (PAHs)*** – The SVOCs detected include primarily the class of compounds categorized as PAHs. PAHs feature prominently in the contaminant mix in soil at the site because they are present as a result of both unburned and burned fuels. PAHs were also detected in site sediments.

  PAHs consistent with abraded asphalt were detected in sediment samples collected from on-site storm drains and connected upgradient catchbasins that discharge to outfalls along the shoreline of the site.

  Groundwater analytical results for samples collected from 1994 through 2004 showed the presence of low concentrations of a few SVOCs, primarily PAHs. Concentrations of two SVOCs (2-methylnaphthalene and naphthalene) exceeded state and federal criteria for drinking water (Maximum Contaminant Levels [MCLs]) in two wells during the 1997sampling event. No SVOCs were detected at concentrations exceeding these standards during any other sampling events (1994, 2002, or 2004).

PAHs were detected in all site sediment investigations. The highest PAH concentrations in marine sediments have historically been detected near the two storm drain outfalls that discharge at the shoreline of the site.

A forensic study of the sediment contamination was conducted in 2004 and 2005 to clarify the source of the PAH contaminants. It was found that the PAHs in the sediment were more closely related to PAHs from asphalt and paving treatments than to the PAHs found in soil at the site.

Concentrations of PAHs detected in shellfish from the site were compared with available reference data for blue mussels from other parts of Narragansett Bay. This comparison showed similar concentrations of these contaminants in mussels collected from the site and in the reference area.

In 2004, as part of an upgrade to the Naval Station Newport storm water discharge control program, one storm drain that discharges into Coasters Harbor was fitted with a filter system designed to capture oils and sediments in the storm water before release to the harbor. Ultimately, a reduction in sediment contaminant load was noted at this location, indicating the likelihood that this capture system greatly reduces PAH contaminants in storm water discharge.

- ***Metals*** – In surface soil, arsenic, beryllium, lead and manganese have been detected at concentrations exceeding the RIDEM Residential Direct Exposure Criteria for soil. Studies have shown that manganese and arsenic can occur naturally in the area at elevated concentrations. In contrast, elevated lead concentrations are associated with the fill material (sand and gravel) at the site. With the exception of lead, it was concluded that the metals are most likely components of the regional till or bedrock, and not the result of contamination.

  Manganese was detected in site groundwater samples at concentrations exceeding state drinking water criteria and a federal drinking water health advisory. The highest concentrations of manganese in groundwater were detected in samples from the periphery of the site, especially in wells that are tidally influenced.

  Concentrations of lead and arsenic detected in shellfish from the site were compared with available reference data for blue mussels from other parts of Narragansett Bay. This comparison showed similar concentrations of these contaminants in mussels collected from the site, and in the reference area.

- ***Volatile Organic Compounds (VOCs)*** — Groundwater analytical results from 1994 through 2004 showed the presence of low concentrations of a few VOCs. The concentration of one VOC (benzene) exceeded state and federal drinking water standards in two wells sampled in 1997. No VOCs were detected at concentrations exceeding these standards during any of the other sampling events (1994, 2002, or 2004). VOCs were not detected in soil or sediment above standards.

- ***Pesticides*** – Pesticides were detected in surface soil and subsurface soil across the site, in storm water, in marine sediment, and in shellfish samples. Only one pesticide, endrin, was detected in groundwater. All pesticide concentrations were relatively low, and they were determined to be unrelated to the site activities, but likely from general use in residential and agricultural applications in the watershed.

- ***Polychlorinated biphenyls (PCBs)*** - PCBs were detected infrequently in surface and subsurface soil, at concentrations below RIDEM Residential Direct Exposure Criteria for soil. PCBs were detected frequently in biota tissue samples. However, this is common as shellfish accumulate PCBs through feeding and do not metabolize them. PCBs were determined to be unrelated to the site activities, and are likely from industrial sources which may be contributing contaminants to Narragansett Bay.

Summary of Site Risks

The Navy completed risk assessments to evaluate potential current and future effects of chemicals on human health and the environment. The results of these assessments are described below.

HUMAN HEALTH RISKS

The human health risk assessment (HHRA) 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 humans, a four-step process was used.

Step 1 - Identify Chemicals of Potential Concern (COPCs). Chemicals of potential concern are chemicals found at the Site at concentrations above federal and state risk-screening levels. Chemicals with concentrations above these levels were further evaluated in the human health risk assessment.

