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PROPOSED PLAN DECISION UNITS 1-1, 1-2, AND 1-3 AT SITE 7 TANK FARM 1 OPERABLE UNIT 13 (OU 13) NS NEWPORT RI
04/01/2016
RESOLUTION CONSULTANTS

Proposed Plan

Decision Units 1-1, 1-2, and 1-3 at Site 7 - Tank Farm 1
Operable Unit 13
Naval Station (NAVSTA) Newport
Portsmouth, 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 contaminated soils at Decision Units (DU) 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1, located at the Naval Station (NAVSTA) Newport, in Portsmouth, Rhode Island. This plan describes the Navy's proposed cleanup (remedy) for the Site, which, after careful study consists of:

- Limited excavation and off-site disposal of contaminated soil at DU 1-1, 1-2, and 1-3;
- Land use controls at DU 1-1, 1,2, and 1-3 to control access and use of the property; and
- Five-year reviews of DU 1-1, 1-2, and 1-3 remedies to ensure continued protectiveness of human health and the environment.

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

Introduction

This Proposed Plan provides information to the public on the Navy's preferred cleanup plan for soils at DU 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1, the Site, located at NAVSTA Newport. The Site is located in Portsmouth, Rhode Island. Site 7 – Tank Farm 1 is identified by the U.S. Environmental Protection Agency (USEPA) as Operable Unit (OU) 13 at NAVSTA Newport, which was formerly listed as the Naval Education and Training Center (NETC) Superfund Site. This plan has been prepared to inform the community of the Navy's basis for the preferred cleanup approach for contaminated soils within the operable unit, and to encourage community participation on the Proposed Plan and environmental cleanup process for the Site at NAVSTA Newport.

Federal and state environmental laws govern cleanup activities at federal facilities. A federal law called the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), also known as Superfund, provides procedures for investigating and cleaning up environmental problems.

OPPORTUNITY FOR PUBLIC COMMENT

Public Comment Period

May 5, 2016 to June 4, 2016

The Navy will accept written comments on the Proposed Plan for DU 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1 during this comment period. Send written comments postmarked no later than June 4, 2016 to:

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

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

Public Meeting and Public Hearing – May 18, 2016

The Navy will hold a public meeting from 6:30 p.m. to 7:30 p.m., during which the Navy will provide a presentation describing the planned site cleanup and host an informal question and answer session. Finally, the Navy will hold a formal public hearing from 7:30 p.m. until all comments are heard. At the formal hearing, an official transcript of comments will be recorded and entered into the record. These activities will be held at:

Courtyard Marriott
9 Commerce Drive
Middletown, Rhode Island 02842

For more site information, visit one of the Information Repositories listed at the end of this Proposed Plan or visit our website at http://go.usa.gov/DyNw.

Under this law, the Navy is pursuing cleanup of designated sites at NAVSTA Newport to restore the environmental condition of the property. DU 1-1, 1-2,

and 1-3, which are a portion of Site 7 – Tank Farm 1, are designated sites.

The Navy works closely with the USEPA and the Rhode Island Department of Environmental Management (RIDEM) to achieve this objective. The Navy is the lead agency for all investigation and cleanup programs ongoing at NAVSTA Newport. USEPA oversees the DU 1-1, 1-2 and 1-3 cleanup and must concur with the final cleanup plan.

As the lead agency, the Navy has prepared this Proposed Plan for the Site in accordance with CERCLA Section 117(a) and Section 300.430(f) (2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This plan and its associated public community opportunities fulfill the Navy's public participation responsibilities under these legal requirements. The Proposed Plan was developed with support from the USEPA and RIDEM.

The purpose of this Proposed Plan is to:

- Encourage public review and comment on this Proposed Plan.
- Provide background information on the Site, which includes: a description of the Site, a summary of the results of investigations, and the conclusions of human health and ecological risk assessments. ·
- Describe Remedial Action Objectives for the Site.
- Describe Cleanup Alternatives (Remedial Alternatives) considered for the Site.
- Identify and explain the Navy's preferred cleanup plan for the Site.

Once the public has had the opportunity to review and comment on this Proposed Plan, the Navy, USEPA, and RIDEM will carefully consider all comments received and, based on the comments, could modify the cleanup plan 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 of soil at DU 1-1, 1-2, and 1-3 at Site 7, 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 the 2014 Data Gaps Assessment (DGA) Report, 2015 Feasibility Study (FS) Report, related regulatory agency correspondence, and other documents that form the Administrative Record for this Proposed Plan. These documents are available for review at the public Information Repositories 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 DU 1-1, 1-2, and 1-3 at Site 7 that support this Proposed Plan.

Scope and Role of the Response Action

Site 7 – Tank Farm 1 is one of several sites identified at NAVSTA Newport for cleanup under the CERCLA process. Each site undergoing cleanup under CERCLA progresses through the process independently of 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.

This Proposed Plan addresses DU 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1, which are three specific areas defined as the portion of Site 7 – Tank Farm 1 where CERCLA contaminants were released. DU 1-1 is defined as soil associated with the Ethyl Blending Plant (EBP) (includes the EBP and associated previously designated areas of concern (AOCs) TF1-004, TF1-005, and TF1-018). DU 1-2 and DU 1-3 are defined as soil associated with Transformer Vault 2 (TV2) and Transformer Vault 3 (TV3), respectively.

In addition to the three decision units that are the subject of this Proposed Plan, there are other areas and media within Tank Farm 1 that may require CERCLA decisions and response actions. These areas are:

- Five additional AOCs that were identified by RIDEM and listed in an April 2012 dispute resolution agreement as requiring investigation under RIDEM regulations.
- Potential impacts to groundwater from potential perfluorocarbons (PFCs) that may have been used in former fire suppression infrastructure located in western portion of Tank Farm 1, west of DU 1-1.
- Tank farm wide groundwater.

These areas are currently being assessed and a determination of a need for a CERCLA response action is pending. If required, a site-wide Tank Farm 1 ROD will address any additional areas requiring a CERCLA response.

Site Background and Characteristics

Where are DU 1-1, 1-2, and 1-3 and Site 7?

The Site consists of DU 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1, which is part of the NAVSTA Newport facility. NAVSTA Newport is approximately 25 miles south of Providence, located on Aquidneck Island and spans across the City of Newport and the Towns of Middletown, Portsmouth, and Jamestown. 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. Site 7 – Tank Farm 1 is located in the northern portion of the NAVSTA Newport facility within close proximity to Narragansett Bay (Figure 1).

Site 7 – Tank Farm 1 is an approximately 50-acre former fuel storage and distribution area. The Navy has owned the property since the 1920s with the tank farm itself being built in the early 1940s. Site 7 –Tank Farm 1 is bordered by railroad tracks and the former Fuel Loading Area to the west, Melville Pond to the north, the Melville Public Fishing and Camping Area to the north and east, an electrical substation to the southeast, and vacant Navy land to the south.

DU 1-1 is defined as soil associated with the EBP (includes the EBP and associated previously designated AOCs TF1- 004, TF1-005, and TF1-018). DU 1-1 is approximately 0.5 acres, is surrounded by Tanks 17 and 18 to the north, Tanks 9 and 10 to the west, a wooded area and Pump house 49 to the south, and a forested area to the east. DU 1-2 is defined as soil associated with TV2 and DU 1-3 is defined as soil associated with TV3. These DUs are each approximately 0.014 acres, and are located in the central portion of Site 7 – Tank Farm 1. DU 1-2 is located southeast of Tank 16 and DU 1-3 is located southwest of Tank 13.

