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PROPOSED PLAN SITE 19 ON-SHORE DERECKTOR SHIPYARD OPERABLE UNIT 12 (OU 12) NS NEWPORT RI

5/1/2014

U S NAVY

Proposed Plan

Site 19 – On-Shore Derecktor Shipyard (Operable Unit 12)
Naval Station (NAVSTA) Newport
Middletown/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 Installation Restoration Program (IRP) Site 19 – On-Shore Derecktor Shipyard, located at Naval Station (NAVSTA) Newport, Rhode Island. This Proposed Plan describes the Navy's proposed cleanup (remedy) for the site, which after careful study, consists of the following:

- Soil – Construction of soil covers and maintenance of existing soil and pavement (i.e., encapsulation barriers).
- Groundwater – Monitored Natural Attenuation (MNA).
- **Land Use Controls (LUCs)** to limit access to 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:

May 21 to June 20, 2014

The Navy will accept comments on the Proposed Plan for Site 19 – On-Shore Derecktor Shipyard during this period. **Send written comments, postmarked no later than Friday, June 20, 2014, 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:

Wednesday, May 21, 2014
7:00 PM to 8:00 PM
Courtyard Marriott
9 Commerce Drive
Middletown, Rhode Island

The Navy will hold a public meeting at 7:00 PM 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 then will hold a formal public hearing at 7:30 PM 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 detailed information, visit the local Information Repository identified at the end of this Proposed Plan.

INTRODUCTION

This Proposed Plan provides information on the Navy's preferred cleanup plan for soil and groundwater at IRP Site 19 – Former Derecktor Shipyard, at Naval Station (NAVSTA) Newport, and located in the communities of Middletown and Newport, 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 19 – On-Shore Derecktor Shipyard. Site 19 – On Shore Derecktor Shipyard is identified by the U.S. Environmental Protection Agency (U.S. EPA) as Operable Unit (OU) 12 of the "Naval Education and Training Center (NETC)" Superfund Site. (Note: A glossary is provided at the end of this document for items in bolded text).

The Former Derecktor Shipyard Site is split into two portions: the on-shore portion and the offshore portion. This Proposed Plan is focused on the on-shore portion (the groundwater and soil). The offshore portion of the Site has been investigated separately, and actions specific to that part of the Site will be addressed by a separate decision document.

Federal and state environmental laws govern cleanup activities at federal facilities. The **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**, as amended, better known as "Superfund," provides procedures for investigating and cleaning up sites where releases of hazardous materials pose an unacceptable risk to human health or the environment. Under this law, the Navy is pursuing cleanup of designated sites at NAVSTA Newport to ensure protection of human health and the environment. Site 19 – On-Shore Derecktor Shipyard (OU12) is one of these designated sites.

The Navy works closely with U.S. EPA and the Rhode Island Department of Environmental Management (RIDEM) to implement CERCLA cleanup actions. The Navy is the lead agency for all investigation and cleanup programs ongoing at NAVSTA Newport.

As the lead agency, the Navy prepared this Proposed Plan for on-shore portions of Site 19 in accordance with CERCLA Section 117(a), and Title 40 of the Code of Federal Regulations (CFR), Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan. This Proposed Plan and its associated public involvement opportunities fulfill the Navy's public participation responsibilities under these laws. This plan was developed with support from EPA and RIDEM.

The purpose of this Proposed Plan is to:

- Encourage public review and comment on the preferred cleanup plan (i.e., Preferred Remedy).
- Provide background information on the site: description, summary of the results of environmental investigations, and conclusions of the human health and ecological risk assessments.
- Describe cleanup alternatives (i.e., Remedial Action Alternatives) considered for the site.
- Identify and explain the Preferred Remedy for the site.

Once the public has had the opportunity to review this Proposed Plan, the Navy, USEPA, and RIDEM will carefully consider all public comments received and, based on the comments, could modify or even select a different remedy 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 the site, many of which have been presented to the public at **Restoration Advisory Board (RAB)** meetings. More detailed information about the site can be found in key historical documents, such as the Study Area Screening Evaluation (SASE) Report (B&R, 1997), SASE Addendum Report (Tt, 2013), **Feasibility Study (FS)** (Tt, 2014), related regulatory agency correspondence, and other documents, which in combination form the **Administrative Record** for this Proposed Plan. The Administrative Record is 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 19 – On-Shore Derecktor Shipyard (OU12).

SCOPE AND ROLE OF THE RESPONSE ACTION

Site 19 – On-Shore Derecktor Shipyard 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, and as such, this plan is not expected to impact the strategy or progress of cleanup for other sites at NAVSTA Newport. Separate Proposed Plans have been, and will be, issued for these other sites as they progress through the investigation and cleanup process.

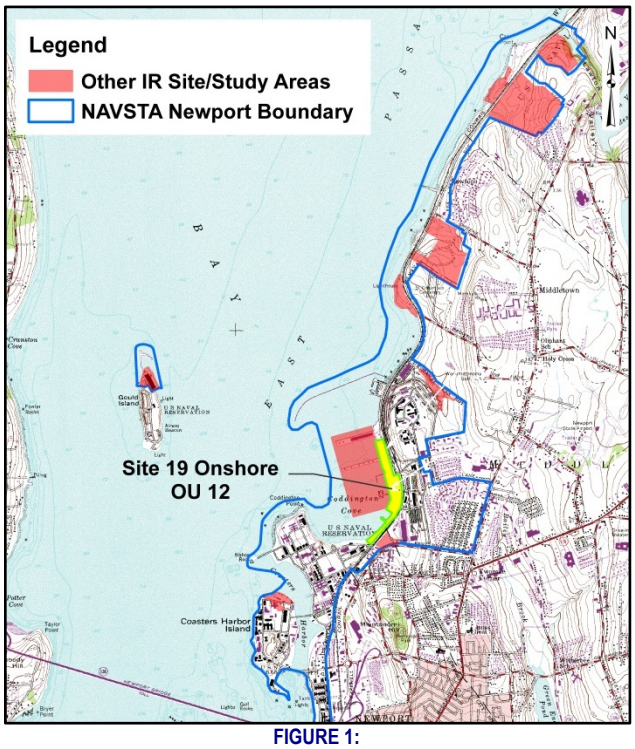

FIGURE 1:
Location of Site 19 – On-Shore Derecktor Shipyard (OU12)

This Proposed Plan summarizes activities performed to date to investigate Site 19 – On-Shore Derecktor Shipyard and to provide a rationale for the proposed remedial actions for soil and **groundwater**.

SITE BACKGROUND AND CHARACTERISTICS

Where is the Site?

Site 19 – On-Shore Derecktor Shipyard is part of the NAVSTA Newport facility. The 34-acre site is located in the northern portion of NAVSTA Newport, adjacent to the eastern portion of Coddington Cove, which is part of Narragansett Bay, and occupies land in municipalities of both Middletown and Newport, Rhode Island (Figure 1).

The On-Shore portion of the Site is bounded to the east and south by Defense Highway and/or a railroad right-of-way, to the north by land associated with Pier 2, and to the west by the Cove and Bay (Figure 2). A paved road provides access to the central and northern portions of the site from Defense Highway.

FIGURE 2:
IRP/CERCLA Site Boundary for
Site 19 – On-Shore Derecktor Shipyard

The site was evaluated through the investigation and risk assessment phases as five subareas based on historical operations and/or site conditions (Figure 3):

- Northern Waterfront Area (11.4 acres)
- Central Shipyard Area (9.1 acres)
- PCB Removal Area (0.5 acre)
- Former Building 234 Area (7.3 acres)
- Southern Waterfront Area (6.4 acres)

These subareas have been reorganized for the proposed CERCLA response(s) (i.e., remedial action[s]) for **soil** as follows (Figure 4):

- Northern Area (4.7 acres) – no action required
- Central Area (24.3 acres) – action required
- Southern Area (5.3 acres) – no action required

The proposed remedial action for **groundwater** is site-wide (34.3 acres). Therefore, the final CERCLA site boundary remains as the Site 19 – On-Shore Derecktor Shipyard IRP site boundary (Figure 2).