COPCs identified at the Site included the following:

- ***Soil*** – PAHs including benzo(a)pyrene at concentrations up to 10,000 µg/kg; benzo(a)anthracene at 14,000 µg/kg; and benzo(b)fluoranthene at 14,000 µg/kg. Lead, present at concentrations up to 8,250 mg/kg in fill.

- Residual petroleum is bound within the soil matrix, particularly at the water table. This material will create a sheen on groundwater when the soil matrix is disturbed. Generally, petroleum is excluded from CERCLA regulation and is normally cleaned up under other authorities such as state regulations. However, the petroleum at this Site is comingled with CERCLA contaminants because of the routine burning of petroleum products, which occurred as part of the OFFTA operations. The CERCLA contaminants cannot effectively be remediated separately from the petroleum. The Navy, EPA, and RIDEM have therefore agreed that this cleanup will need to remediate the petroleum in order to effectively remediate the comingled CERCLA contaminants.

- ***Groundwater*** - Lead, detected at an elevated concentration of 38.6 µg/L, exceeds the federal drinking water criteria of 15 µg /L (and RIDEM drinking water criteria, though it is well within the RIDEM criteria for industrial use). Manganese exceeds a federal health advisory for drinking water at several locations at the site. VOCs were detected in groundwater at concentrations below drinking water criteria, although benzene was detected exceeding federal drinking water criteria in two wells in 1997. SVOCs exceeded the EPA screening levels for drinking water.

Step 2 - Conduct an Exposure Assessment. In this step, the ways that humans come into contact with soil, sediment, and/or groundwater at the Site were considered. Both current and reasonably foreseeable future exposure scenarios were identified.

For the Site, exposures that were evaluated included: residential, recreational (considered a restricted recreational scenario under RIDEM's regulations), shoreline visitor, and excavation worker exposed to surface soil, subsurface soil, shoreline sediment (intertidal sediment), and shellfish (lobsters, clams, and mussels which could be exposed to near shore and offshore sediment); shellfish ingestion (ingestion of shellfish taken recreationally and for subsistence); lifetime residential (adult and child) exposed to unrestricted groundwater use; and a future industrial/commercial worker exposed to soil, indoor air, and groundwater.

Step 3 - Complete a Toxicity Assessment. Possible harmful effects (if any) from potential exposure to the individual COPCs were evaluated. Generally, these chemicals were separated into two groups: carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse effects other than cancer).

Step 4 - Characterize the Risk. The results of Steps 2 and 3 were combined to estimate overall risks from exposure to chemicals present at the Site. The terms used to define the estimated risk are explained in the text box, *What's the Risk to Me?*

The results of the risk assessment for receptors exposed to site media indicated the following:

- For surface soil, the reasonable maximum exposure (RME) cancer risks under the lifetime recreational and lifetime resident scenarios are within EPA's target risk range, but slightly greater than the benchmark used by RIDEM. Primary contributors to risk (lifetime residential exposure to surface soil) include: arsenic, dibenzofurans, benzo(a)pyrene, and dibenzo(a,h)anthracene. Non-cancer HIs for surface soil under all scenarios did not exceed benchmarks.

- For subsurface soil, cancer risks are within EPA's target risk range, but are slightly greater than the RIDEM benchmark. Primary contributors to risk under lifetime exposure to subsurface soil in a residential scenario include: arsenic, and the PAHs benzo(a)pyrene, benzo(a)anthracene, and benzo(b)fluoranthene. Non-cancer HIs for subsurface soil under all scenarios did not benchmarks.

- Risk to persons from exposure to lead is calculated differently – see the text box to the right – "What's Risk To Me?" For residential children exposed to subsurface soil, the estimated percentage predicted to exhibit a blood lead level above 10 µg/dL is 18.6 percent. This exceeds EPA's protective level cutoff of 5 percent and indicates adverse effects to children living at the site from lead exposure.

- The estimated cancer risk for a lifetime resident exposed to groundwater used as a potable water source which exceeds EPA's target risk range and RIDEM's benchmark. Non-carcinogenic risks for the residential child and residential adult both exceed non-cancer benchmarks. For the residential child receptor, benchmarks are also exceeded for manganese, arsenic, chromium, 2-methylnaphthalene, and benzene.

  This high level of risk is based on groundwater use as the primary drinking water source for hypothetical on-site residents, although groundwater at the site is not currently used for drinking or bathing. This scenario is unlikely to occur for the following reasons: the State's groundwater classification of the aquifer underlying the site prevents such use; the site's proximity to the ocean and the groundwater salinity measured near the shoreline also prevents use; and the availability of city water supply precludes need of such use. Considering unrestricted use of groundwater for drinking water is only used in this evaluation to provide a conservative estimate of risk.