What caused the contamination at DU 1-1, 1-2, and 1-3?

DU 1-1 is defined as soil associated with the EBP and AOCs TF1-004, TF1-005, and TF1-018. While the construction date of the EBP is unknown, an engineering report from 1943 described the operations at the EBP and the EBP appears on aerial photographs from 1942.

The historical use of the EBP was to mix aviation gasoline with an anti-knock component called ethyl fluid. Ethyl fluid is composed of 60% tetraethyl lead (TEL), approximately 18% 1,2-dibromoethane (ethylene dibromide or EDB), and approximately 19% ethylene dichloride (EDC), along with some additional minor components. This fluid prevented lead fouling in internal combustion engines. Use of these three compounds in combustion engines was largely curtailed worldwide near the end of the 20th century, except in aviation fuels and other specialty fuels. While field investigation results did not indicate releases of ethyl fluid, elevated concentrations of polycyclic aromatic hydrocarbons (PAHs) were detected in surface soil and are likely attributable to activities that occurred during former operations at the EBP, such as engine idling, operation of the heating system at the plant, use of lubricants, etc.

AOCs TF1-004, TF1-005, and TF1-018, which were located in the vicinity of DU 1-1, were identified during an analysis of historical aerial photographs. AOC TF1-004 appeared to be a pipe scar or ditch leading away from the EBP to a shallow depression. AOC TF1-005 appeared to be a depression containing light-toned material or objects. The third AOC, TF1-018, appeared to be a pit containing light-toned material of liquid adjacent to AOC TF1-005. Visual observations made during the Site 7 – Tank Farm 1 field work did not discern any surface features indicating the presence of the three historical AOCs.

DU 1-2 and 1-3 are defined as soil associated with TV2 and TV3, respectively. These two transformer vaults are shown on aerial photographs from 1951. According to a historical plan from 1985, polychlorinated biphenyls (PCB) transformers were replaced with non-PCB transformers. No additional information is available about the Transformer Vaults (Tetra Tech, 2014). The presence of PCB Aroclors in surface soil immediately adjacent to each transformer indicates that historical releases of PCB containing oils have occurred.

Figure 2 shows the layout of the site as well as surrounding site features.

What does Site 7 look like today?

Most of Site 7 – Tank Farm 1 is covered in vegetation, mainly grass, shrubs, and trees, with some cleared areas for access roads and adjacent to underground storage tank (UST) locations. Public access to the site is restricted by partial security fencing along the perimeter of the property. Several of the USTs remain, although they are no longer used for petroleum storage. The Defense Logistics Agency (DLA) is conducting closure activities for these tanks in accordance with RIDEM UST regulations. DLA's closure activities are currently anticipated to include soil remediation in the vicinity of certain tanks, followed by permanent closure of the USTs that are no longer being used in accordance with RIDEM UST and remediation regulations. Permanent closure would include demolition of the USTs, removal of fuel distribution piping and associated structures (assumed to include EBP, TV2, and TV3), backfill and seeding.

Figure 1 – Locations of Decision Units within Site 7 – Tank Farm 1

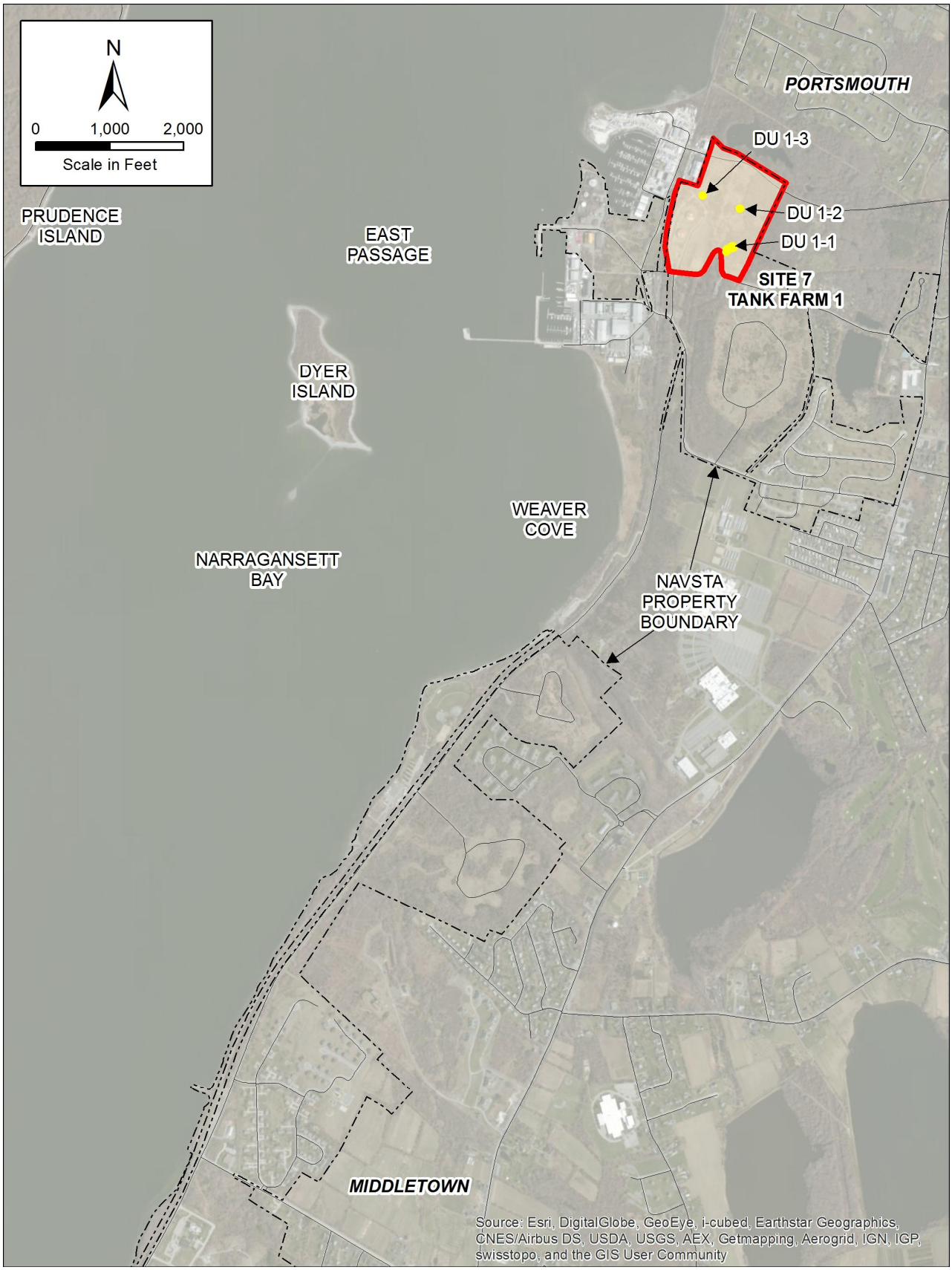
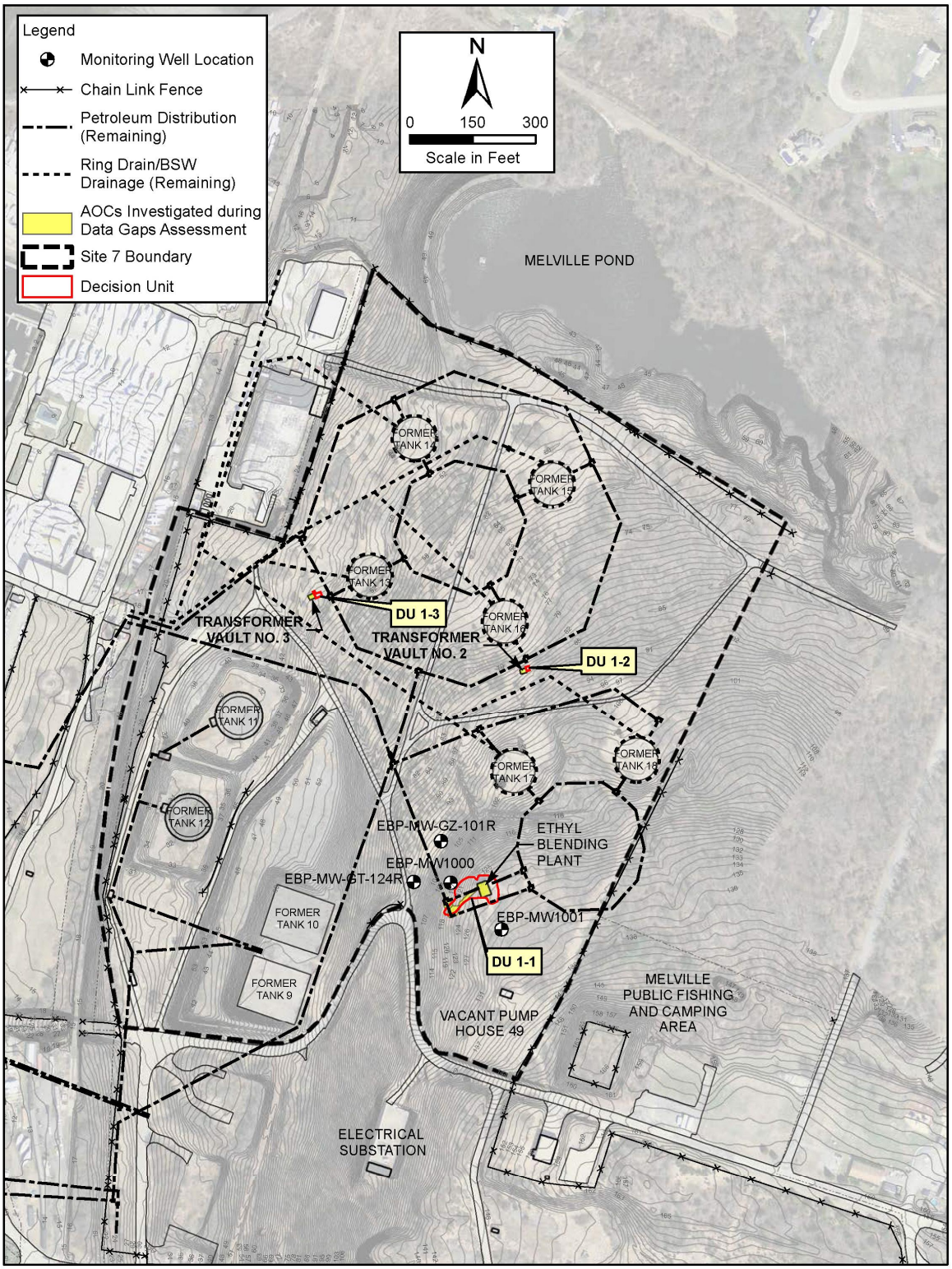