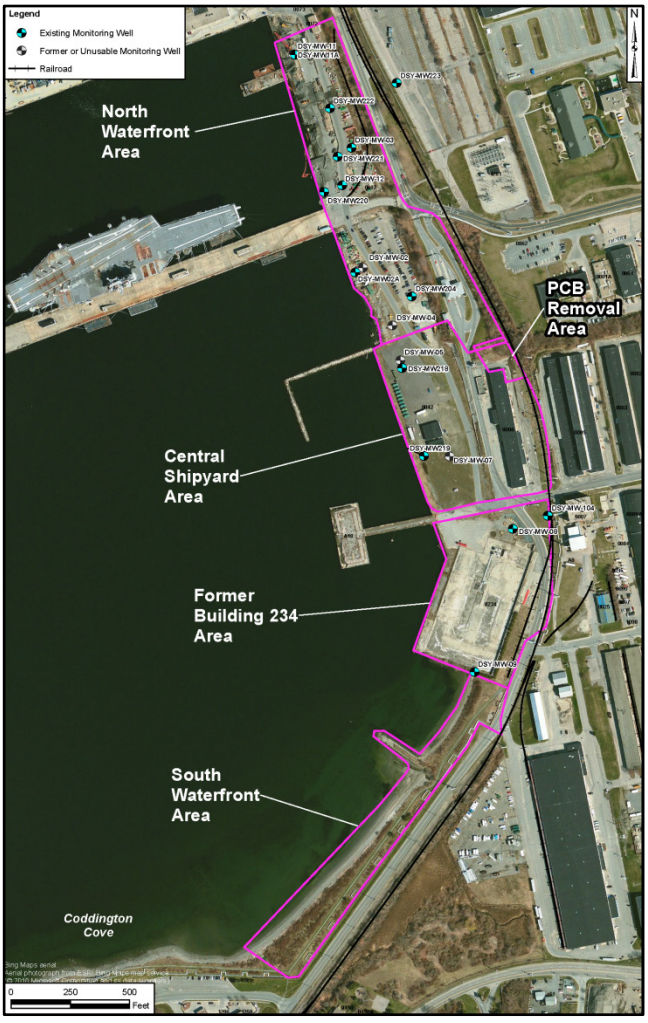

FIGURE 3:
Five Subareas Investigated and Evaluated for
Site 19 – On-Shore Derecktor Shipyard

What caused the contamination at the Site?

The source of contamination is inferred from a review of historical shipyard operations and site observations. Shipyard operations conducted by a commercial shipbuilding and refurbishing company, Robert E. Derecktor Shipyards of Rhode Island, Inc. (Derecktor, Inc.) (1979 to 1992) included sand blasting, painting, chemical and waste storage and transfer, and other common shipyard practices.

Ship repair, maintenance, and construction operations were concentrated in the Former Building 234 Area, which is within the redefined Central Area (Figure 4). These operations consisted of sandblasting, painting, hull inspections, and other on-board ship repairs. Ship construction included cutting and welding steel, sand blasting, priming and painting, and final ship assembly. The shipyard had a history of violations of environmental statutes for the improper management and disposal of wastes and contaminants both on land and in the bay. It is believed that the chemicals and wastes produced by these operations are sources of residual contamination.

Some areas of contamination identified during inspections and investigations were addressed by interim removal actions (IRAs) (see below). Data collected following these actions indicate that there are no remaining specific source areas at the site. However, residual contamination present at the site poses health risk. This Proposed Plan focuses on the remedies that will address those residual risks.

What does Site 19 look like today?

All buildings that were once occupied by Derecktor were removed or refurbished. Currently the On-Shore portion of Site 19 is comprised of undeveloped areas, foundations of former buildings, temporary offices, parking areas, and navigation buoy storage areas (moorings, chain, buoys, etc.) utilized by the U.S. Coast Guard (USCG) for three operational advanced Juniper-class ocean buoy tenders (e.g., CCG Juniper [WLB 201]). One portion of the North Waterfront is currently under construction for an improvement of the USCG Buoy Tender operations.

What contaminants are present and where are they located at the site?

Soil (surface and subsurface) and groundwater were investigated for evidence of contamination at Site 19 - On-Shore Derecktor Shipyard. The Navy's investigations have shown that site activities have resulted in the release of both organic and inorganic constituents to site media. Results of these investigations indicate the following:

- Both soil and groundwater were found to have constituents present that exceeded federal or state criteria and background levels. However, data indicate that there are no remaining specific source areas at the site.
- Surface soil and subsurface soil impacts are limited to the Central Area (Figure 4). Soil data indicate that metals and carcinogenic **polycyclic aromatic hydrocarbons (PAHs)** exceed state criteria and background levels in the original Central Shipyard Area, PCB Removal Area, and Former Building 234 Area (Figure 3). These original subareas now are subsumed by the new Central Area.
- Data indicate the presence of low concentrations of trichloroethene (TCE) in groundwater in the Northern Area (Figure 4). The maximum TCE concentration was 12 micrograms per liter (µg/L) in 2011, down from the maximum of 33 µg/L in 1996.

  Groundwater data also suggest a wide area of dissolved mixed metals (e.g., arsenic and manganese) with concentrations above state criteria extends throughout the Northern and Central Areas.

What environmental investigations and actions were conducted for the site?

1983 – Initial Assessment Study (IAS) was completed for NAVSTA Newport. The IAS did not identify Derecktor Shipyard directly for additional study, but it discussed the waterfront area, industrial and supply area, and noted approximately 44 acres of the waterfront area, including several buildings and Pier 1, which were leased to the State of Rhode Island, which subsequently sub-leased the area to Derecktor, Inc. for the development of a private shipyard.

1983-1984 – EPA and RIDEM conducted Resource Conservation and Recovery Act (RCRA) Inspections at the shipyard and noted several violations, such as improperly stored waste materials and containers.

1984 – In response to the RCRA violations, Derecktor, Inc. conducted soil waste characterization studies at the north and south storage areas (Dolce, Spirito & Assoc., 1984). Based on levels and types of contaminants detected, and nonpotable aquifer status, no soil excavation was recommended for either storage area.

1986 – Derecktor, Inc. pled guilty to criminal violations of the Toxic Substance Control Act (TSCA), CERCLA, Clean Water Act, Resource Conservation and Recovery Act (RCRA), Clean Air Act, and Hazardous Transportation Act for illegal disposal activities on land and in the bay.

Interim Removal Actions (IRAs) at On-Shore Derecktor Shipyard

Between 1997 and 2005, ten CERCLA IRAs were conducted at Site 19 – On-Shore Derecktor Shipyard based mainly on the recommendations provided in the SASE Report (B&R, 1997). The Navy implemented the recommendations for on-shore restorations, including removal of soil hot spots, removal of an underground septic vault, and demolition of some of the deteriorating buildings. Removals also included addressing contaminant-filled drums and containers; excavating and removing aboveground and underground storage tanks (USTs); locating storm drain systems; removing site-wide debris and former building remnants; and cleaning interiors of remaining buildings to ensure the safety of personnel conducting additional studies. Specific CERCLA IRAs and environmental investigations for the site are summarized starting on page 4.

1988 – A Technical Review Committee was convened to oversee CERCLA investigations and remedial actions at NAVSTA Newport.

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

1990 – A Community Relations Plan was issued for NETC-Newport.

1992 –Derecktor, Inc. filed for Chapter 11 bankruptcy.

1993 – The Preliminary Assessment (PA) Report (Halliburton NUS, 1993) was issued for both on- and off-shore portions of Derecktor Shipyard. Using visual observations and review of historical records, the report identified several areas of concern and recommended removal actions, housekeeping, and limited investigation of soil, groundwater, and marine sediment. Subsequently, the Navy identified Derecktor Shipyard as "Study Area 19," per the Federal Facility Agreement (FFA). The study area was assigned as IRP Site 19.

1993-1995 – Due to the Derecktor, Inc. bankruptcy and based on the PA findings and recommendations, the Navy and others undertook a series of short-term actions, including the following: Removing contaminant-filled drums and containers; excavating and removing aboveground and underground storage tanks (USTs); locating storm drain systems; removing site-wide debris and former building remnants; and cleaning interiors of remaining buildings to ensure the safety of personnel conducting additional studies.

1995 – The Restoration Advisory Board (RAB) was formed, replacing the Technical Review Committee established in 1988.

1995 – Three USTs between Building 234 and Building 42 were removed and closed.

1995-1996 – Building 42 Sandblast Grit IRA: Sandblast grit material was removed and backfilled with sand and crushed stone mix. As part of this effort, the embankment to the east of Building 42 was excavated and repaired.