- For future industrial/commercial worker exposures to soil, the cancer risk is within the EPA's target risk range, but exceeds RIDEM's benchmark. The major contributors to this cancer risk are PAHs and arsenic. For construction worker exposure to groundwater, cancer risk is estimated to be below benchmarks. The total cancer risk to the construction worker (calculated by adding the risk from groundwater and the risk from soil) is above RIDEM benchmarks but within EPA target risk range. Non-cancer hazard indices are below benchmarks for soil and groundwater.

- Industrial/commercial worker exposure to lead in soils at the Old Fire Fighting Training Area Site found that the probability of risk from lead is well below the benchmark provided by EPA.

What's the Risk to Me?

In evaluating risks to humans, risk estimates for carcinogens (chemicals that may cause cancer) and noncarcinogens (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 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 $1x10^{-4}$, and RIDEM's benchmark is 1×10^{-5}. In general, calculated risks higher than these values would require consideration of cleanup alternatives.

For noncarcinogens, 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 (non-cancer) health effects. The exposure dose is divided by the RfD to calculate the measure known as a hazard index. A hazard index (HI) greater than 1 suggests that adverse effects are 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 µg/dL is calculated. EPA's target probability is 5 percent or less. If the probability is less than 5 percent, it is accepted that lead does not pose a risk to humans.

- Potential risks from volatilization of groundwater contaminants into indoor air spaces were evaluated through EPA's Subsurface Vapor Intrusion Guidance. Based on this evaluation, the vapor intrusion pathway was considered insignificant because all groundwater concentrations were below the vapor intrusion screening levels.

The chemicals of concern (COCs) for the Site were identified in the HHRA as primary contributors to human health risks for current and future land use. The COCs are summarized below:

- ***Soil (Industrial use)*** – Lead, PAHs.
- ***Groundwater*** – Arsenic, chromium, lead, manganese, 2-methylnaphthalene, and benzene.

ECOLOGICAL RISKS

The ecological risk assessment (ERA) was completed in three steps, which are discussed below.

Step 1 - Problem Formulation. The primary objective of the ERA for the Site was to assess ecological risks from contaminants associated with Old Fire Fighting Training Area to possible receptors in the offshore environments of Coasters Harbor and Narragansett Bay.

Ecological risk-based contaminants of concern (COCPs) were identified in sediment and shellfish, based on sampling results.

Step 2 - Risk Analysis. Risks were identified according to sample stations, based on summaries of each weight of evidence, and focusing on exposure (contaminants present) correlated to effects (reproduction and growth inhibitions, etc). Sampling stations were rated, based on these summaries, to indicate areas of high, intermediate, and low probability for adverse risk to receptors present at those stations.

Step 3 - Risk Characterization. The results from the risk analysis were used to determine the probability of adverse effects to the ecological receptors at the Site. The results of an ERA are based on an interpretation of the overall weight of evidence collected from the Site.

A *High* probability of ecological risk is assigned to areas where numerous lines of evidence suggest pronounced contaminant exposure and effects, the spatial extent of apparent impact is great, the impact is likely to be persistent over long periods of time, and the available data support demonstrable exposure response relationships. The ERA found high probability for adverse risk to ecological receptors at one sample station located near a storm drain outfall due to the PAHs that were detected in sediment.

An Intermediate probability of ecological risk is assigned to locations falling between high and low probabilities of risk. These are characterized by the occurrence of measurable exposure or effects, but not both. An intermediate probability for adverse risk to receptors was determined for several shoreline stations and harbor stations, due to measured effects, or to contaminant concentrations detected above screening concentrations. However, since no exposure-response relationship was found, it is not certain that stresses to test organisms were caused by detected contaminants, or by other factors.

How is Ecological Risk Expressed?

The risk to ecological receptors is expressed as a Hazard Quotient (HQ). 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 HQ is below 1.0, toxicological effects are unlikely to occur and no significant risk is present. When the HQ is above 1.0, there is a potential for significant risk to be present.

A Low probability of ecological risks suggests possible, but minimal impacts based on some of the exposure or effects-based lines of evidence, while impacts are undetectable by the majority of exposure and effects-based lines of evidence. A low probability for adverse risk was estimated for the remainder of the sample stations, including one reference station, and the near-shore stations that are more exposed to rough water conditions. The observed risks at these stations are considered acceptable from an ecological risk perspective.