Figure 2 – Site 7 – Tank Farm 1 Layout



History of Site Investigations

1989: NAVSTA Newport (NETC at the time) was added to the National Priorities List (NPL).

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

1992: A Federal Facilities Agreement (FFA) was developed and signed by the Navy, the State of Rhode Island, and USEPA to outline the response action requirements under the CERCLA regulatory framework at NAVSTA Newport. The FFA was developed, in part, to ensure that the environmental impacts associated with past and present activities at NAVSTA Newport are properly investigated and remediated if needed.

2010: A Site Investigation was performed under RIDEM regulations to address the former storage tanks, distribution piping network, and releases of stored fuels. Soil samples were collected around the EBP via test pits and the samples were field screened for petroleum with laboratory analysis for total petroleum hydrocarbons (TPH) and gasoline-related constituents. At the Transformer Vaults, soil samples were collected and analyzed for PCBs.

2014: A DGA was performed to refine the characterization of the EBP and Transformer Vaults, as well as quantify potential risks posed by site contamination. The DGA Report completed the remedial investigation phase of CERCLA. At the EBP, the DGA Report determined that there is predicted human health risk above the USEPA target risk range for surface soil under a potential residential or other unrestricted use of the Site. The DGA report also concluded that the localized areas associated with the maximum Aroclor 1260 concentrations at TV2 and TV3 should be further addressed to protect insectivorous receptors in the future if soil is spread over a larger area because of site activities.

Site 7 – Tank Farm 1 is moderately to gently sloping with topography ranging from 148 feet above mean sea level (msl) in the southeastern portion of the site to 14 feet msl in the west central portion of the site closest to Narragansett Bay (Tetra Tech, 2014). DU 1-1 is located in the southeastern portion of the site and topographically upgradient of the tanks.

What chemicals of concern are present at DU 1-1, 1-2, and 1-3 and where are they located?

During the DGA (see Site History text box), environmental samples were collected from soil and groundwater. The groundwater sampling results are not discussed here because this Proposed Plan only addresses contaminated soil within the DUs. Soil was found to have levels of contaminants present that exceed CERCLA cleanup standards. The following text provides a summary of particular chemicals of concern (COCs) found in soil at each exposure area.

DU 1-1: PAHs and metals (arsenic, hexavalent chromium, and manganese) were identified as COCs in surface soil. The PAHs are likely attributable to activities that occurred during former operations at the EBP, such as engine idling, operation of the heating system at the plant, use of lubricants, etc. Arsenic and manganese, which are commonly present metals in soil, did not appear to show any pattern and are not likely the result of any localized spill or any other types of releases that might have occurred during former operations at the EBP. However, higher concentrations of these metals seen in a small number of sample locations exceed CERCLA cleanup standards. A pre-design investigation at DU 1-1, 1-2, and 1-3 (see Summary of Soil Alternatives on page 10) is proposed to refine the horizontal extent of surface soil impacts that exceed preliminary remediation goals (PRGs). The investigation will also include sampling for hexavalent chromium at a few DU 1-1 surface soil locations, to confirm that hexavalent chromium is not present and eliminate hexavalent chromium as a COC.

DU 1-2 and 1-3: PCBs were identified as a COC in surface soil at both DU 1-2 and 1-3 and are attributed to releases associated with the former use of PCB-containing transformer oil at each of the transformer vaults.

Summary of Site Risks

As a part of the DGA, the Navy completed risk assessments to determine the potential current and future effects of contaminants on human health and the environment. The predicted effects were then considered in cleanup decision making for DU 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1.

Human Health Risks

The human health risk screening evaluation estimated the baseline risk, which is the likelihood of health problems occurring from exposure to site media if no cleanup action were taken at the site. To estimate the baseline risk for human health, a four-step process was used. DU 1-1, 1-2, and 1-3 were treated as separate exposure units in the evaluation.