1996-1997 – On-Shore (OU12) and Off-Shore (OU5) begin to follow separate investigation paths. The 1996 Study Area Screening Evaluation (SASE) effort was conducted to evaluate contaminants present on-shore in the buildings, features (e.g., catch basins and sumps), fill, soil, and groundwater in targeted sampling and inspection areas identified by the PA (Halliburton NUS, 1993). The preliminary human health risk assessment (HHRA) results in the report indicated potential unacceptable risks that would be addressed or investigated further. The qualitative ecological risk assessment (ERA) identified only minimal on-shore viable habitats, and it was concluded that ecological risk would not need further evaluation for On-Shore Derecktor Shipyard. The report recommended limited "hot spot" soil excavations, additional sampling, and appropriate abandonment / closure of several sumps, trenches, outfalls, and catch basins.

1997-2005 – Working with the EPA and RIDEM, the Navy conducted additional removal actions and housekeeping activities as recommended by the PA (e.g., soil hot spot removals and demolition of deteriorating buildings) and required by EPA- and RIDEM-identified issues (e.g., via RCRA inspection findings/violations). See below.

1997-1998 – South Waterfront Berm IRA: A berm containing construction debris and soil was removed from the South Waterfront Area between September 1997 and November 1998. Prior to removal, the berm was divided into six equal sections. Soils from each section were removed and stockpiled for composite sampling and comparison to appropriate standards prior to reuse and/or disposal. Shoreline restoration activities were conducted after the removal.

1998 – Building 42 Sump Pit S42-1 IRA: Sump 1, located beneath former Building 42, was removed. Soils beneath the sump also were removed to a depth of 1 foot.

1998 – PCB Soil IRA began: Initiated PCB-contaminated soil removal in the PCB Removal Area in June 1998. See completion in 1999 below.

1999 – Sampling for PCBs South of Pier 1: Area identified during site walk in January 1999 was sampled for PCBs. No detections exceeded RIDEM Residential Direct Exposure Criteria (DECs).

1999 – Test Pit Near South End of Former Building 234: Completed test pit located approximately 7 feet south of MW-09 in February 1999. The test pit terminated at 1.5 feet below ground surface (bgs) to investigate potential historical dumping outside south side of Former Building 234. Test pit samples showed exceedances of RIDEM Residential DECs for arsenic, manganese, and zinc. There was one exceedance of the Industrial DEC for arsenic. Excavated soils were replaced after sampling. No removal was conducted.

1999 – PCB Soil Sampling at Building 54, Substation 16: Area sampled for PCBs in February 1999. No detections exceeded the RIDEM Residential DEC for PCBs.

1999 – Building 42 Former Trench/Disposal Pits Trenching and Hot Spot Removal: Three exploratory trenches were excavated north of former Building 42 (a former bilge water disposal area) from February through August 1999. Based on sample analysis (**volatile organic compounds [VOCs]**, semivolatile VOCs [SVOCs], and metals) a hotspot removal was conducted at one location. Twenty- cubic yards of soil were excavated and disposed. Following the soil removal, only arsenic exceeded the RIDEM Industrial DEC.

1999 – Completed PCB-Contaminated Soil Removal Action at former TP-14 between June 1998 to February 1999. A series of excavations and confirmatory sampling was conducted to delineate and remove PCB-contaminated soils. Approximately 430 tons of PCB-contaminated soil were excavated and removed from the site. The excavation was backfilled with clean soil and paved/re-paved.

1999-2000 – Building 42 S42-5 Sump Investigation and Removal: Sump 5 and the associated valve chamber were removed from March 1999 to August 2000. Approximately 42 tons of concrete debris were excavated and removed from the site. Confirmation sample results (VOCs, SVOCs, total petroleum hydrocarbons [TPH], metals, and PCBs/Pesticides) indicated only arsenic remained at concentrations above the RIDEM Residential and Industrial DECs.

2004, 2005, 2007-2008 – Sandblast Grit Removal at Northgate Guard Tower and Revetment Wall (north of Building 6): A series of removal actions were conducted north of Building 6 in the vicinity of a new guard tower to remove subsurface sandblast grit. In addition, the area along Defense Highway was reworked to repair and replace the revetment wall (replaced with a gabion-basket wall).

2011-2013 – SASE Addendum Report (Tt, 2013): A supplemental investigation was conducted to update existing conditions following removal actions and time gap since the previous groundwater sampling effort in 1996. Data collected included soil gas, soil, and groundwater. The Addendum Report provided an updated HHRA for current conditions (i.e., post-removal actions) and potential, conservative future conditions. Laboratory analysis was sample-specific, but included VOCs, TPH – diesel range organics (DRO) and gasoline range organics (GRO), PAHs, PCBs, and metals.

The 1997 SASE and 2013 SASE Addendum Reports serve as the **Remedial Investigation (RI)** component in the CERCLA process for the Site 19 – On-Shore Derecktor Shipyard. See investigation results below.

2014 – The FS Report was finalized in May 2014, presenting updated conceptual site model (CSM), development of **remedial action objectives (RAOs)**, selection of **Chemicals of Concern (COCs)** and preliminary remediation goals (PRGs), and an evaluation of remedial alternatives. Respective FS elements are summarized herein.

What were the investigation results?

The Navy's investigations (summarized above) have shown that site activities have resulted in the release of both organic and inorganic contaminants to site media. Results of these investigations indicated the following:

- **Soil**: Soils with metals (e.g., arsenic and manganese) and PAHs (e.g., benzo[a]pyrene) exceeded Newport/site-specific background levels in various, but distinct, areas in the Central Shipyard Area, PCB Removal Area, and Former Building 234 Area (collectively now the Central Area). PCB risks in soil were mitigated by the 1998 to 1999 IRA at TP-14. Soil results indicate potential for lead and/or naphthalene to leach from soil to groundwater in the Central Area, although no such leaching has been found to date.
- **Groundwater**: Groundwater data indicate the presence of low concentrations of TCE in the Northern Area (Figure 4). The maximum TCE concentration is 12 µg/L in 2011, down from the maximum 33 µg/L in 1996.
- **Groundwater**: Groundwater data indicate a wide area of dissolved mixed metals extends throughout the Central Shipyard Area and Former Building 234 Area.
- **Soil Gas:** Elevated VOC concentrations in soil gas correlate with the TCE groundwater plume in the northern part of the site. Soil gas may be affected in the lower central portion of the site, based on modeling results using VOC groundwater concentrations attributable to an

upgradient source (Building 7 – Power Plant, a former UST site, or farther upgradient). This upgradient source will be addressed separately from On-Shore Derecktor Shipyard.

SUMMARY OF SITE RISKS

Sample data generated and evaluated during the RI were used in the baseline HHRA and the screening ERA to determine if site contaminant concentrations pose a threat to human health and the environment under both current and potential future land use scenarios.

Based on the results of the CERCLA risk assessments and exceedance of state criteria, the Preferred Alternative(s) identified in this Proposed Plan, or one of the other active measures considered in this Proposed Plan, is necessary to protect public health or welfare or the environment from actual or threatened releases of pollutants or contaminants from this site that may present an imminent and substantial endangerment to public health or welfare or the environment.

Human Health Risk

The HHRA estimated the "baseline risk," which is the likelihood of health problems occurring in persons exposed to site contaminants if no further cleanup actions were taken, for each of the **original five subareas**. The four-step process described below was used to estimate the baseline (existing) risk to human health. A summary of the findings is presented in Table 1.

Step 1 - Identify Chemicals of Potential Concern.

Chemicals of Potential Concern (COPCs) were defined as chemicals detected at Site 19 – On-Shore Derecktor Shipyard at concentrations exceeding federal or state risk-screening levels/criteria and background levels, where applicable. Chemicals with concentrations above these benchmarks were further evaluated in Step 2. COPCs identified for Step 2 included the following:

- **Surface Soil** – PAHs, PCBs, and metals
- **Subsurface Soil** – PAHs, SVOCs, and metals
- **Groundwater** – **Chlorinated VOCs** and metals
- **Soil Gas –**VOCs

Step 2 - Conduct an Exposure Assessment.