A *baseline* condition that would be associated with relatively pristine conditions was not observed at any of the site sample stations or reference sample stations that were evaluated in this assessment.

Continued evaluations of subtidal sediments at Coasters Harbor have found lower concentrations of chemical contaminants and evidence of a healthy ecological community, with eelgrass beds, and reproductive populations of commercially important shellfish (bay scallops, oysters, clams, etc). A shellfish collection ban is imposed on this area, by the State of Rhode Island. Shellfish closure areas are important to the overall health of the bay, as the mature shellfish in areas closed to collection provide important seed stock for other areas of the bay.

Remedial Action Objectives

Remedial action objectives (RAOs) are the goals that a cleanup plan should achieve. They are established to protect human health and the environment, and comply with all pertinent federal and state regulations. The RAOs are developed to address all the identified COCs in each of the media of concern. The following RAOs were developed for the Site:

- Prevent the ingestion of and direct contact with vadose zone soil containing site contaminants that exceed preliminary remediation goals (PRGs) developed for the OFFTA site, as pertinent to the appropriate land use. Identify and prevent, to the extent practicable, any transfer of contaminants from site soils to sediment via groundwater transport or via soil/beach face erosion.

- Prevent the ingestion of, and direct contact with groundwater with chemicals at concentrations that exceed PRGs for the site. Ensure that the transfer of contaminants from site soil to sediment via groundwater transport is not occurring.

Preliminary Remediation Goals (PRGs), or cleanup concentration thresholds, were developed in the FS for the ten contaminants identified as human health COCs in Site soil and groundwater. These COCs, and their PRG concentrations include:

- ***Soil (industrial use)*** –
  lead (500 mg/kg)
  benzo(a)anthracene (2110 µg/kg),
  benzo(a)pyrene (211 µg/kg),
  benzo(b)fluoranthene (2110 µg/kg), and
  dibenzo(a,h)anthracene (211 µg/kg).

- ***Groundwater (as drinking water)*** –
  Arsenic (0.04 µg/L),
  chromium (30 µg/L),
  lead (15 µg/L),
  manganese (291 µg/L),
  2-methylnaphthalene (128 µg/L), and
  benzene (1 µg/L).

Summary of Remedial Alternatives

Remedial alternatives, or cleanup options, were identified for the Site in the FS. The alternatives were developed to meet the RAOs listed above. Each alternative is briefly described below for soil and groundwater.

Soil Alternative 1: No Action

A "no action" alternative was evaluated for the Site. Under a no action alternative, the Site would be left as it is today. 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.

The No Action alternative would only include review of site conditions every five years.

Soil Alternative 2: Removal, Ex situ Treatment, Backfill, and Land Use Controls (LUCs)

Soil Alternative 2 features excavation of soil exceeding PRG levels and on-site treatment of the contaminated soils. Treated soils would be used as backfill. Soil Alternative 2 would achieve RAOs through the following remedial components:

- Excavation would involve removal of soil, loading material onto trucks, and hauling material to a centralized location on the Site.

- Low-temperature thermal stripping (LTTS) and soil washing treatments would be performed on the Site. LTTS uses heating to thermally volatilize organic contaminants in soils. Soil washing involves removal of contaminants by washing in a water-based system with additives to help remove heavy metals. Treatment confirmation analyses would be performed on cleaned stockpiles.

- The excavations would be backfilled with treated soil from the clean stockpiles.

- Following excavation and backfill of Taylor Drive and the SWOS parking areas, the utilities, pavement, and sidewalks would be replaced.

- Existing shoreline protection would be replaced to prevent erosion of the treated, backfilled soil (which is being conducted as part of a different action).

- Land use controls (LUCs) would be implemented to prevent residential use of the land.

- Pre- and post-remedial groundwater monitoring would be conducted for trend comparison.

- Long-term monitoring of groundwater and five-year reviews will be necessary.

Soil Alternative 3: Removal, Disposal, and LUCs

Soil Alternative 3 specifies the removal and off-site disposal of soil with COCs exceeding the selected PRGs. Soil Alternative 3 would address the RAOs through the following remedial components:

- Excavation would involve removal of soil, loading material onto trucks, and hauling material to an approved off-site disposal facility.
- Backfilling would involve placement of clean fill in the excavated areas.
- Utilities would be replaced when the site is backfilled. Also, Taylor Drive and the SWOS parking areas would be repaved after the earthmoving operations have been completed.
- Existing shoreline protection would be replaced with a new revetment to prevent erosion of the backfilled soil (which is being conducted as part of a different action).
- Land use controls (LUCs) would be implemented to prevent residential use of the land.
- Long-term monitoring of groundwater and five-year reviews will be necessary.

