PROPOSED PLAN for
Site 3 – Ninth Street Landfill
Former Naval Air Station Joint Reserve Base
Willow Grove, Pennsylvania

Final August 2020

Navy Announces Proposed Plan

The purpose of this **Proposed Plan**[1] is to present the preferred alternatives for the remedial action at Site 3 – Ninth Street Landfill, also known as **Operable Unit (OU)** 6 (soil) and OU10 (groundwater), at the former Naval Air Station Joint Reserve Base (NAS JRB) Willow Grove in Horsham Township, Pennsylvania. The Navy's Proposed Plan recommends limited soil and sediment removal, on-site consolidation, soil cover, **land use controls (LUCs)**, and long-term monitoring as the preferred remedial alternative to address risks associated with soil. No action is required for groundwater. The Navy expects the preferred soil alternative to satisfy statutory requirements; to be protective of human health and the environment; to be cost effective; and to utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Proposed Plan Summary: Limited Soil Removal with On-Site Consolidation, Soil Cover, Land Use Controls, and Long-Term Monitoring

This Proposed Plan is issued by the Navy, the lead agency for the **Installation Restoration Program (IRP)** and **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** activities at the NAS JRB Willow Grove facility, and by the lead regulatory agency, the United States Environmental Protection Agency (EPA). The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Sections 113(k), 117(a), and 121(f) of CERCLA and 40 Code of Federal Regulations Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**. Background information for the site and the rationale for choosing the preferred alternatives are included in this plan.

A final decision on the remedial approach for Site 3 will be made after review and consideration of all information submitted during the 45-day **Public Comment Period**. The Navy and EPA, in consultation with the Pennsylvania Department of Environmental Protection (PADEP), will select the final remedy in a **Record of Decision (ROD)**.

Public Comment Period

Public Comment Period
September 10, 2020 to October 25, 2020

Submit Written Comments
The Navy will accept written comments on the Proposed Plan during the public comment period. Send written comments postmarked no later than October 25, 2020 to the address on the backpage.

Attend the Public Meeting
The Navy will host a virtual public meeting for the Proposed Plan for Site 3 on September 23, 2020 between 6:00 to 8:00 p.m. The virtual public meeting will utilize a webinar tool known as WebEx. The link to the WebEx and phone number are provided below.

HTTPS://TINYURL.COM/WGPP3-12

Phone access: 1-408-418-9388 (toll free)

Access code: 132 480 1632

[1] NOTE: A glossary of relevant technical and regulatory terms is provided at the end of this Proposed Plan. Terms included in the glossary are initially indicated in **boldface** within this Proposed Plan.

The Navy and EPA may modify the preferred remedy in the Proposed Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all the remedial alternatives presented in this Proposed Plan.

This Proposed Plan summarizes the findings of the Site 3 – Ninth Street Landfill **Remedial Investigation (RI)** and outlines the alternatives evaluated as presented in the **Feasibility Study (FS)**. In addition, this Proposed Plan explains how the public can participate in the decision-making process and provides addresses for the appropriate Navy and EPA contacts.

The Proposed Plan also summarizes information from other documents that are contained in the **Administrative Record** file for this site, https://www.bracpmo.navy.mil/brac_bases/northeast/reserve_base_willow_grove/documents.html

An **Information Repository** is also available for information and is located at the Horsham Township Public Library, 435 Babylon Road, Horsham, Pennsylvania. The website is http://oldhtl.mclinc.org/WillowGroveNASindex.html

The Navy invites the public to review the available materials and to comment on this Proposed Plan during the public comment period.

Site Background

Former NAS JRB Willow Grove is located in Horsham Township, Montgomery County in southeastern Pennsylvania, approximately 20 miles north of Philadelphia. The former base occupies approximately 900 acres of flat to slightly rolling terrain and is generally bounded by State Route 611 to the east, State Route 463 to the southwest, and Keith Valley Road to the north (Figure 1).