This process examines possible pathways by which humans may contact (i.e., be exposed to) the identified COPCs, based on current and possible future land use scenarios. For Site 19 – On-Shore Derecktor Shipyard, the following potential receptors were evaluated in the HHRA:

- Current and future trespassers
- Current and future industrial workers
- Current and future construction workers
- Hypothetical future residents

The following potential exposure routes were evaluated:

- Dermal contact, inhalation, and ingestion of soil.
- Dermal contact and ingestion of groundwater, as well as inhalation of VOCs in groundwater [droplets/mist from a shower].
- Inhalation of indoor air and air in excavation trenches.

It should be noted that the current and planned future use of the site is industrial/commercial. Although the site's access is not fenced or specifically restricted from other parts of the operational Naval Station, NAVSTA is restricted and fenced to prevent trespass by unauthorized persons. There is no current or planned residential or unrestricted recreational use of the site, and site groundwater is not used as a potable water source. The portion of the recreational path in the Central Area has restricted use, as this

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 1×10^{-4}. The EPA acceptable risk range for carcinogens is 1×10^{-6} (1 in 1,000,000) to 1×10^{-4} (1 in 10,000). In general, calculated risks higher than this range would require consideration of cleanup 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 (HI) (a ratio). An HI greater than 1 suggests that adverse effects may be possible.

Risk from exposure to lead is evaluated by using a model developed by 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.

vicinity of the Central Area has an existing soil cover which will be maintained with LUCs. However, these uses are evaluated in the HHRA to provide a basis for the need for a cleanup action for unlimited use and unrestricted exposure to site media.

Step 3 - Complete a Toxicity Assessment.

The possible harmful effects (toxicity) associated with potential human exposure to the COPCs were evaluated in two groups: carcinogens (COPCs that may cause cancer) and non-carcinogens (COPCs that may cause adverse health 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 the COPC. The terms used to define the estimated risk are explained in the text box entitled *How is Risk to People Expressed?*

Results: No unacceptable risks were identified based on the CERCLA risk assessment for industrial workers exposed to surface or subsurface soil across all of Site 19 – On Shore Derecktor Shipyard. Unacceptable cancer or non-cancer CERCLA risks were associated with the following exposure scenarios:

- Exposure of hypothetical residential receptor to carcinogenic PAHs and metals in soil in the Central Area (Former Building 234 and PCB Removal Subareas).
- Exposure of future industrial workers to arsenic and manganese in site-wide groundwater.
- Exposure of future residents to TCE, arsenic, cobalt, iron, and manganese in site-wide groundwater.
- Exposure of future industrial workers or residents from potential vapor intrusion from groundwater contaminated with TCE and vinyl chloride (from an upgradient source).

Cancer and non-cancer risks for residential and industrial exposures to VOCs that may migrate into indoor air via vapor intrusion were estimated by comparing maximum groundwater concentrations to conservative EPA groundwater vapor intrusion screening values.

Lead concentrations did not exceed screening levels in Step 1, so blood lead modeling was not performed.

Summary of the Human Health Risk Assessment

The outcome of the CERCLA risk assessment is summarized on Table 1. This table presents the receptors with a cancer risk greater than 1 in 10,000 (expressed as $1x10^{-4}$), as well as those with possible risk of non-cancer health effects (expressed as a Hazard Index of 1 or more). Refer also to the box on page 7: *How is Risk to People Expressed?*

Ecological Risk

A preliminary assessment of ecological risk was performed and it was determined that due to a lack of suitable habitat for regional wildlife, no unacceptable ecological risk is present. Ecological risk is associated with offshore portion of Derecktor Shipyard (OU5), described separately.

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, toxicological effects are unlikely to occur and no significant risk is present. When the HQ is above 1, there is a potential for significant risk to be present.

CLEANUP OBJECTIVES

Based on the potential for unacceptable risk as determined by the CERCLA risk assessments, RIDEM direct exposure criteria are considered in the identification of COCs. The following COCs were identified for remediation at Site 19 – On-Shore Derecktor Shipyard (see Tables 2 and 3):

- **Soil (Central Area)** – carcinogenic PAHs and the metals arsenic, beryllium, chromium, lead and manganese.
- **Groundwater (Site-Wide)** – TCE, vinyl chloride, arsenic, cobalt, iron and manganese.

Cleanup goals for the COCs in soil and groundwater were developed in the FS, based on acceptable risk levels, RIDEM Direct Exposure Criteria (DEC), and background concentrations. For the COCs in soil, the associated cleanup goals and the sources of these goals are presented in Table 2. For groundwater COCs, the associated cleanup goals and their sources are presented in Table 3.

Cleanup Objectives (also known as Remedial Action Objectives [RAOs]) are the goals that a 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 soil and groundwater. The following RAOs were identified for Site 19 – On-Shore Derecktor Shipyard:

Soil (Central Area)

- Prevent the incidental ingestion of and uncontrolled direct contact with surface and subsurface soil containing COCs that exceed human health cleanup goals.
- Prevent future migration of soil COCs to groundwater.

Groundwater (Site-Wide)

- Restore groundwater quality for the COCs to its beneficial reuse.
- Prevent residential and industrial exposure to site groundwater until groundwater cleanup goals have been achieved.
- Prevent residential and industrial exposure to vapors resulting from subsurface contaminants.

SUMMARY OF CLEANUP ALTERNATIVES

Remedial alternatives (cleanup options) were developed and evaluated in the Site 19 – On-Shore Derecktor Shipyard FS. The alternatives were developed to meet the RAOs listed above and are described briefly below. Full details are available for review in the FS in the public information repository described at the end of this Proposed Plan.

SOIL

The following three cleanup options were evaluated for soil and are briefly summarized below and compared in Table 4 (note that some common elements of each alternative are described later in this Proposed Plan):

Soil Alternative S-1 – No Action:

Under the **National Contingency Plan (NCP)**, a "no action" alternative must be evaluated 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.

Soil Alternative S-2 – Covers and LUCs:

This alternative addresses existing industrial surface soil PRG exceedances with covers, and subsurface soil industrial PRG exceedances and all residential PRG exceedances with LUCs (Figure 4).

A 6-inch soil encapsulation/cover system would be placed at **Target Remediation Zones (TRZs)** with exposed surface soil with Industrial PRG exceedances of arsenic only at TRZs 3, 4, 6 and 8. In TRZ 5, some already-paved areas will be repaved with a new 2-inch layer of asphalt. TRZs 1, 2, and 7 would be maintained (TRZ 1 is a steep, vegetated sloped area, TRZ 2 is a re-worked area where sandblast grit was removed and the revetment wall was constructed with placement of fill and/or stone, and TRZ 7 is an area that is already paved with concrete). All other existing concrete/asphalt pavement and soil effective covers within the Central Area will be maintained.

LUCs will require the maintenance of the TRZs proposed for the 6-inch soil encapsulation/cover system and the new layer of asphalt, as well as all existing pavement/cover currently in place which provide reduced exposure to soils with Industrial PRG exceedances. Additionally, because the existing covers at these locations also may contribute to the site conditions that are thwarting the soil leaching of lead and naphthalene into the groundwater, the constituents found to exceed RIDEM GA Leachability Criteria, the LUCs to maintain these covers also will sustain the current conditions which have demonstrated effectiveness in reducing the infiltration of these constituents.

The LUCs under Alternative S-2 limit exposure to the contaminated soil for hypothetical residents in the Central Area. LUCs will be established and maintained to:

- Prevent residential exposure to surface and subsurface soil with COCs exceeding related residential soil PRGs.
- Prevent future industrial exposure to subsurface soil with COCs exceeding related industrial soil PRGs.
- Prevent the infiltration / migration of soil contamination into groundwater at levels harmful to human health or the environment.

LUCs also would be implemented to preclude nonindustrial land use in the Central Area. The intent is to ensure that the land use and site features within the designated areas do not change, but remain in place so that contact with COCs above PRGs is prevented.

LUC inspections would be conducted annually to verify their implementation. Annual reports would be submitted to EPA and RIDEM to document that the conditions of the site LUCs continue to be met.

Soil Alternative S-3 – Covers, Excavation and Off-Site Disposal, and LUCs:

Similar to Alternative S-2, this alternative addresses existing industrial surface soil PRG exceedances with covers, and subsurface soil industrial PRG exceedances and all residential PRG exceedances with LUCs. However, under this alternative two TRZs would be excavated and backfilled rather than covered (Figure 5).