Soil Alternative 4: Asphalt/Soil Cover and LUCs

Soil Alternative 4 would contain the contaminated soils with a permeable asphalt/soil cover. Soil Alternative 4 would address the RAOs through the following remedial components:

- The area north of Taylor Drive would be covered by geotextile and two feet of clean soil.
- The grassed islands within the SWOS parking lot would be covered with a geogrid barrier layer overlain by six inches of topsoil.
- Paved areas would be assumed to provide an effective barrier to prevent access to contaminated soil.
- Existing shoreline protection currently being replaced (as part of a different action) with a new revetment to prevent erosion of the new asphalt/soil cover will fit with this alternative. The asphalt/soil cover may need some additional stone protection on the north side of the site.
- Long-term management and LUCs would be required to prevent access to soils since soils exceeding PRGs would remain on Site.
- Long-term monitoring and/or five-year reviews will be necessary for groundwater.

Groundwater Alternative 1: No Action

A "No Action" alternative was evaluated for the Site. Under a no action alternative, the Site would be left as it is today. Although the Navy has not considered this to be an appropriate response action for the Site, it is a statutory requirement under NCP that a "No Action" alternative be evaluated. Thus, this alternative is used as a baseline for comparison with other alternatives.

The No Action alternative would only include review of site conditions every five years.

Groundwater Alternative 2: Limited Action (use restrictions and monitoring)

Groundwater Alternative 2 would limit potential risks to human health through groundwater use restrictions. This would meet the RAOs through the following remedial components:

- Groundwater use restrictions would be implemented to prevent the installation of wells for any consumptive use purpose, including for household use, drinking water supply, irrigation, or industrial use. The restriction would also describe any necessary protection measures for workers involved in future site development activities that may come into contact with groundwater.
- The Navy will submit an annual report to RIDEM and EPA documenting compliance with the restrictions as appropriate.

  A long-term monitoring program and 5-year reviews would be conducted to periodically measure quality of groundwater at the site. Groundwater monitoring is also required to assess the protectiveness of any soil remedy where contaminants exceed risk-based PRGs.

Evaluation of Alternatives

EPA has established nine criteria for use in comparing the advantages/disadvantages of each remedial alternative. These criteria fall into three groups: threshold criteria that any selected alternative must meet; primary balancing criteria that are used to

differentiate between alternatives; and modifying criteria that may be used to modify the recommended remedy. In the FS, each remedial alternative is individually evaluated with respect to seven of the nine criteria and then compared against each other with respect to each criterion. The two modifying criteria are evaluated after receipt of state and public comments on the FS and Proposed Plan. Tables 1 and 2 identify the evaluation criteria and present a summary of the evaluation of alternatives for the Site.

Preferred Alternatives

The Navy is proposing Soil Alternative 4, asphalt/soil cover and LUCs, and Groundwater Alternative 2, Limited Action (use restrictions and monitoring), as its preferred remedies for the Site. The Navy has concluded that these remedies are protective of human health and the environment, and achieves the overall goals established for the Site. The Navy proposes that these remedies be the final remedy for the Site.

Preferred Alternative for Soil

Overall, the soil alternative will include the following steps:

- A 2-foot thick permeable soil cover would be placed over unpaved areas. This cover would consist of a geotextile, 18 inches of soil, and six inches of topsoil. The geotextile would separate the clean fill from the underlying contaminated soil and serve as a marker layer if any future land disturbing activities were conducted.

- Areas which are currently covered by pavement or sidewalks would not be altered, with the understanding that the pavement provides a barrier from contact with the underlying soil. Additional parking areas which are planned for this site would need to be constructed to comply with this remedy.

- Construction of the soil cover areas would require approximately 15,900 cubic yards of clean soil to be brought on to the site.

- Grassed islands within the existing parking lots would be covered with a modified permeable cover. This cover would consist of 6 inches of top soil underlain by a geogrid (a heavy duty plastic grid usually used for soil reinforcement) that would serve as a barrier layer to incidental excavation in the area. Given the relatively small area, low level of contamination, and high maintenance in this area, a reduced cap thickness would be protective in this area.