Site 3 – Ninth Street Landfill occupies approximately 9 acres and is located immediately north-northwest of Ninth Street along the western boundary of the base (see Figure 2). From approximately 1960 to 1967, Site 3 was used as a landfill by the Public Works Department and as a landfill for wastes from various operations at the base. The landfill disposal method reportedly consisted of burning the refuse and burying the residue in trenches. After closure of the landfill, a salvage yard operated in the eastern portion of Site 3. Between 1980 and 1983, clean fill and construction debris were also deposited in this area.

In 2005, NAS JRB Willow Grove was designated for closure under the authority of the Defense Base Closure and Realignment Act (BRAC) of 1990, Public Law 101-510 as amended. Under BRAC, as amended, the base was officially disestablished on March 30, 2011, and closed in September 2011, at which time it was transferred to the BRAC Program Management Office (PMO) and entered caretaker status. Decisions regarding the future use of the land are coordinated by the Horsham Township Land Redevelopment Authority (HLRA).

Environmental investigations at Site 3 include the **Initial Assessment Study (IAS)**, **Site Investigation (SI),** Phase I and Phase II RI, and Phase II follow-on RI. These investigations were performed as part of the CERCLA process identified in Figure 3. The IAS (also known as the Preliminary Assessment) assessed 17 identified sites at the base. Based on IAS findings,