TRZs 3 and 4 will be excavated and backfilled rather than covered. A soil encapsulation/cover system would be placed at soil TRZs 6 and 8. In TRZ 5,

some already-paved areas will be repaved with a new 2-inch layer of asphalt. TRZs 1, 2, and 7 would be maintained (TRZ 1 is a steep, vegetated sloped area, TRZ 2 is a re-worked area where sandblast grit was removed and the revetment wall was constructed with placement of fill and/or stone, and TRZ 7 is an area that is already paved with concrete). All other existing concrete/asphalt pavement and effective soil covers within the Central Area will be maintained.

LUCs will require the maintenance of the TRZs proposed for the 6-inch soil encapsulation/cover system, the backfill of the excavated areas, and the new layer of asphalt, as well as all existing pavement/cover currently in place which provide reduced exposure to soils with Industrial PRG exceedances. Additionally, because the existing covers at these locations also may contribute to the site conditions that are thwarting the soil leaching of lead and naphthalene into the groundwater, the constituents found to exceed RIDEM GA Leachability Criteria, the LUCs to maintain these covers also will sustain the current conditions which have demonstrated effectiveness in reducing the infiltration of these constituents.

As mentioned above, TRZs 3 and 4 would be excavated and backfilled. Only the top 2 feet of soil would be excavated and backfilled at each location. The excavated soils would be characterized and disposed of at an EPA approved off-site facility.

LUC elements of Alternative S-3 are identical to the LUC elements of Alternative S-2.

GROUNDWATER

The following three cleanup options were evaluated for On-Shore groundwater and are summarized in Table 5 (note that some common elements of each alternative are described later in this Proposed Plan).

Groundwater Alternative G-1 – No Action:

Under the NCP, a "no action" alternative must be evaluated 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.

Groundwater Alternative G-2 – MNA and LUCs:

This alternative would include a long-term groundwater monitoring program to verify that natural attenuation processes are effectively reducing TCE and metals concentrations (Figure 6). Monitored natural attenuation (MNA), which is an EPA-approved remedial option under certain circumstances, is a careful long-term examination of the Site geochemistry, with a focus on the natural microbial degradation of contaminants.

Elevated concentrations of metals that exceed PRGs may be present as an indirect result of the biodegradation of petroleum hydrocarbons at or upgradient of Site 19 - On-Shore Derecktor Shipyard. Releases of organic contaminants such as petroleum hydrocarbons can alter an aquifer's geochemistry, such that naturally-occurring metals in soil can become mobilized and migrate to groundwater. It is expected that as the biodegradation of the petroleum concludes and the aquifer geochemistry is restored to normal conditions, much of these dissolved metals will come out of solution and become immobilized in their particulate form, with metals concentrations in groundwater returning to the natural steady-state conditions

If it is determined that natural attenuation of TCE and metals is occurring at an acceptable rate (estimated total 15 years for TCE and 30 years for metals), the Navy would continue the MNA program until cleanup goals are achieved. LUCs would be implemented to protect humans from exposure to groundwater contaminants during the interim period until groundwater PRGs for the COCs have been achieved.

Groundwater Alternative G-3 – In Situ Treatment, MNA, and LUCs:

Alternative G-3 would rely on a combination of in situ treatments and MNA to address different contaminant groups in different areas of the site (Figure 7). Monitoring and LUCs also would be required until cleanup goals were achieved.

The combined groundwater treatment would consist of the following components:

- Pre-design investigation and pilot study to isolate the treatment areas and determine injection rates and other details for groundwater treatment.
- Oil emulsion fluid injected into the subsurface in the northern portion of the site to enhance bacterial action which would then break down the TCE.
- Oxidizing agent injected into the subsurface in the central shipyard area to increase stability of metals as precipitate.
- Monitoring of the conditions during treatment operations
- MNA to allow groundwater to reach a natural equilibrium after treatment reaches target concentrations.
- Five-year reviews.

A timeframe for achieving groundwater cleanup goals is estimated to be 4 or more years, but this estimate would be refined as part of the 5-year reviews, at a minimum, to confirm that adequate progress is being made.

Long-term groundwater monitoring would be conducted to evaluate the effectiveness of the treatment process. LUCs would be implemented to prevent exposure to COCs in groundwater and protect human health during the interim period until PRGs have been achieved in groundwater.

Common Elements

Each of the cleanup options, except for the No Action alternative, also includes the following common elements as part of the overall site remedy:

- Monitoring of Groundwater: Groundwater monitoring will be performed to verify expected subsurface conditions over time, either as part of MNA or monitoring for treatment
- LUCs and Inspections: The Navy will implement LUCs 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 and use of groundwater as a water supply would not be allowed until cleanup goals are achieved.
- 5-Year Reviews – In accordance with CERCLA, a detailed review of site conditions would occur every 5 years in coordination with federal and state regulatory agencies for as long as COCs are present 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 FS, each alternative identified above was individually analyzed with respect to the criteria. Next, the alternatives were compared against each other with respect to each criterion. Tables 4 and 5 at the end of this proposed plan provide a summary of the alternatives for soil and groundwater.

The Navy has determined that the combination of Alternatives S-2 (Covers and LUCs) and G-2 (MNA and LUCs) is an appropriate approach to address soil contamination that remains after previous soil removal efforts, and to address residual TCE in groundwater, as well as arsenic, cobalt, iron, and manganese present in groundwater that are likely caused by local geochemical conditions.

PREFERRED ACTION ALTERNATIVES

The Navy is proposing a combination of Soil Alternative S-2 and Groundwater Alternative G-2 for the whole-site remedial action. This combination is recommended because it offers the best balance among the nine evaluation criteria (Tables 4 and 5).

Soil Alternative S-2 includes new soil covers, re-pavement, and LUCs. The LUCs will restrict the Central Area to industrial land use and require maintenance of the new and existing soil covers and pavement to prevent future industrial exposure to subsurface soil. Additionally, because the existing covers at these locations also may contribute to the site conditions that are thwarting the soil, the LUCs to maintain these covers also will sustain the current conditions which have demonstrated effectiveness in reducing the infiltration of these constituents.

The Groundwater Alternative G-2 relies on MNA, which includes a long-term groundwater monitoring program to verify that natural attenuation processes are effectively reducing TCE and metals concentrations to the natural steady-state conditions. Data typically required for an MNA remedy, showing a decreasing trend in contaminant concentrations, have not been collected for this Site; however, MNA could be successful over time. The available site data indicate that MNA will be successful over time, currently estimated at 15 years for TCE and 30 years for metals. The time required will be re-evaluated at each 5-year cycle, at a minimum, to assure that the remedy is acceptable.

The 5-year review will assess if adequate reductions in concentrations of COCs are evident in the monitoring data. After an appropriate amount of data has been collected to allow a determination, if MNA is determined to be an ineffective remedy for the Site, the Navy will seek a change to the remedial action with approval by EPA and RIDEM, in accordance with CERCLA and the Federal Facilities Agreement (FFA), using an additional public notification and ROD amendment.

If reductions in metals concentrations are seen, and the amount of time for cleanup levels to be achieved is predicted to be acceptable to EPA and RIDEM, the Navy would continue the MNA program until cleanup goals for metals in groundwater are achieved. In the meantime, implementing LUCs will ensure continued protection of human health by preventing the use of groundwater until cleanup goals are achieved. Groundwater currently is not used as a drinking water source and there are no plans to do so in the future.

Overall, the Navy expects the Preferred Alternatives to: (1) be protective of human health and the environment; (2) comply with all pertinent federal and state regulations; (3) be cost-effective; and (4) use technologies that are permanent.

NEXT STEPS

Community consideration of this Proposed Plan is the next step in the cleanup process for Site 19 – On-Shore Derecktor Shipyard. 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 May 21 to June 20, 2014. The Navy will accept oral comments during a Public Hearing that follows a Public Information Session to be held on Wednesday, May 21, 2014, at the Courtyard Marriott, 9 Commerce Drive, 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 19-On-Shore Derecktor Shipyard.

Once the community has commented on this Proposed Plan, the Navy, EPA, and RIDEM will consider all comments received. It is possible 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 the Responsiveness Summary, which will be part of the ROD prepared for Site 19 – On-Shore Derecktor Shipyard.