- A revetment is currently being constructed as part of a separate action along the northern perimeter of the site to prevent soil erosion and migration of contaminated soil to the sediment. The revetment would be keyed into the asphalt/soil cover installation.

- Long-term Operation and Maintenance (O&M) of the revetment would be required because it is an integral part of this remedy.

- Post-remediation groundwater monitoring would be conducted to assess the protectiveness of the soil remedy.

- LUCs would limit the use of the site for industrial/commercial purposes and limit the use of soil and groundwater.

- Long-term monitoring of compliance and O&M of the cover would be conducted.

- Five-year reviews would be required.

When completed, Soil Alternative 4 will be: (1) protective of human health and the environment (e.g., achieve the Site-specific RAOs); (2) comply with all pertinent state and federal regulations; (3) provide long-term effectiveness; and (4) provide a cost-effective remedy that can be easily implemented using proven technology.

While Soil Alternatives 2 and 3 would also achieve the RAOs if successfully implemented, there is some uncertainty in the potential effectiveness of Soil Alternatives 2 and 3 for providing short term protection. In addition, there is uncertainty in the implementability of Soil Alternative 2. Soil washing is only moderately reliable, and soils may require more than one pass through the treatment equipment to meet PRGs. In addition, intensive O&M activities would be required during the remediation process. The excavation and backfilling of Taylor Drive and SWOS parking area in Soil Alternatives 2 and 3 would be complicated by the utilities in the area. Soil Alternative 3 would present a short-term risk to persons exposed to soils and fugitive emissions during excavation and transportation activities.

Soil Alternative 4 has high certainty in achieving PRGs through the use of asphalt/soil cover and land use controls. Consistent with EPA guidance, the lowest cost option that will be protective and will comply with regulations was selected. Soil Alternative 4 is recommended because it offers the best balance among the criteria used to evaluate the alternatives.

Preferred Alternative for Groundwater

Overall, the groundwater alternative will include the following steps:

- Exposure to groundwater contaminants would be prevented through use restrictions implemented in the form of land use controls (LUCs). Long-term monitoring of these controls would be required. Land use controls are rules, directives, policies, and other measures (e.g., preventing the usage of groundwater, preventing the installation of new groundwater production wells) adopted by the landowners and appropriate authorities in a manner consistent with applicable Federal, State, and local laws. Land use at OFFTA is anticipated to be industrial/commercial/ in the future, and LUCs will ensure that access to and use of the groundwater is restricted.

- Long-term groundwater monitoring will be needed to provide information on the quality of the groundwater to assure that the aquifer is not further degraded. Monitoring would be conducted for 30 years (on a yearly basis for years 1-5 and every five years thereafter) and would include analysis for all the COCs (organics and metals). It is anticipated that some natural attenuation of the groundwater would occur over time; however, this is not intended to be a primary element that this alternative relies upon.

- Five-year reviews would be required. Five-year site reviews would consist of evaluating the monitoring data for effectiveness of the remedial response and use restrictions. There also will be, at a minimum, yearly monitoring for compliance with land use restrictions.

The Navy evaluated a variety of criteria and followed available EPA guidance to select an alternative that would be protective and cost-effective. When completed, Groundwater Alternative 2 will be: (1) protective of human health and the environment (e.g., achieve the Site-specific RAOs); (2) comply with all pertinent state and federal regulations; (3) provide long-term effectiveness; and (4) provide a cost-effective remedy that can be easily implemented using proven technology.

Groundwater Alternative 1 will not achieve the RAOs; Groundwater Alternative 2 will achieve PRGs through the use of land use controls and monitoring. Consistent with EPA guidance, the lowest cost option that will be protective and will comply with regulations was selected.

Next Steps

Community acceptance of this Proposed Plan is the next step in the cleanup process for the Site. 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 August 2, 2010 to September 1, 2010. The Navy will accept oral comments during a Public Hearing that follows a Public Information Session to be held on September 1 2010 at Newport Naval Station Officers Club. 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 cover and land use controls for soils, and use restrictions and monitoring for groundwater is an appropriate action for the Site.

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 based on comments received from the community. The Navy will provide written responses to all formal 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 for the Site.

The ROD will contain the rationale for the Navy's, EPA's, and RIDEM's decision for the Site. The Navy, EPA, and RIDEM anticipate that all comments will be reviewed and the ROD will be signed by September 30, 2010. The document will then be made available to the public at the Information Repositories listed on the last page of this document. Also, the Navy will announce the availability of the ROD through the local news media and the community mailing list.