Step 1 – Identify Chemicals of Potential Concern

Chemicals of potential concern (COPCs) are chemicals found at the site in concentrations above federal and state default-based risk-screening levels and background levels, where applicable. Chemicals with

concentrations above these levels were further evaluated in Step 2.

Step 2 – Conduct an Exposure Assessment

The ways that humans could come into contact with the identified COPCs were evaluated. Both current and reasonably foreseeable future exposure scenarios were considered. For DU 1-1, 1-2, and 1-3, the potential exposures to COPCs that were identified (excluding groundwater) included: construction workers, commercial/industrial workers, trespassers, restricted recreational users, and hypothetical future residents who could come in contact with site soil through direct contact, ingestion or inhalation of soil particulates (dust) or vapors.

Understanding Human Health Risk Screening Evaluations

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 (referred to as Incremental Lifetime Carcinogenic Risks) 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 USEPA acceptable risk range for carcinogens is 10^{-6} to 10^{-4}, and RIDEM's standard is 1×10^{-5}. In general, calculated risks higher than these values would require consideration of cleanup.

For noncarcinogens, exposures are first estimated and then compared to a reference dose (RfD). The RfD is developed by USEPA 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 (noncancer) health effects. The exposure dose is divided by the RfD to calculate the measure known as a hazard index. A hazard index greater than 1 suggests that adverse effects are possible.

Risks were estimated in Step 4 for industrial and hypothetical residential land use. It should be noted that the current and planned future use of the Site is industrial/commercial, with some restricted recreational use. The restricted recreational use is for hunting during the state-regulated hunting season. Otherwise, the Site's access is restricted only by partial fencing. There is no current or planned residential or unrestricted recreational use of the Site. These uses are evaluated in the risk screening evaluation process to provide a basis for the need for a cleanup action.

Step 3 – Complete a Toxicity Assessment

Possible harmful effects associated with potential exposure to the COPCs were evaluated. Generally, these COPCs were separated into two groups: carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse health effects other than cancer).

Step 4 – Characterize the Risk

The results of Steps 2 and 3 were combined to estimate overall risks from exposure to the COPCs for each of the three decision units. The terms used to define the estimated risk are explained in the text box on this page entitled *Understanding Human Health Risk Screening Evaluations*.

Unacceptable risks were associated with the following exposure scenarios:

- Exposure of future residents to surface soil at DU 1-1, due to the presence of PAHs (primarily benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) as well as the metals arsenic and chromium.

Summary of the Human Health Risk Screening Evaluation

The outcome of the risk screening evaluation is summarized in Table 1. This table presents the receptors to which there is possible risk of cancer health effects (expressed as cancer risks above the USEPA's target risk range of 10^{-6} to 10^{-4}). There were no unacceptable non-cancer risks. Refer also to the text box on this page.

Current and potential future exposures to surface soil at DU 1-2 and DU 1-3 did not result in an unacceptable human health risk; however, based on comparison to Toxic Substances Control Act (TSCA) risk-based guidance for unrestricted use, PCB levels in surface soil at DU 1-2 and DU 1-3 do exceed EPA guidance risk-based standards for unrestricted use.

Table 1 Receptors and Calculated Risks

Exposure	Residential Scenario		Industrial Scenario	
	Total ILCR	HI	Total ILCR	HI
DU 1-1				
Surface Soil	$2x10^{-4}$	1	$2x10^{-5}$	0.1
Subsurface Soil	$7x10^{-5}$	1	$7x10^{-6}$	0.08
DU 1-2				
Surface Soil	$1\ x10^{-4}$	NA	$3x10^{-5}$	NA
DU 1-3				
Surface Soil	$1\ x10^{-5}$	0.3	$3x10^{-6}$	0.03

ILCR denotes Incremental Lifetime Carcinogenic Risk HI denotes Hazard Index
The calculated risk highlighted in yellow exceeds USEPA's target risk range for cancer risks.

Ecological Risks

To conduct the ecological risk assessment, the following three step process was used.

Step 1 – Problem Formulation

For Site 7 – Tank Farm 1, the primary objective of the ecological risk assessment was to evaluate whether or not ecological receptors are potentially at risk when exposed to contaminants in surface soil at DU 1-1, 1-2, and 1-3 at Site 7 – Tank Farm 1. The assessment was completed to make sure that ecological receptors were able to exist and grow at Site 7 – Tank Farm 1 in ways similar to the surrounding area.

The ecological receptors evaluated for this assessment and the potential exposure routes for these receptors included:

- Terrestrial vegetation
- Soil invertebrates
- Herbivorous birds and mammals
- Insectivorous birds and mammals

Similar to the human health risk screening evaluation, chemicals found at the site in concentrations above federal and state risk-screening levels are identified as COPCs. These COPCs were evaluated further in Step 2.

Step 2 – Risk Analysis

The potential exposures to the COPCs and the resulting possible harmful effects were evaluated. Exposure was determined by estimating or measuring the amount of a chemical in soil and evaluating exposure to these chemical concentrations by ecological receptors.

Understanding Ecological Risk Assessments

An Ecological Effects Quotient (EEQ) approach was used to characterize the risk to ecological receptors. This approach characterizes the potential effects by comparing exposure concentrations with the effects data. When EEQs exceed 1.0, it is an indication that ecological receptors are potentially at risk, although additional evaluation or data may be necessary to confirm with greater certainty whether ecological receptors are actually at risk, especially because most benchmarks are developed using conservative exposure assumptions and/or studies. An EEQ should not be construed as being probabilistic; rather, it is a numerical indicator of the extent to which an exposure point concentration exceeds or is less than a benchmark.

Step 3 – Risk Characterization

The results from Step 2 were evaluated for the likelihood of harmful effects to ecological receptors for DU 1-1, 1-2, and 1-3. The results are summarized below.

DU 1-1: The ecological risk assessment did not identify potential ecological risks to ecological receptors exposed to chemicals found at DU 1-1 in surface soil.

DU 1-2 and 1-3: The ecological risk assessment did not identify potential ecological risks to terrestrial plants, soil invertebrates, and herbivorous wildlife exposed to chemicals found at DU 1-2 and DU 1-3 in surface soil. However, the DGA report concluded that considering (1) the disparity between the maximum Aroclor 1260 concentrations and the rest of the data; and (2) the uncertainty associated with determining population-level risks in an area that comprises a small percent of the home range, the localized areas associated with the maximum Aroclor-1260

concentrations at DU 1-2 and 1-3 should be addressed with a remedial alternative to protect insectivorous receptors in the future if the soil is spread over a larger area because of site activities.

Remedial Action Objectives

Remedial Action Objectives 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 statutes and regulations. The remedial action objectives are developed to address all the COCs in soil.

The soil objectives for the protection of human health at DU 1-1 are:

- Prevent exposure by industrial and restricted recreational users to soil containing site contaminants that exceed industrial use scenario Preliminary Remediation Goals (PRGs).
- Prevent exposure by future residents and other unrestricted users to soil containing site contaminants that exceed residential use scenario PRGs.
- Prevent future migration of soil contaminants to groundwater (soil COCs above RIDEM GA Leachability Criteria).

The soil objectives for the protection of human health and the environment at DU 1-2 and 1-3 are:

- Prevent exposure by industrial and restricted recreational users to soil containing site contaminants that exceed industrial use scenario PRGs.
- Prevent exposure by future residents and other unrestricted users to soil containing site contaminants that exceed residential use scenario PRGs.
- Prevent future migration of soil contaminants to groundwater (soil COCs above RIDEM GA Leachability Criteria).
- Prevent exposure by insectivorous mammals and birds to surface soil containing COCs that exceed ecological PRGs.