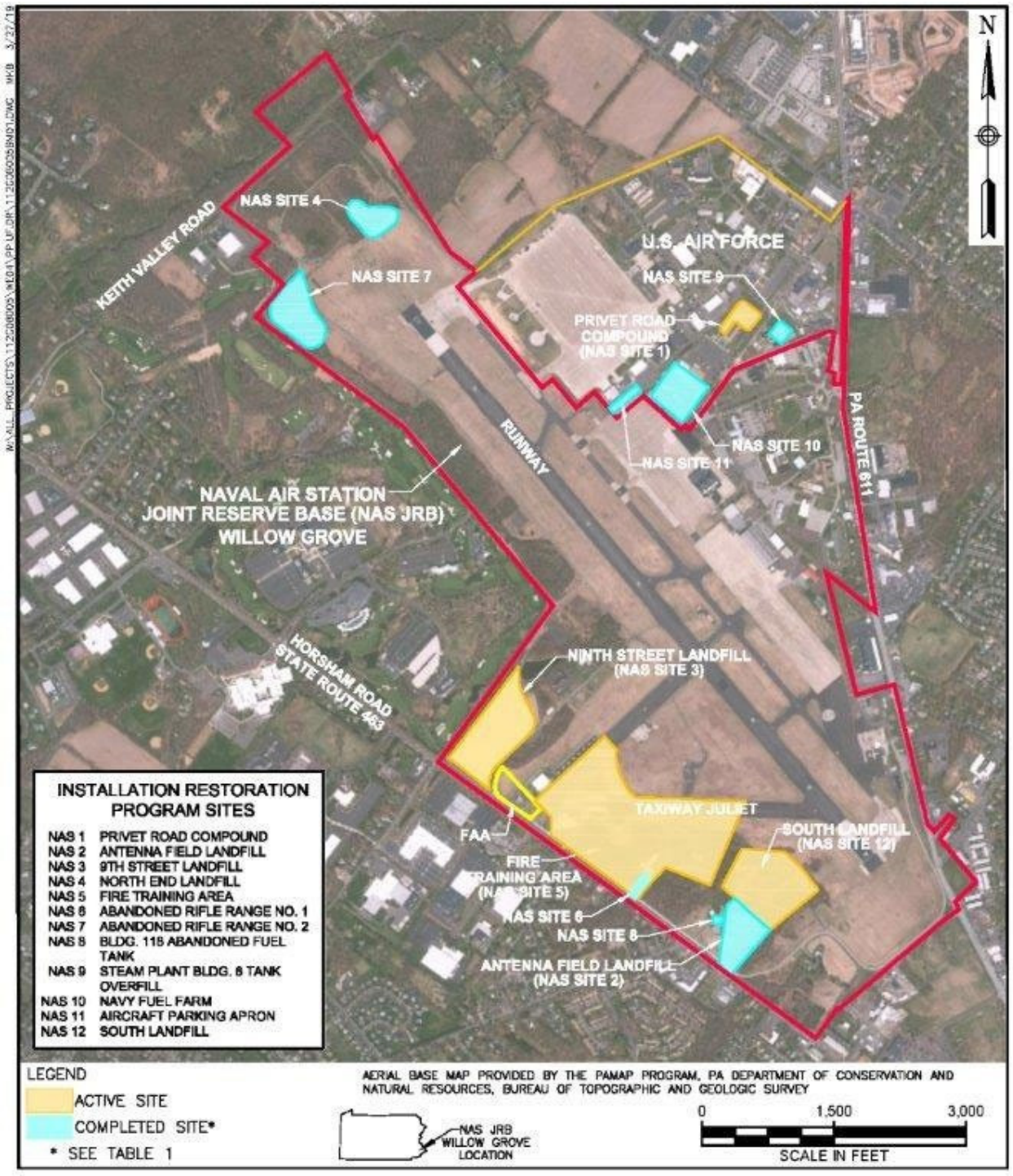

Figure 1: NAS JRB Willow Grove CERCLA Sites

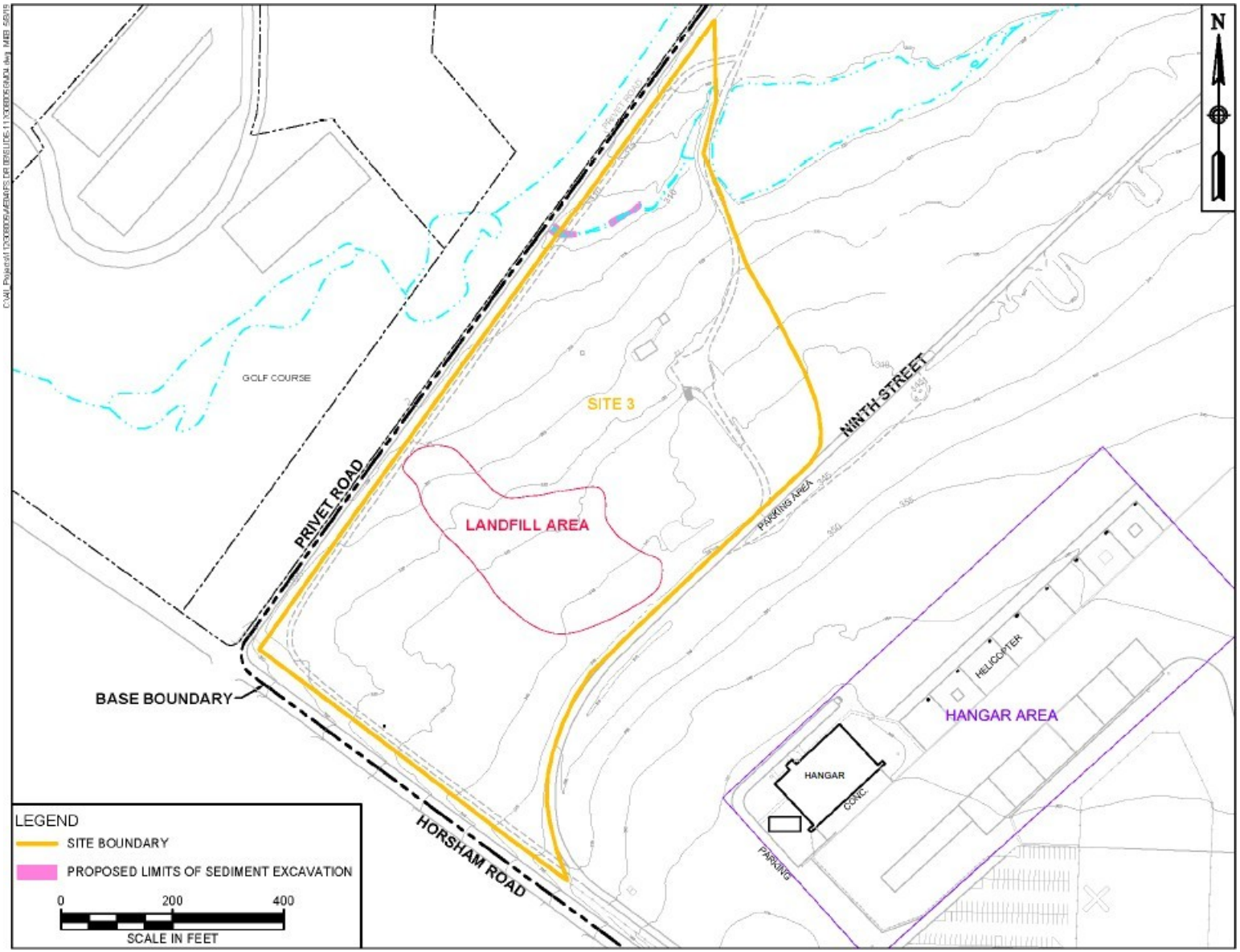

Figure 2: NAS JRB Willow Grove Site 3 Layout

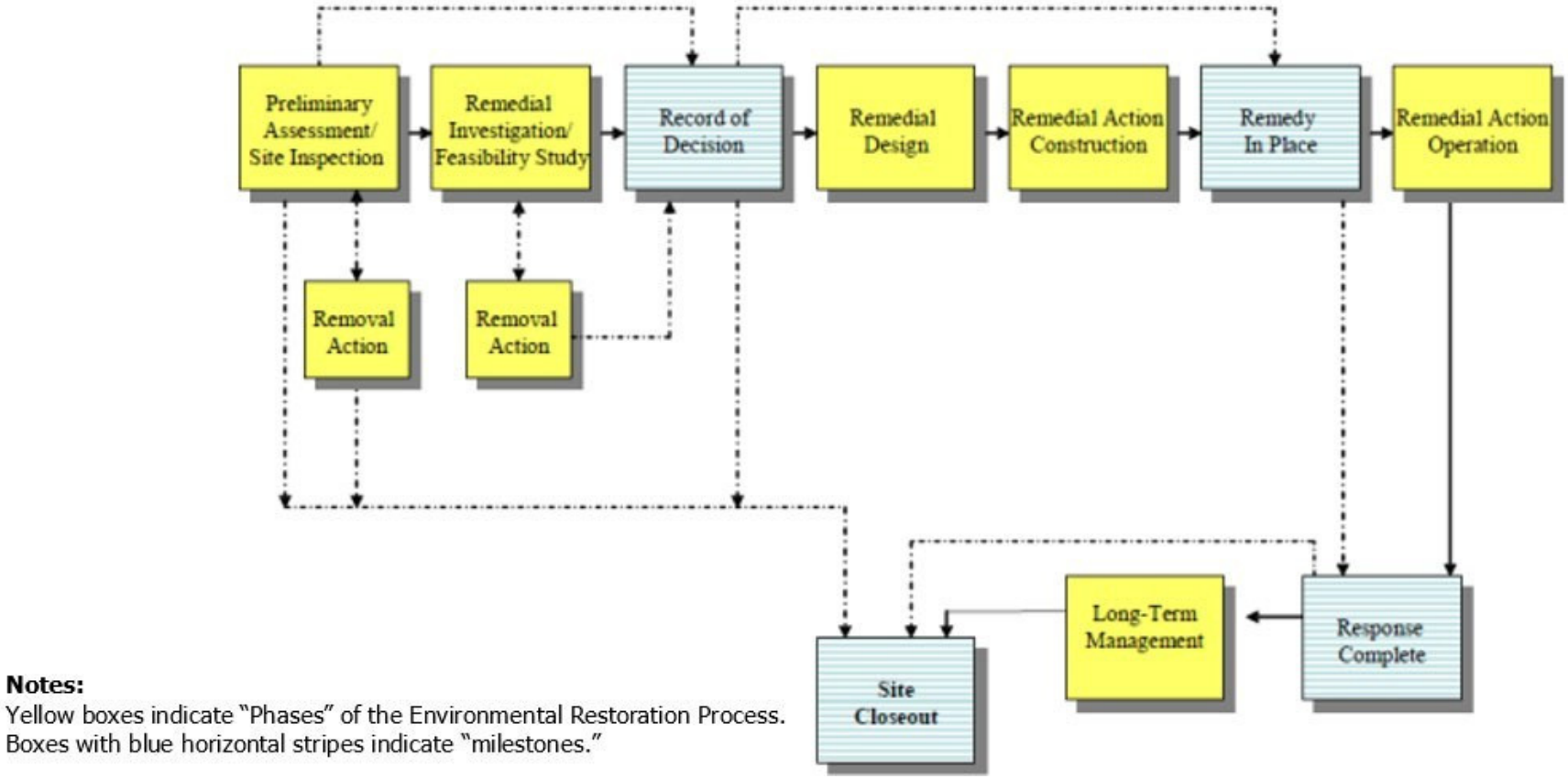

Figure 3: CERCLA Process

SI sampling was performed at 12 of the 17 sites, including Site 3 in 1990. RI/FS activities have subsequently been completed or are underway at eight of these sites including Site 3. The Phase I RI, performed in 1993, characterized the physical and chemical nature of several sites including Site 3 and identified data gaps requiring further study. Recommendations for further investigation led to Phase II RI activities at Site 3 that began in 1997. The April 1998 draft Phase II RI Report covered Site 3 along with three other IRP sites at NAS JRB Willow Grove and included a **human health risk assessment (HHRA)** completed in 1997 for each site. After the draft Phase II RI Report was submitted in April 1998, the Navy in agreement with EPA and PADEP, administratively separated the RI reporting process to allow each of the four Navy IRP sites, including Site 3, to progress independently.