The ROD will contain the rationale for the Navy's and EPA's decision for the site. The Navy and EPA anticipate that all comments will be reviewed and the ROD will be signed by September 2014. 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 available data and information will be used to prepare an engineering design of the selected actions. The Navy may need to conduct additional investigations in support of the Remedial Design.

After the design is completed, and assuming there is no major opposition to the proposed action, the Navy will oversee the construction, MNA, and LUC activities to ensure that the actions are properly implemented. Long-term 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 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 On-Shore Derecktor Shipyard, please contact Ms. Lisa Rama 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 RI (i.e., SASE and SASE Addendum) and FS Reports for Site 19 – On-Shore Derecktor Shipyard. These and other site documents, which form the Administrative Record for this Proposed Plan, are available online at http://go.usa.gov/DyNw (click on the link for the "Administrative Records"). 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:
Wednesday, May 21, 2014, to Friday, June 20, 2014

Public Meeting:
Wednesday, May 21, 2014 (7:00 p.m. to 7:30 p.m.)

Public Hearing:
Wednesday, May 21, 2014 (7:30 p.m. to 8:30 p.m.)

TABLE 1. RECEPTORS AND CALCULATED RISK EXCEEDANCES (HHRA)			
RECEPTOR	MEDIUM	TOTAL CANCER RISK	TOTAL NON-CANCER RISK (HAZARD INDEX)
North Waterfront Area			
Current Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.02
Current Adult Trespasser	Surface Soil	$< 1x10^{-4}$	0.01
Current Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
Current Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.06
Future Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.01
	Subsurface Soil	$< 1x10^{-4}$	0.02
Future Adult Trespasser	Surface Soils	$< 1x10^{-4}$	0.01
	Subsurface Soil	$< 1x10^{-4}$	0.01
Future Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
	Subsurface Soil	$< 1x10^{-4}$	NA
Current/Future Construction Worker	Surface Soil	$< 1x10^{-4}$	0.09
	Subsurface Soil	$< 1x10^{-4}$	0.2
	Groundwater	$< 1x10^{-4}$	0.06
Future Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.05
	Subsurface Soil	$< 1x10^{-4}$	0.07
	Groundwater	$< 1x10^{-4}$	0.2
Hypothetical Child Resident	Surface Soil	$< 1x10^{-4}$	0.7
	Subsurface Soil	$< 1x10^{-4}$	0.90
	Groundwater	$< 1x10^{-4}$	5
Hypothetical Adult Resident	Surface Soil	$< 1x10^{-4}$	0.08
	Subsurface Soil	$< 1x10^{-4}$	0.09
	Groundwater	$< 1x10^{-4}$	4
Hypothetical Lifelong Resident	Surface Soil	$< 1x10^{-4}$	NA
	Subsurface Soil	$< 1x10^{-4}$	NA
	Groundwater	$< 1x10^{-4}$	NA
Central Shipyard Area			
Current Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.06
Current Adult Trespasser	Surface Soil	$< 1x10^{-4}$	0.04
Current Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
Current Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.2
Future Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.06
	Subsurface Soil	$< 1x10^{-4}$	0.05

TABLE 1. RECEPTORS AND CALCULATED RISK EXCEEDANCES (HHRA)			
RECEPTOR	**MEDIUM**	**TOTAL CANCER RISK**	**TOTAL NON-CANCER RISK (HAZARD INDEX)**
Future Adult Trespasser	Surface Soils	$< 1x10^{-4}$	0.04
	Subsurface Soil	$< 1x10^{-4}$	0.03
Future Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
	Subsurface Soil	$< 1x10^{-4}$	NA
Current/Future Construction Worker	Surface Soil	$< 1x10^{-4}$	1
	Subsurface Soil	$< 1x10^{-4}$	0.5
	Groundwater	$< 1x10^{-4}$	2*
Future Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.2
	Subsurface Soil	$< 1x10^{-4}$	0.1
	Groundwater	$2x10^{-4}$	4
Hypothetical Child Resident	Surface Soil	$< 1x10^{-4}$	3*
	Subsurface Soil	$< 1x10^{-4}$	2*
	Groundwater	$6x10^{-4}$	56
Hypothetical Adult Resident	Surface Soil	$< 1x10^{-4}$	0.3
	Subsurface Soil	$< 1x10^{-4}$	0.2
	Groundwater	$1x10^{-3}$	24
Hypothetical Lifelong Resident	Surface Soil	$1x10^{-4}$	NA
	Subsurface Soil	$1x10^{-4}$	NA
	Groundwater	$2x10^{-3}$	NA
PCB Removal Area			
Current Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.07
Current Adult Trespasser	Surface Soil	$< 1x10^{-4}$	0.04
Current Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
Current Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.2
Future Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.07
	Subsurface Soil	$< 1x10^{-4}$	0.09
Future Adult Trespasser	Surface Soil	$< 1x10^{-4}$	0.04
	Subsurface Soil	$< 1x10^{-4}$	0.06
Future Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
	Subsurface Soil	$< 1x10^{-4}$	NA
Current/Future Construction Worker	Surface Soil	$< 1x10^{-4}$	1
	Subsurface Soil	$< 1x10^{-4}$	2*
Future Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.2
	Subsurface Soil	$< 1x10^{-4}$	0.3

TABLE 1. RECEPTORS AND CALCULATED RISK EXCEEDANCES (HHRA)			
RECEPTOR	MEDIUM	TOTAL CANCER RISK	TOTAL NON-CANCER RISK (HAZARD INDEX)
Hypothetical Child Resident	Surface Soil	$5x10^{-4}$	3*
	Subsurface Soil	$1x10^{-4}$	4*
Hypothetical Adult Resident	Surface Soil	$5x10^{-4}$	0.3
	Subsurface Soil	$< 1x10^{-4}$	0.4
Hypothetical Lifelong Resident	Surface Soil	$5x10^{-4}$	NA
	Subsurface Soil	$2x10^{-4}$	NA
Building 234 Area			
Current Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.08
Current Adult Trespasser	Surface Soil	$< 1x10^{-4}$	0.05
Current Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
Current Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.2
Future Adolescent Trespasser	Surface Soil	$< 1x10^{-4}$	0.07
	Subsurface Soil	$< 1x10^{-4}$	0.07
Future Adult Trespasser	Surface Soil	$< 1x10^{-4}$	0.05
	Subsurface Soil	$< 1x10^{-4}$	0.04
Future Lifelong Trespasser	Surface Soil	$< 1x10^{-4}$	NA
	Subsurface Soil	$< 1x10^{-4}$	NA
Current/Future Construction Worker	Surface Soil	$< 1x10^{-4}$	1
	Subsurface Soil	$< 1x10^{-4}$	2*
	Groundwater	$< 1x10^{-4}$	0.1
Future Industrial Worker	Surface Soil	$< 1x10^{-4}$	0.2
	Subsurface Soil	$< 1x10^{-4}$	0.2
	Groundwater	$< 1x10^{-4}$	0.2
Hypothetical Child Resident	Surface Soil	$3x10^{-4}$	3*
	Subsurface Soil	$1x10^{-4}$	3*
	Groundwater	$< 1x10^{-4}$	4
Hypothetical Adult Resident	Surface Soil	$< 1x10^{-4}$	0.3
	Subsurface Soil	$< 1x10^{-4}$	0.3
	Groundwater	$< 1x10^{-4}$	2
Hypothetical Lifelong Resident	Surface Soil	$4x10^{-4}$	NA
	Subsurface Soil	$1x10^{-4}$	NA
	Groundwater	$< 1x10^{-4}$	NA
South Waterfront Area			
Future Adolescent Trespasser	Subsurface Soil	$< 1x10^{-4}$	0.07
Future Adult Trespasser	Subsurface Soil	$< 1x10^{-4}$	0.05
Future Lifelong Trespasser	Subsurface Soil	$< 1x10^{-4}$	NA

TABLE 1. RECEPTORS AND CALCULATED RISK EXCEEDANCES (HHRA)

RECEPTOR	MEDIUM	TOTAL CANCER RISK	TOTAL NON-CANCER RISK (HAZARD INDEX)
Current/Future Construction Worker	Subsurface Soil	$< 1x10^{-4}$	0.8
Future Industrial Worker	Subsurface Soil	$< 1x10^{-4}$	0.3
Hypothetical Child Resident	Subsurface Soil	$1x10^{-4}$	3*
Hypothetical Adult Resident	Subsurface Soil	$< 1x10^{-4}$	0.3
Hypothetical Lifelong Resident	Subsurface Soil	$1x10^{-4}$	NA

Yellow shading indicates exceedance of risk threshold.
* All target organ HIs less than 1. Therefore, no unacceptable non-cancer risk.