Post ROD

After the ROD is signed, the Navy will design and implement the selected remedy. All data and information will be used to prepare an engineering design of the selected remedies.

After the design is completed, the Navy will oversee the asphalt/soil cover and LUC activities to ensure that the remedies are properly implemented. Long-term groundwater monitoring will be conducted to ensure that the remedies are protective.

Commitment to the Communities

The Navy is committed to keeping the communities informed on the environmental cleanup program at Naval Station Newport. A Restoration Advisory Board (RAB), composed of the community and government agency representatives, meets regularly to discuss the environmental cleanup program at Naval Station Newport. At these meetings, community RAB members provide input and offer suggestions on program activities. Upcoming RAB meetings are publicized in local news media and are open to the public. Past meeting minutes are available on the Naval Station Newport website: http://www.rabnewportri.org/

The Navy also maintains a community mailing list for distributing information about the environmental program. If you would like to be added to the mailing list, please contact Ms. Lisa Rama at the address provided in this Proposed Plan.

Important Dates

PUBLIC COMMENT PERIOD

August 2, 2010 to September 1, 2010

PUBLIC INFORMATION SESSION AND PUBLIC HEARING

Newport Naval Station Officers Club
Newport, RI
September 1, 2010

Your Questions and Comments Are Important!

Formal comments are used to improve the decision-making process. The Navy will accept formal comments from the public during a 30-day comment period and will hold a public information session and hearing for both written and oral comments (see Page 1 regarding how to submit a formal comment to the Navy).

Your formal comments during this time will become part of the official record for the Old Fire Fighting Training Area. The Navy will consider the comments received during the comment period prior to making the final decisions for the Site. 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 REMEDIAL ALTERNATIVES - SOIL
OLD FIRE FIGHTING TRAINING AREA

	EVALUATION CRITERIA	Alt. 1 No Action	Alt. 2 Removal, Treatment, Backfill and Land Use Controls	Alt. 3 Removal, Disposal, and Land Use Controls	Alt.4 Asphalt/Soil Cover and Land Use Controls
Threshold Criteria – Selected alternative must meet these criteria					
1	Protects Human Health and the Environment – *Will it protect people and animal life near the site? Is protection permanent?*	Ø	●	●	●
2	Meets Federal and State Standards – *Does alternative comply with federal and state environmental laws, regulations, and requirements?*	Ø	●	●	●
Balancing Criteria – Used to differentiate between alternatives meeting threshold criteria					
3	Provides Long-Term Effectiveness and Permanence – *Do risks remain on site? If so, are the controls adequate and reliable?*	Ø	●	●	●
4	Reduces Mobility, Toxicity, and Volume Through Treatment – *Is treatment used to reduce contaminant threats?*	Ø	●	Ø	Ø
5	Provides Short-Term Protection – *How soon will risks be reduced? Will implementing the cleanup action cause impacts to people or the environment? If so, are the impacts controllable and acceptable?*	Ø	O	O	●
6	Implementability – *Can it be implemented? Is the alternative technically feasible? Are necessary goods and services available?*	●	O	●	●
7	Costs				
	Capital Costs (up front costs to design and construct)	$0	$18,475,000	$14,819,000	$1,419,000
	Operation and Maintenance Costs (annual costs) (note that monitoring costs are on table 2)	$0	$15,000/ 5years $5,000 (others)	$15,000/ 5years $5,000 (others)	$26,000/ 5years $16,000 (others)
	5-Year Review Costs (if wastes remain on site beyond year 5)	$0*	$0*	$0*	$0*
	Total Present Value (total cost over duration of alternative in today's $)	$0	$18,621,000	$14,966,000	$1,783,000
	Assumed Duration of Alternative (Years) (time to achieve cleanup objectives for Alts 2, 3, 4)	NA	4	2	30
Modifying Criteria – May be used to modify recommended remedy					
8	State Agency Acceptance – *Do state agencies agree with Navy's recommended alternative?*	To be determined after public comment period based on comments on FS and PRAP			
9	Community Acceptance – *What objections, modifications, or suggestions do the public offer during the public comment period?*	To be determined after public comment period based on comments on FS and PRAP			

NOTES:
*Five year reviews would be conducted under the groundwater alternatives

● Meets or Exceeds Criteria O Partially or Potentially Meets Criteria (some uncertainty) Ø Does NOT Meet Criteria