Phase I RI activities at Site 3 included installing four monitoring wells and sampling surface soil, subsurface soil, surface water, groundwater, and sediment. All Phase I RI results are presented in the 1993 RI Report for Sites 1, 2, 3, and 5.

The Phase II field investigation at Site 3 consisted of initial activities completed in 1997 and follow-on activities completed in 2005 and 2006. Initial Phase II RI field activities included installing 11 additional monitoring wells and sampling surface soil, subsurface soil, surface water, groundwater, and sediment to fill data gaps identified by the Phase I RI. **Background** samples for soils, surface water and sediment were also collected and analyzed. The additional investigations performed in 2005 through 2006 to support the Phase II investigation at Site 3 included installing two additional monitoring wells and sampling groundwater, surface soil, and subsurface soil.

Subsequent investigation activities at Site 3 included a Test Pit Investigation in October 2007; Landfill Delineation Investigation from December 2008 to January 2009; Interim Groundwater Monitoring sampling events in March 2008, October 2008, and April 2009; and installation and sampling of two monitoring wells in January and February 2010. All RI results are presented and discussed in the 2011 Site 3 RI Report. In May 2017, a round of groundwater samples was collected from Site 3 monitoring wells and the results presented in a technical memorandum.

In accordance with Navy policy, a **Historical Radiological Assessment (HRA)** was performed to identify potential, likely, or known sources of radioactive material and radioactive contamination based on existing or derived information. The HRA is a screening tool to determine sites or areas that need further action or pose no threat to human health. The Final HRA was issued in July 2013.