Action levels, also referred to as PRGs, were developed for the contaminants identified as COCs in soil.

At DU 1-1, PRGs have been developed to prevent exposure to soils with site-related contaminant concentrations that may present human health risks. PRGs were developed for a residential use scenario and industrial use scenario. Table 2 presents the PRGs for DU 1-1.

At DU 1-2 and 1-3, PRGs were developed to prevent exposure to soils with site-related contaminant concentrations that may present ecological risks. Although the human health risk screening evaluation did not identify unacceptable risks for DU 1-2 and 1-3, human health-based PRGs were developed based on applicability of Applicable or Relevant and Appropriate Requirements (ARARs) and guidance classified as "to be considered" (TBCs). As such, PRGs were developed for residential, industrial, and ecological use scenarios. Table 3 presents the PRGs for DU 1-2 and 1-3.

Table 2 Cleanup Goals for Surface Soil at DU 1-1

Analyte	Selected PRG (mg/kg)	Basis
Residential Use Scenario		
Benzo(a)anthracene	0.9	RDEC
Benzo(a)pyrene	0.4	RDEC
Benzo(b)fluoranthene	0.9	RDEC
Benzo(g,h,i)perylene	0.8	RDEC
Benzo(k)fluoranthene	0.9	RDEC
Chrysene	0.4	RDEC
Dibenz(a,h)anthracene	0.4	RDEC
Fluoranthene	20	RDEC
Indeno(1,2,3-cd)pyrene	0.9	RDEC
Naphthalene	0.8	Leachability
Pyrene	13	RDEC
Arsenic	14	Background
Chromium VI	18	Background
Manganese	390	RDEC
Industrial Use Scenario		
Benzo(a)anthracene	7.8	I/C DEC
Benzo(a)pyrene	0.8	I/C DEC

Analyte	Selected PRG (mg/kg)	Basis
Benzo(b)fluoranthene	7.8	I/C DEC
Dibenz(a,h)anthracene	0.8	I/C DEC
Naphthalene	0.8	Leachability
Arsenic	14	Background

RDEC denotes RIDEM Direct Exposure Criteria
I/C DEC denotes RIDEM Industrial/Commercial Direct Exposure Criteria
Leachability denotes RIDEM GA Leachability Criteria
Background – If PRGs were below background concentrations, the background concentration was selected.

Table 3 Cleanup Goals for Surface Soil at DU 1-2 and DU 1-3

Analyte	Selected PRG (mg/kg)	Basis
Residential Use Scenario		
PCBs	1	TSCA
Industrial Use Scenario		
PCBs	10	I/C DEC, Leachability
Ecological		
PCBs	3.4	Ecological

TSCA – Toxic Substances Control Act; Section 761.1(c) of TSCA allows for risk-based cleanup of PCB remediation waste. EPA guidance on Remedial Actions for Superfund Sites with PCB Contamination (OSWER Directive #9355.4-01FS; EPA/540/G-90/007; August 1990) was utilized to develop the risk-based value presented.

Summary of Soil Alternatives

Remedial alternatives for surface soils at DU 1-1, 1-2, and 1-3 were developed to meet the remedial action objectives. Figures 3 and 4 present the estimated areas where remedial action would be conducted at DU 1-1, 1-2, and 1-3 as presented in the FS. The remedial alternatives discussed below were presented in the Detailed Analysis phase of the FS. Since subsurface soil concentrations did not exceed PRGs, there are no remedial actions required for subsurface soil. Note that all the remedial alternatives (except S-1: No Action) include a pre-design investigation to better refine the extent of surface soil impacts requiring remedial action (i.e. the areas identified on Figures 3 and 4). The investigation results are not expected to impact the alternative evaluation, but will just provide more refined boundaries.

Alternative S-1: No Action

This alternative is used as a baseline for comparison to the other alternatives in accordance with the NCP (USEPA, 1990) and RI/FS guidance (USEPA, 1988). There are no remedial actions involved with this alternative.

Total Cost: $0

Alternative S-2: Limited Soil Excavation with Land Use Controls

Alternative S-2 would include limited soil excavation and off-site disposal as well as implementation of land use controls. Alternative S-2 would achieve remedial action objectives through the following components:

- For DU 1-2 and 1-3, approximately 20 cubic yards of soil would be removed. All accessible surface soil with PCB concentrations exceeding PRGs would be removed.
- Limited soil excavation and off-site disposal would remove surface soils exceeding Industrial PRGs (including RIDEM GA Leachability Criteria) for DU 1-1. Approximately 130 cubic yards of soil would be removed.
- Soil would remain on-site at concentrations greater than Residential PRGs at DU 1-1; therefore, land use controls would be established to prevent residential and other unrestricted use. Because there is only a thin layer of soil overlying bedrock at DU 1-1, it is likely that little to no soil is present below the EBP foundation. However, as a conservative measure, land use controls would also be required for the EBP structure footprint to prevent access to soil, if it exists, below the building. If the EBP is demolished in the future, the presence or absence of soil beneath the building would be assessed and if soil is present, it would be remediated, if necessary, to meet Industrial PRGs.
- For DU 1-2 and 1-3, although all accessible soil exceeding PRGs would be removed, land use controls would be required for the TV2 and TV3 structure footprints to prevent access to soil below the buildings, since it has not been assessed. If and

when TV2 and/or TV3 are demolished in the future, the demolition will meet Toxic Substances Control Act (TSCA) protectiveness standards so as not to create a threat of release to the environment. If TV2 and/or TV3 are demolished, soil beneath the buildings would be assessed and remediated, if necessary, to meet the PRG for PCBs.

Capital Cost:	*$163,414*
O&M Cost:	*$51,514*
Five-Year Reviews Cost:	*$23,307*
Total Present Value Cost [1]:	*$238,000*

[1] Total cost over duration of alternative in today's $, rounded to the nearest $1,000; assumed duration of 30 years

Costs are not included for potential assessment and remediation of the soil beneath the EBP, TV2, and TV3 structures. If remediation is required, it is assumed the cost will be within the acceptable NCP cost range. Costs for demolition/disposal of the structures are not included because demolition is not part of the remedial alternative.

Alternative S-3: Soil Excavation with Short-Term Land Use Controls

This alternative involves excavation of the contaminated surface soils in the proximity of DU 1-1, 1-2, and 1-3 that exceed the respective PRGs for each exposure area. Excavated soil will be transported off-site for disposal, reuse, or recycling. Alternative S-3 would achieve remedial action objectives through the following components:

- For DU 1-2 and 1-3, approximately 20 cubic yards of soil would be removed. All accessible surface soil with PCB concentrations exceeding PRGs would be removed.
- For DU 1-1, all surface soil in excess of both the Residential and Industrial PRGs would be removed. Approximately 400 cubic yards of soil would be removed.
- As a conservative measure, short-term land use controls would likely be required for the EBP structure footprint within DU 1-1 to prevent access to soil, if it exists, beneath the building. When the EBP is demolished in the future, the presence of absence of soil beneath the building would be assessed and if soil is present, it would be remediated, if necessary, to meet Residential and Industrial PRGs.
- Short-term land use controls would likely also be required for the TV2 and TV3 structure footprints within DU 1-2 and 1-3 to prevent access to soil beneath the buildings, since it has not been assessed. When TV2 and TV3 are demolished in the future, the demolition will meet TSCA protectiveness standards so as not to create a threat of release to the environment. When TV2 and TV3 are demolished in the future, soil beneath the buildings would be assessed and remediated, if needed, to meet the PRG for PCBs.