TABLE 2. SOIL (CENTRAL AREA) PRELIMINARY REMEDIATION GOALS (PRGS)				
CHEMICAL OF CONCERN (COC)	SURFACE SOIL PRG (mg/kg)	BASIS OF SELECTION	SUBSURFACE SOIL PRG (mg/kg)	BASIS FOR SELECTION
Residential Land Use Scenario				
Benzo(a)anthracene	0.15	TCR = 10^{-6}	0.15	TCR = 10^{-6}
Benzo(a)pyrene	0.015	TCR = 10^{-6}	0.015	TCR = 10^{-6}
Benzo(b)fluoranthene	0.15	TCR = 10^{-6}	0.15	TCR = 10^{-6}
Benzo(g,h,i)perylene	0.8	RIDEM ResDEC	--	--
Benzo(k)fluoranthene	0.9	RIDEM ResDEC	--	--
Chrysene	0.4	RIDEM ResDEC	0.4	RIDEM ResDEC
Dibenzo(a,h)anthracene	0.015	TCR = 10^{-6}	0.015	TCR = 10^{-6}
Indeno(I,2,3-cd)pyrene	0.15	TCR = 10^{-6}	--	--
Total Aroclors (PCBs) *	-- *	-- *	-- *	-- *
Arsenic	13	Background	20	Background
Beryllium	1.5	RIDEM ResDEC	--	--
Chromium	16	Background	18	Background
Lead	150	RIDEM ResDEC	--	--
Manganese	390	RIDEM ResDEC	1,037	Background
Industrial Land Use Scenario				
Benzo(a)pyrene	0.8	RIDEM IndDEC	--	--
Dibenzo(a,h)anthracene	0.8	RIDEM IndDEC	--	--
Arsenic	13	Background	20	Background
Beryllium	1.5	RIDEM IndDEC	--	--

TCR – Target Cancer Risk Background – Newport / site-specific background value
RIDEM ResDEC – RIDEM Residential Direct Exposure Criteria (DEC)
RIDEM IndDEC – RIDEM Industrial Direct Exposure Criteria (DEC)
* No PRG selected for Total PCBs because the maximum soil concentration (0.146 mg/kg in surface soil and 0.10 mg/kg in subsurface soil) was less than the proposed PRG (Residential TSCA value of 1 mg/kg). Therefore no action necessary for this COC (PCBs) in surface or subsurface soils. Previous PCB soil issues were addressed by interim removal actions.

TABLE 3. GROUNDWATER (SITE-WIDE) PRELIMINARY REMEDIATION GOALS (PRGS)		
CHEMICAL OF CONCERN (COC)	GROUNDWATER PRG (µg/L)	BASIS FOR SELECTION
Residential Land Use Scenario		
Trichloroethene (TCE)	5	EPA MCL
Vinyl Chloride	2	EPA MCL
Arsenic	10	EPA MCL
Cobalt	4.7	Noncancer risk-based value for child resident
Iron	11,000	Noncancer risk-based value for child resident
Manganese	300	EPA Lifetime Health Advisory Level

TABLE 4: COMPARISON OF SOIL CLEANUP ALTERNATIVES			
	Alternative 1 No Action	**Alternative 2 Cover and LUCs**	**Alternative 3 Cover, Excavation and Off-Site Disposal, and LUCs**
Alternative Description/Components			
Brief Summary of Remedial Alternative Components.	No Action	Install new "encapsulations" -- 6-inch soil covers/barriers and asphalt/ pavement improvement, O&M of existing soil and asphalt/pavement barriers and new soil/asphalt barriers, Cover and LUCs	Install new "encapsulations" -- 6-inch soil covers/barriers, Excavation and off-site disposal of 10,000 tons of contaminated soil; O&M of existing soil and asphalt/pavement barriers and new soil barriers, Cover and LUCs
Estimated Timeframes For Cleanup (years)			
Time to achieve cleanup goals	NA	<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 the threshold criteria above			
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?*	⊘	●	○

TABLE 4: COMPARISON OF SOIL CLEANUP ALTERNATIVES			
	Alternative 1 No Action	**Alternative 2 Cover and LUCs**	**Alternative 3 Cover, Excavation and Off-Site Disposal, and LUCs**
Implementability *Is the alternative technically feasible? Are necessary goods and services (treatment equipment, space, etc.) available?*	●	●	○
Cost – *Based on a total 30-year present worth.*	●	●	○
Costs (see footnotes 1 and 2)			
Capital Costs (initial costs)	$ 0	$ 777,300	$ 2,831,700
Present Value Future Periodic O&M Costs (total long-term)	$ 0	$ 253,500	$ 253,500
Total Present Worth Cost (2014 dollars)	**$ 0**	**$ 1,030,800**	**$ 3,085,200**
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 do the public offer during the public comment period?*	To be determined following the public comment period.		

Notes:
1. For purposes of cost estimation, all O&M costs represent 30-year time frames only. Actual total costs may be higher.
2. The 5-year reviews at this site are a component of the Newport facility 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 5: COMPARISON OF GROUNDWATER CLEANUP ALTERNATIVES			
	G-1 No Action	**G-2 MNA and LUCs**	**G-3 In Situ Treatment, MNA, and LUCs**
Alternative Description/Components			
Brief Summary of Remedial Alternative Components.	No Action	Install new **monitoring wells** and implement LTM for MNA and the LUCs. O&M of monitoring wells with periodic LUC inspections and reporting.	Install new injection wells for enhanced biodegradation an d\for chemical oxidation, inject emulsified oil and oxidant, monitoring wells and implement LTM for MNA and the LUCs. O&M of monitoring wells with periodic LUC inspections and reporting.
Estimated Timeframes For Cleanup (years)			
Time to achieve cleanup goals	NA	30	10
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 the threshold criteria above			
Provides Long-Term Effectiveness and Permanence – *Do risks remain onsite? If so, are the controls adequate and reliable?*	⊘	O	O
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?*	⊘	⊘	O
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?*	⊘	O	O

TABLE 5: COMPARISON OF GROUNDWATER CLEANUP ALTERNATIVES			
	G-1 No Action	**G-2 MNA and LUCs**	**G-3 In Situ Treatment, MNA, and LUCs**
Implementability *Is the alternative technically feasible? Are necessary goods and services (treatment equipment, space, etc.) available?*	●	●	○
Cost – *Based on a total up to 30-year present worth.*	●	●	○
Costs (see footnotes 1 and 2)			
Capital Costs (initial costs)	$ 0	$ 194,000	$ 7,412,200
Present Value Future O&M Costs (total long-term)	$ 0	-$ 1,007,100	$ 1,066,100
Total Present Worth Cost (2014 dollars)	**$ 0**	**$ 1,201,100**	**$ 8,478,300**
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 do the public offer during the public comment period?*	To be determined following the public comment period.		

Notes:
1. For purposes of cost estimation, O&M costs for Alternative G-2 are for 30 year time frame, whereas O&M costs for Alternative G-3 are for 10 year time frame. Actual total costs may be higher.
2. The 5-year reviews at this site are a component of the Newport facility 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 4:
Soil Alternative S-2 – Cover Actions within the Central Area