TABLE 2
COMPARISON OF REMEDIAL ALTERNATIVES - GROUNDWATER
OLD FIRE FIGHTING TRAINING AREA

	EVALUATION CRITERIA	Alt. 1 No Action	Alt. 2 Use Restrictions and Monitoring
Threshold Criteria – Selected alternative must meet these criteria			
1	Protects Human Health and the Environment – *Will it protect people and animal life near the site? Is protection permanent?*	Ø	●
2	Meets Federal and State Standards – *Does alternative comply with federal and state environmental laws, regulations, and requirements?*	Ø	●
Balancing Criteria – Used to differentiate between alternatives meeting threshold criteria			
3	Provides Long-Term Effectiveness and Permanence – *Do risks remain on site? If so, are the controls adequate and reliable?*	Ø	●
4	Reduces Mobility, Toxicity, and Volume Through Treatment – *Is treatment used to reduce contaminant threats?*	Ø	Ø
5	Provides Short-Term Protection – *How soon will risks be reduced? Will implementing the cleanup action cause impacts to people or the environment? If so, are the impacts controllable and acceptable?*	Ø	●
6	Implementability – *Can it be implemented? Is the alternative technically feasible? Are necessary goods and services available?*	●	●
7	Costs		
	Capital Costs (up front costs to design and construct)	$0	$76,000
	Operation and Maintenance Costs (annual costs), including groundwater and sediment monitoring costs.	$0	$75,000/yr - years 1-5, and 5 year intervals $3,000/yr - other years
	5-Year Review Costs (if wastes remain on site beyond year 5)	$31,000 each	$31,000 each
	Total Present Value (total cost over duration of alternative in today's $)	$120,000	$807,000
	Assumed Duration of Alternative (Years) (time to achieve cleanup objectives for Alt2)	NA	30
Modifying Criteria – May be used to modify recommended remedy			
8	State Agency Acceptance – *Do state agencies agree with Navy's recommended alternative?*	To be determined after public comment period based on comments on FS and PRAP	
9	Community Acceptance – *What objections, modifications, or suggestions do the public offer during the public comment period?*	To be determined after public comment period based on comments on FS and PRAP	

NOTES: ● Meets or Exceeds Criteria ○ Partially or Potentially Meets Criteria (some uncertainty)
Ø Does NOT Meet Criteria

GLOSSARY OF TERMS

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

Chemicals of Potential Concern (COPCs): Chemicals of potential concern are chemicals found at the Site at concentrations above federal and state risk-screening levels and therefore are included in the risk assessment evaluations.

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.

Conceptual Site Model (CSM): Describes the current understanding of the contaminants present at the Site, based on historical information and data available to date.

Feasibility Study (FS): An engineering study of the potential cleanup alternatives for a site.

Operable Unit: A site or sites being addressed collectively under the CERCLA process.

Preliminary Remediation Goals (PRGs): Target cleanup concentrations for individual contaminants of concern in each media.

Proposed Plan: A CERCLA document that summarizes the Navy's 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 (ROD): A 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 (RAOs): RAOs are goals that are set to protect human health and the environment, and provide the basis to select cleanup methods.

Remedial Investigation (RI): A step in the CERCLA process that is completed to gather sufficient information to support selection of a cleanup approach to a site. The RI involves site characterization or the collection of data and information necessary to characterize the nature and extent of contamination at a site. The RI 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 formal comments submitted by the public regarding the Proposed Plan. This summary is issued as part of the ROD.

COMMENT SHEET – Proposed Plan for OU-3, Old Fire Fighting Training 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 OU-3 – Old Fire Fighting Training Area, Naval Station Newport, Newport, Rhode Island. You can use the form below to send written comments. If you have questions about how to comment, please call Ms. Lisa Rama at 401-831-3831. This form is provided for your convenience.

Please mail this form or additional sheets of written comments, postmarked no later than September 1, 2010, to the address shown below:

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

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)

TETRA TECH NUS, INC.

For More Information...

Contacts

If you have questions or comments about this Proposed Plan, or any other questions about the marine portions of the former Robert E. Derecktor Shipyard, please contact us:

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Mr. Paul Kulpa
RIDEM Office of Waste Management
235 Promenade St.
Providence RI, 02908-5767

Information Repositories

Documents relating to environmental cleanup activities for the Naval Station Newport property are available for public review at the following information repositories:

Middletown Public Library
West Main Road
Middletown Rhode Island
401-846-1573

Newport Public Library
300 Spring Street,
Newport Rhode Island
401-847-8720

Portsmouth Public Library
2658 East Main Road
Portsmouth Rhode Island
401-683-9457