Capital Cost:	*$253,646*
O&M Cost:	*$20,316*
Five-Year Reviews Cost:	*$9,284*
Total Present Value Cost [1]:	*$283,000*

[1] Total cost over duration of alternative in today's $, rounded to the nearest $1,000; assumed duration of 10 years.

Costs associated with potential assessment and remediation of the soil beneath the EBP, TV2, and TV3 structures are not included. If remediation is required, it is assumed the cost will be within the acceptable NCP cost range. Costs for demolition/disposal of the structures are not included because demolition is not part of the remedial alternative.

Alternative S-4: Limited Soil Excavation with Soil Cover and Land Use Controls

This alternative would involve limited excavation and off-site disposal, installation of a clean soil cover to isolate the contaminated surface soils, and implementation of land use controls. Alternative S-4 would achieve remedial action objectives through the following components:

- For DU 1-2 and 1-3, approximately 20 cubic yards of soil would be removed. All accessible surface soil with PCB concentrations exceeding PRGs would be removed.
- Limited soil excavation and off-site disposal would remove surface soils exceeding RIDEM GA Leachability Criteria for DU 1-1. Approximately 60 cubic yards of soil would be removed.
- Soil cover for DU 1-1 over an approximate 5,200 square foot area with a 2 foot thickness to prevent direct exposure to contaminated surface soil remaining above Residential and Industrial PRGs
- Land use controls for DU 1-1 to prevent disturbance of the soil cover and access to underlying contaminated soils. As a conservative measure, land use controls would also be required for the EBP structure footprint to prevent access to soil, if it exists, below the building. If the EBP is demolished in the future, the presence or absence of soil beneath the building would be assessed and if soil is present, it would be remediated, if necessary, to meet Industrial PRGs.
- For DU 1-2 and 1-3, although all accessible soil exceeding PRGs would be removed, land use controls would be required for the TV2 and TV3 structure footprints to prevent access to soil below

the buildings, since it has not been assessed. If and when TV2 and/or TV3 are demolished in the future, the demolition will meet TSCA protectiveness standards so as not to create a threat of release to the environment. If TV2 and/or TV3 are demolished, soil beneath the buildings would be assessed and remediated, if necessary, to meet the PRG for PCBs.

Capital Cost:	*$242,127*
O&M Cost:	*$83,215*
Five-Year Reviews Cost:	*$23,307*
Total Present Value Cost [1]:	*$349,000*

[1] Total cost over duration of alternative in today's $, rounded to the nearest $1,000; assumed duration of 30 years

Costs associated with potential assessment and remediation of the soil beneath the EBP, TV2, and TV3 structures are not included. If remediation is required, it is assumed the cost will be within the acceptable NCP cost range. Costs for demolition/disposal of the structures are not included because demolition is not part of the remedial alternative.

Evaluation of Soil Alternatives

EPA has established criteria for use in comparing the advantages and disadvantages of each alternative. Nine criteria were used to evaluate the different remedial alternatives individually and against each other to select a remedy. The nine criteria fall into three groups: threshold criteria, primary balancing criteria, and modifying criteria. These nine criteria are discussed below. For the complete "Detailed and Comparative Analysis of Alternatives," refer to the FS Report.

Threshold Criteria

- Overall protection of human health and the environment
- Compliance with applicable and relevant or appropriate requirements (ARARs)

Primary Balancing Criteria

- Long-term effectiveness and permanence
- Reduction of toxicity, mobility or volume through treatment
- Short-term Effectiveness:
- Implementability
- Cost

Modifying Criteria

- State Acceptance
- Community Acceptance

The two modifying criteria are evaluated after receipt of state and public comments on the FS and Proposed Plan.

Table 4 identifies the evaluation criteria and presents a summary of the evaluation of alternatives at the Site.

Table 4 Comparison of Remedial Alternatives

	Remedial Alternatives			
Evaluation Criteria	**S-1**	**S-2**	**S-3**	**S-4**
Protects human health and the environment	○	●	●	●
Meets ARARs	○	●	●	●
Provides long-term effectiveness and permanence	○	●	●	●
Reduces mobility, toxicity and volume through treatment*	○	○	○	○
Provides short-term protection	○	●	●	●
Can be easily implemented	●	●	●	●
Cost	$0	$238K	$283K	$349K
State Agency Acceptance	To be determined after public comment period			
Community Acceptance	To be determined after public comment period			

● Meets or exceeds criteria

○ Does not meet criteria

◐ Partially or Potentially Meets Criteria

* Although the alternatives developed do not involve treatment, the mobility, toxicity, and volume of contaminants at the Tank Farm 1 would be reduced.

Preferred Remedial Alternative

The Navy is proposing Soil Alternative S-2: Limited Soil Excavation with Land Use Controls as its preferred action for the Site, with the modification that for DU 1-2 and 1-3, soil removal will be conducted to address soil exceeding Ecological and Industrial PRGs and land use controls will address remaining soil that exceeds the Residential PRG. This modification is further supported in the Memorandum to Site File (Resolution, 2016.) This approach is consistent with the current and planned future use of the Tank Farm 1 site, which does not include residential or other unrestricted uses. The preferred remedial alternative would achieve remedial action objectives through the following components:

- Limited soil excavation and off-site disposal would remove surface soils exceeding Industrial PRGs (including RIDEM GA Leachability Criteria) for DU 1-1 and Ecological and Industrial PRGs (including RIDEM GA Leachability Criteria) for DU 1-2 and 1-3.
- Land use controls would be established to prevent residential and other unrestricted use to address soil that would remain above Residential PRGs at DU 1-1, 1-2, and 1-3.
- For DU 1-1, because there is only a thin layer of soil overlying bedrock, it is likely that little to no soil is present below the EBP foundation. However, as a conservative measure, land use controls would also be required for the EBP structure footprint to prevent access to soil, if it exists, below the building. If the EBP is demolished in the future, the presence or absence of soil beneath the building would be assessed and if soil is present, it would be remediated, if necessary, to meet Industrial PRGs.
- For DU 1-2 and 1-3, land use controls would be required for the TV2 and TV3 structure footprints to prevent access to soil below the buildings, since it has not been assessed. If and when TV2 and/or TV3 are demolished in the future, the demolition will meet TSCA protectiveness standards so as not to create a threat of release to the environment. If TV2 and/or TV3 are demolished, soil beneath the buildings would be remediated to meet the Ecological and Industrial PRGs for PCBs.

Preferred Remedial Alternative (Cont'd)

A pre-design investigation will further refine the areas and volumes of surface soil requiring excavation and off-site disposal; however, the soil quantities and remediation costs are not expected to differ substantially from the estimated costs for Alternative S-2, as presented above.

The Navy has concluded that this alternative is protective of human health and the environment and achieves the overall goals established for the Site. The Navy proposes that this alternative be the final action for the Site.

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

Although Alternative S-2 requires land use controls that would prevent residential or other unrestricted use of the property, residential development is not included in the Navy's current development plans at Site 7 – Tank Farm 1. As such, this alternative would achieve remedial action objectives.