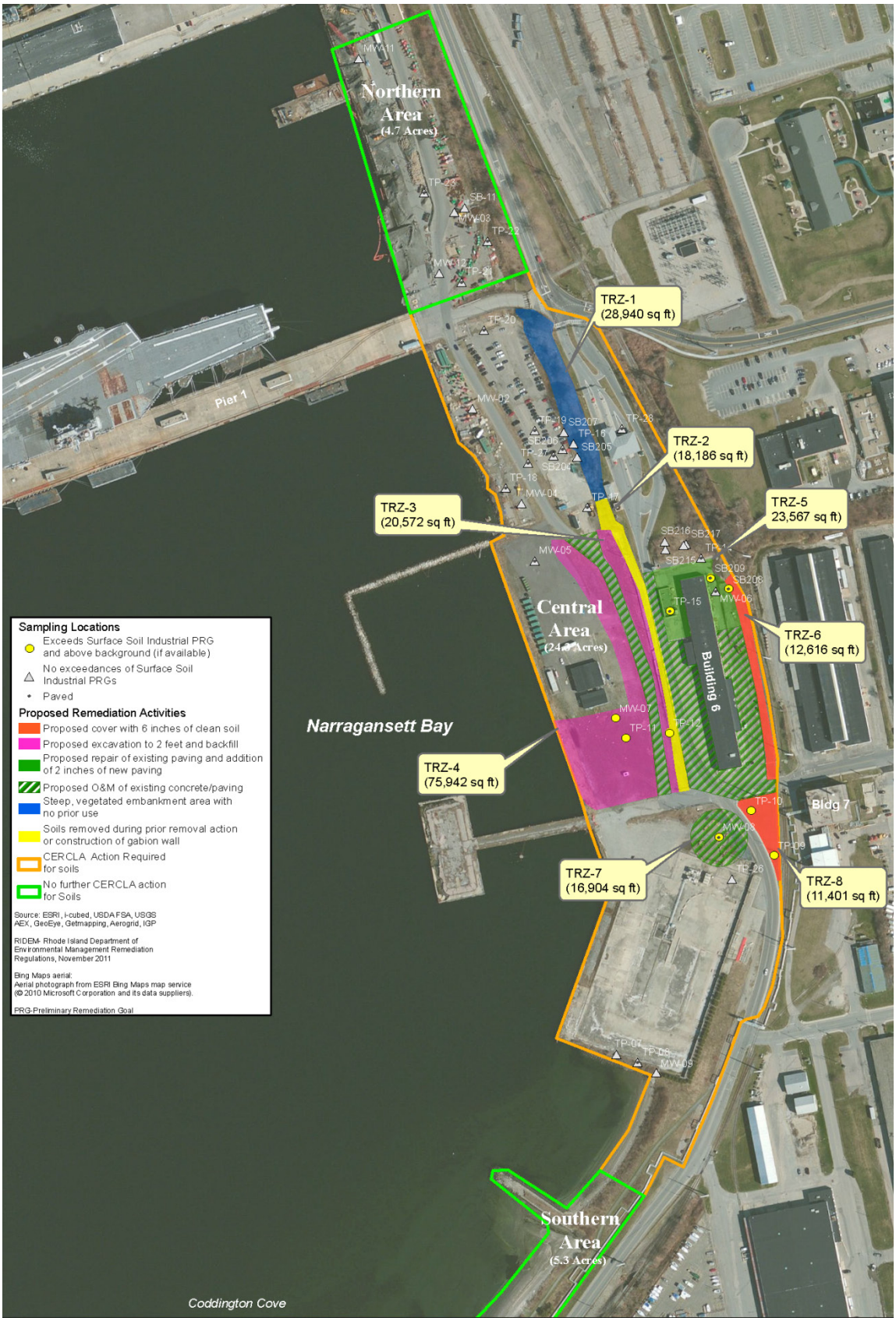

FIGURE 5:
Soil Alternative S-3 – Cover and Excavation Actions within the Central Area

FIGURE 6:
Groundwater Alternative G-2 – Site-Wide MNA

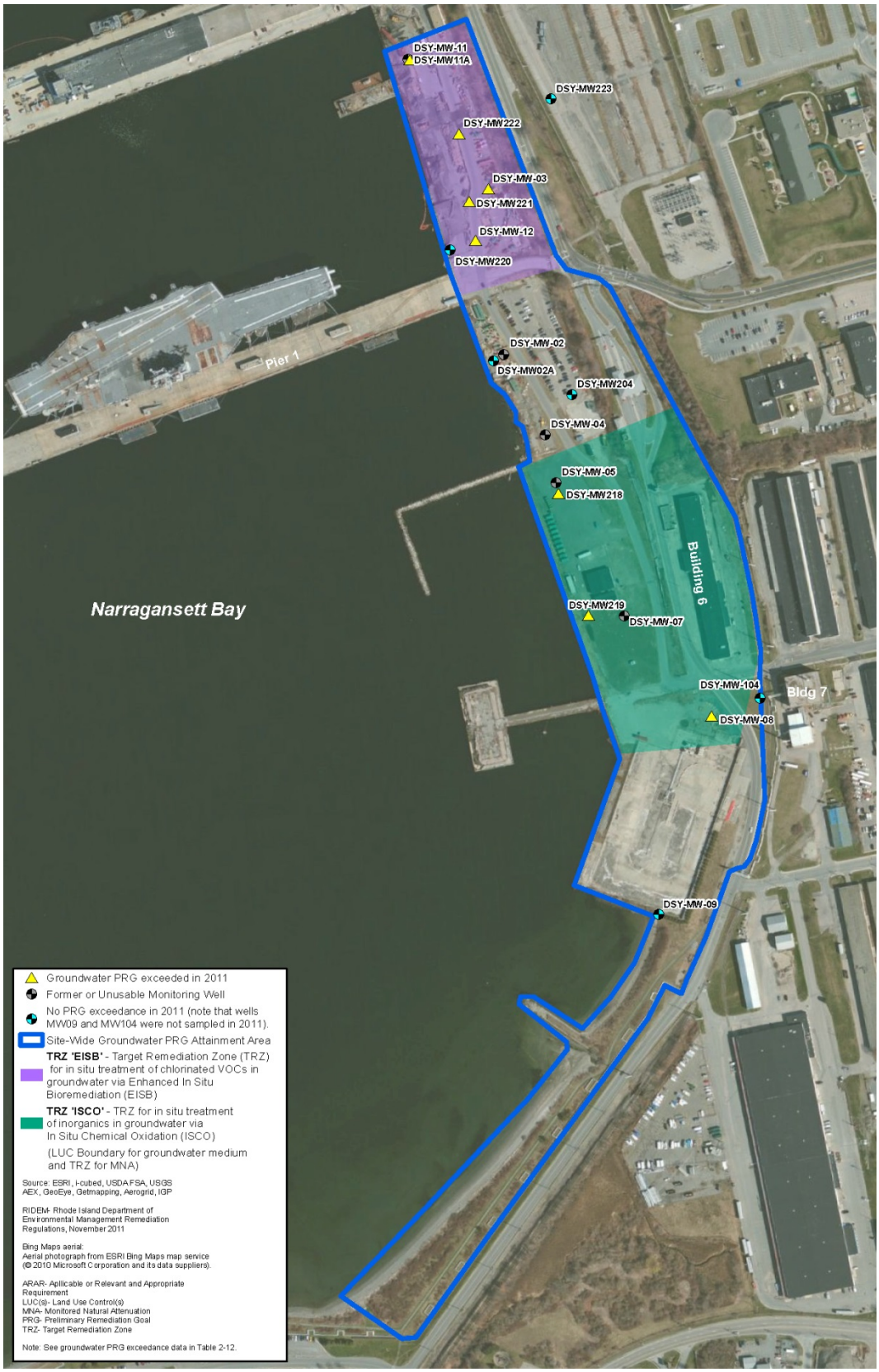

FIGURE 7:
Groundwater Alternative G-3 – In Situ Treatment(s) and Site-Wide MNA

COMMENT SHEET

Proposed Plan for Site 19 – On-Shore Derecktor Shipyard

Use this space to write your comments.

The Navy encourages your written comments on the Proposed Plan for Site 19 – On-Shore Derecktor Shipyard at the Naval Station (NAVSTA) Newport, in Middletown/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) 831-3831. This form is provided for your convenience.

Please fax or mail this form, or additional sheets of written comments, postmarked no later than Friday, June 20, 2014, 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 or 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.

Chemicals of Concern (COCs): Chemicals identified in risk assessments as the primary drivers of unacceptable risks, to be evaluated and addressed in the Feasibility Study (FS).

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 tetrachloroethene (PCE). Also referred to as **'chlorinated VOCs'** (volatile organic compounds).

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 (FS): 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.

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.

National Contingency Plan (NCP): Portion of Code of Federal Regulations (CFR) that enforce CERCLA.

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.

Polycyclic Aromatic Hydrocarbons (PAHs): PAHs are complex organic molecules that are commonly found in fuel, soot and in petroleum based solvents such as naphtha and creosote.

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: 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.

Target Remediation Zone: Extent of medium to be addressed by active remediation (e.g., soil cover or aquifer injection).

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

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FOR MORE INFORMATION…

Contacts

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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/DyNw

or

http://www.rabnewportri.org/

and click on the link for the "NAVFAC Website"