While Alternatives S-3 and S-4 would also achieve the remedial action objectives if successfully implemented, these alternatives are more difficult to implement and cost more than Alternative S-2.

Comments and Feedback

Community acceptance of this Proposed Plan is the next step in the cleanup process for DU 1-1, DU 1-2, and DU 1-3 at Site 7 – Tank Farm 1. The public is encouraged to review this plan and submit comments to the Navy on the plan. You don't have to be a technical expert to comment. The Navy would like to know your thoughts before making a final decision on whether Limited Soil Excavation with Land Use Controls is appropriate for the Site.

The USEPA and the Navy are also requesting public comment concerning a draft determination by the USEPA under the Toxic Substances Control Act (TSCA), that the risk-based PCB cleanup levels for surface soils developed for the Site will not pose an unreasonable risk of injury to health or the environment, and that the removal and disposal of accessible PCB-contaminated surface soil exceeding the ecological and industrial cleanup levels and land use controls restricting residential and unrestricted use of remaining areas with PCB concentrations greater

than the residential cleanup level will address both human health and ecological risk. Land use controls will also be established to prevent any exposure to inaccessible soil beneath the transformer vaults (which has not been assessed), until such time as the structure may be removed. If the structures are demolished, soil beneath the structures would be remediated, if needed, to meet the Ecological and Industrial PRGs for PCBs and the demolition would meet TSCA protectiveness standards so as not to create a threat of release to the environment.

During the public comment period from May 5 through June 4, 2016, the Navy will accept formal written comments on this Proposed Plan. The Navy will also hold a public information meeting to accept either oral or written comments. It is important to note that the regulations distinguish between "formal" comments received during the comment period and "informal" comments received outside of the public comment period. While the Navy uses comments throughout the cleanup process to help make cleanup decisions, it is required to respond to formal comments in writing. (See Understanding the Formal Comment Process)

The date, time, and place of the public meeting are provided on the first page of this Proposed Plan.

Next Steps

Once the community has commented on this Proposed Plan, the Navy, RIDEM, and EPA will consider all comments received. It is possible that this Proposed Plan could change based on comments received from the community. The Navy is required by law to 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 attached to the ROD for the site.

Once the comments have been reviewed, the Navy will develop the ROD for DU 1-1, DU 1-2, and DU 1-3 at Tank Farm 1. The ROD is the document containing the rationale for selection of a remedy for a site, and summarizes community participation in the cleanup selection process. The Navy and EPA anticipate that by September 2016, all public comments will be reviewed, and the ROD will be signed. At this time, the ROD will be made available to the public at one of the Information Repositories listed on the back page of this plan. Also, the Navy will announce the availability of the ROD through the local news media and the community mailing list.

After the Record of Decision

After the ROD is signed, the Navy will design and implement the selected alternative. All data and information will be used to prepare an engineering design of the selected actions. After the design is completed, and assuming there is no major opposition to the proposed action, the Navy will oversee the excavation and land use control activities to ensure that the actions are properly implemented.

Commitment to the Community

The Navy is committed to keeping the community informed on the environmental cleanup programs at NAVSTA Newport. A RAB, composed of community and government agency representatives, meets regularly to discuss the environmental cleanup programs at NAVSTA Newport. At these meetings, community RAB members provide local input and offer suggestions on program activities. Upcoming RAB meetings are publicized in 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.

Understanding the Formal Comment Process

Formal comments are used to improve the cleanup process. During the 30-day formal comment period, the Navy will accept formal written comments and hold a public information meeting to accept formal verbal comments.

To make a formal comment on this Proposed Plan, you need only

1) offer oral or written comments during the public information meeting on May 18, 2016, or
2) send written comments, postmarked, faxed, or emailed no later than June 4, 2016, to:

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

For written comments, a comment sheet is attached at the back of this proposed plan.

Your formal comments will become a part of the official record for Site 7 – Tank Farm 1. This is a crucial element in the decision making process for the site. The Navy will consider all comments received during the comment period prior to making the final cleanup decision for DU 1-1, DU 1-2, and DU 1-3 at Site 7 – Tank Farm 1.

A transcript of formal comments and the Navy's written responses will be issued in a document called a Responsiveness Summary that will accompany the ROD for the site.

Glossary of Terms

Applicable Relevant and Appropriate Requirements (ARARs): Federal and state environmental laws/regulations and state facility siting laws/regulations that the alternatives must meet. These laws vary depending upon the alternative(s) selected.

Area of Concern (AOC): An area of suspected contamination within a site.

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 found at the site in concentrations above federal and state default-based risk-screening levels.

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 special tax that goes into a Trust Fund, commonly known as Superfund, 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.

Data Gaps Assessment (DGA): Refers to the Tank Farm 1 – Category 1 AOCs Data Gaps Assessment for Site 7 – Tank Farm 1, Naval Station Newport, Portsmouth, Rhode Island, prepared by Tetra Tech, December 2014.

Decision Unit (DU): A volume or mass of material (such as waste or soil) about which a decision will be made.

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

National Contingency Plan (NCP): The NCP (40 Code of Federal Regulations 300) is the regulation that implements CERCLA. The NCP specifies procedures, techniques, materials, equipment, and methods to be employed in identifying, removing, or remediating releases of hazardous substances. In particular, the NCP specifies procedures for determining the appropriate type and extent of remedial action at a site in order to effectively mitigate and minimize damage to, and provide adequate protection of, human health, welfare, and the environment.

Operable Unit (OU): 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 document that summarizes the preferred cleanup remedy for a site and encourages and facilitates public involvement in the cleanup selection.

Record of Decision (ROD): A legal, technical, and public document that explains the rationale and ultimate cleanup decision for a given site or operable unit. It also summarizes the public's involvement in the cleanup decision.

Remedial Action Objectives: The final cleanup objective that must be met by the selected remedial alternative. This term is used as a technical definition of "cleanup objectives".

Remedial Investigation (RI): A step in the cleanup process that is completed to gather sufficient information to support selection of a cleanup approach to a site. The RI involves site characterization – or 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. The RI phase of the CERCLA process is being completed with the DGA Report.

Responsiveness Summary: A summary of oral or written public comments received during the public comment period for the Proposed Plan. This summary is attached to the Record of Decision for a site.

Toxic Substances Control Act (TSCA): A federal law passed in 1976 that provides EPA with authority to require reporting, record-keeping and testing requirements, and restrictions relating to chemical substances and/or mixtures. TSCA addresses the production, importation, use, and disposal of specific chemicals including polychlorinated biphenyls (PCBs), asbestos, radon and lead-based paint.

Figure 3 - Summary of Surface Soils Exceeding PRGs - DU 1-1

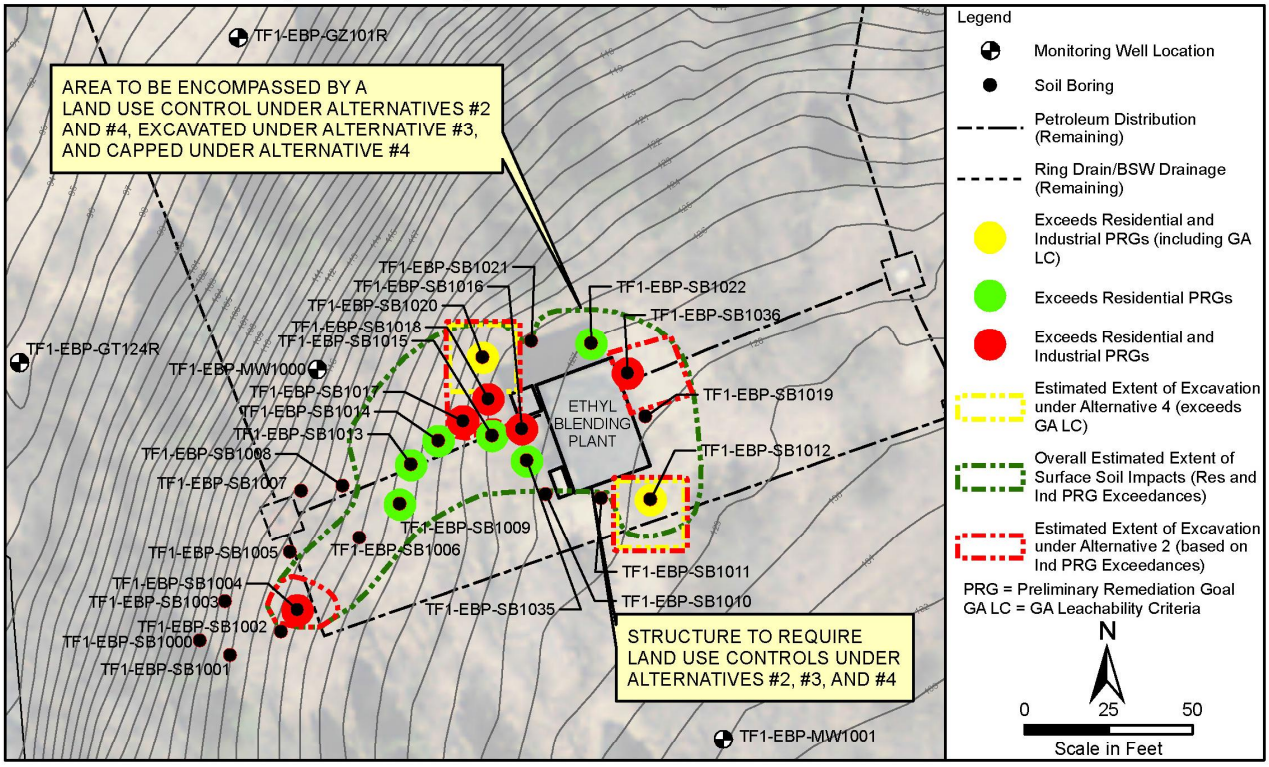
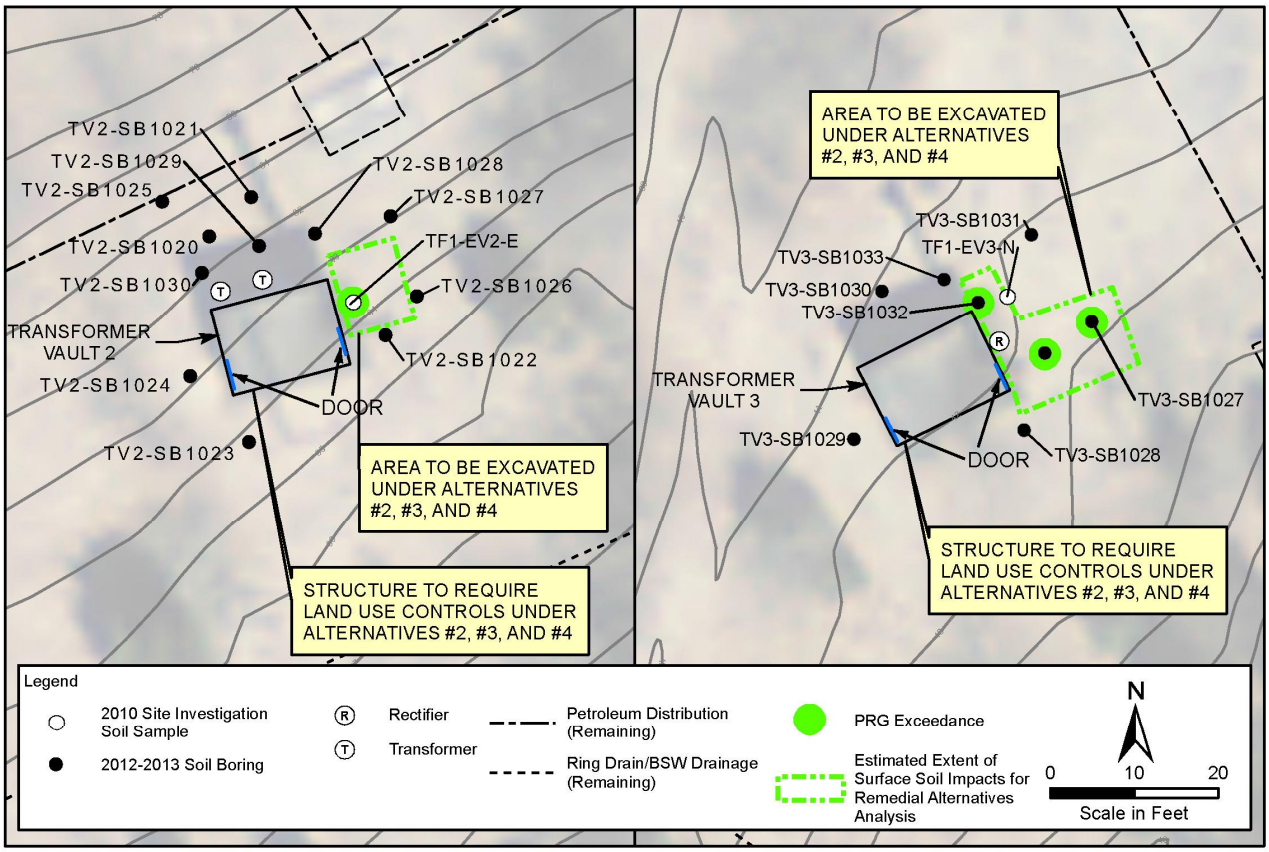


Figure 4 - Summary of Surface Soils Exceeding PRGs - DU 1-2 and DU 1-3



USE THIS SPACE TO WRITE YOUR COMMENTS

The Navy encourages your written comments on the Proposed Plan for DU 1-1, DU 1-2, and DU 1-3 at Site 7- Tank Farm 1, Operable Unit 13, at NAVSTA Newport. You can use the form below to send written comments. If you have questions about how to comment, please call the Navy's Public Affairs Office (Ms. Lisa Rama) at (401) 841-3538. This form is provided for your convenience. Please mail this form or additional sheets of written comments, postmarked no later than June 4, 2016 to:

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

Comment Submitted by: _____

Address: _____

Fold on line, staple, stamp, and mail

Ms. Lisa Rama

Naval Station Newport

Public Affairs Office

690 Peary Street

Newport, RI 02841

For More Information…

Contacts

If you have questions or comments about this Proposed Plan, or any other questions, please contact us:

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235 Promenade St.
Providence, RI 02908-5767
(401) 222-2797 x 7020
Pamela.crump@dem.ri.gov

Information Repositories

Documents relating to environmental cleanup activities for the NAVSTA 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

VISIT OUR WEBSITE:
http://go.usa.gov/DyNw
click on the link for "Administrative Records",
then "Administrative Record File", and
search on "Tank Farm 1"
or

http://www.rabnewportri.org/
and click on the link for the "NAVFAC Website"