As recommended in the HRA, a **Radiological Scoping Survey** was conducted at each area potentially impacted by use or disposal of radioactive materials. The Scoping Survey for Site 3, completed in March 2017, found no radiological risks associated with surface soils at the site.

Site Characteristics

Surface soils in the Site 3 landfill area were found to be contaminated with various **metals**, **polycyclic aromatic hydrocarbons (PAHs)**, and pesticides.

Metals (antimony, chromium, copper, iron, lead, and manganese), **semivolatile organic compounds (SVOCs)** including PAHs, pesticides, **polychlorinated biphenyls (PCBs)**, dibenzodioxins, and furans were the principal contaminants found in subsurface soils at the Site 3 Landfill Area. **Volatile organic compounds (VOCs)**, including **tetrachloroethene (PCE)**, were detected in soil samples from three test pit locations. Distribution

of these substances in site soils was sporadic, indicating localized disposal practices over time. In the Hangar Area, subsurface soil samples had elevated levels of PAHs. Figure 4 shows the landfill areas where elevated levels of contaminants were found, Figure 5 shows the locations of elevated levels of PAHs in the hangar area, and Figure 6 shows the samples where sediment contained elevated levels of PAHs.

The results of the radiological survey indicated that there is no evidence of radiological contamination in site surface soils. Subsurface soils were not assessed and would require screening if disturbed.

Historically, groundwater upgradient of the landfill (at Site 5) and beneath the landfill contained PCE concentrations exceeding the federal Safe Drinking Water Act **Maximum Contaminant Level (MCL)** of 5 parts per billion (ppb). Analytical results from samples collected over time indicate a significant decrease in groundwater PCE concentrations since the Phase I investigation, which suggests that the original sources have been removed or are depleted. During the May 2017 sampling event, PCE was detected at a concentration (5.2 ppb) greater than its MCL at only one well at the site.

Scope and Role

In 1995, NAS JRB Willow Grove was placed on the **National Priorities List (NPL)**, which is a list of sites where uncontrolled hazardous substance releases may potentially present serious threats to human health and the environment. Federal and state environmental laws govern cleanup activities at federal facilities. A federal law called CERCLA, better known as **Superfund**, provides procedures for investigation and cleanup of environmental problems. Under this law, the Navy is pursuing cleanup of designated sites at NAS JRB Willow Grove to return the property to a condition that protects human health and the environment.

Site 3 is one of several sites being addressed at NAS JRB Willow Grove under CERCLA. Note that Site 1 – Privet Road Compound OU1 for soil and OU3 for groundwater), Site 9 (Building 6 Tank Overfill); Site 10 (Navy Fuel Farm); and Site 11 (Aircraft Parking Apron) have been transferred to the Air Force. Site 2 (Antenna Field Landfill; OU5 for soil and OU9 for groundwater), Site 4 (North End Landfill; OU6 for soil and OU10 for groundwater), Site 6 (Abandoned Rifle Range No. 1), Site 7 (Abandoned Rifle Range No. 2), Site 8 (Building 118), Site 9 (Building 6 Tank Overflow), Site 10 (Navy Fuel Farm), and Site 11 (Aircraft Parking Apron) have completed the CERCLA process and require no further action.

Site 5 (Fire Training Area; OU5 for soil and OU2 for groundwater) has a ROD and the remedy is in place. A Proposed Plan for Site 12 (South Landfill) is currently in preparation. A Base-wide groundwater investigation for **per- and polyfluoroalkyl substances (PFAS)**, known as OU12, is currently in the RI/FS process. Although Site 3 groundwater is included within the OU12 area, the OU12 investigation is being conducted separately from Site 3 and is not included in this Proposed Plan. Each site or OU progresses through the CERCLA process independently of each other. The Proposed Plan for this site is not expected to have an impact on the strategy or progress of cleanup at any of the other NAS JRB Willow Grove sites or OUs. Figure 1 presents the location of the sites within the facility.

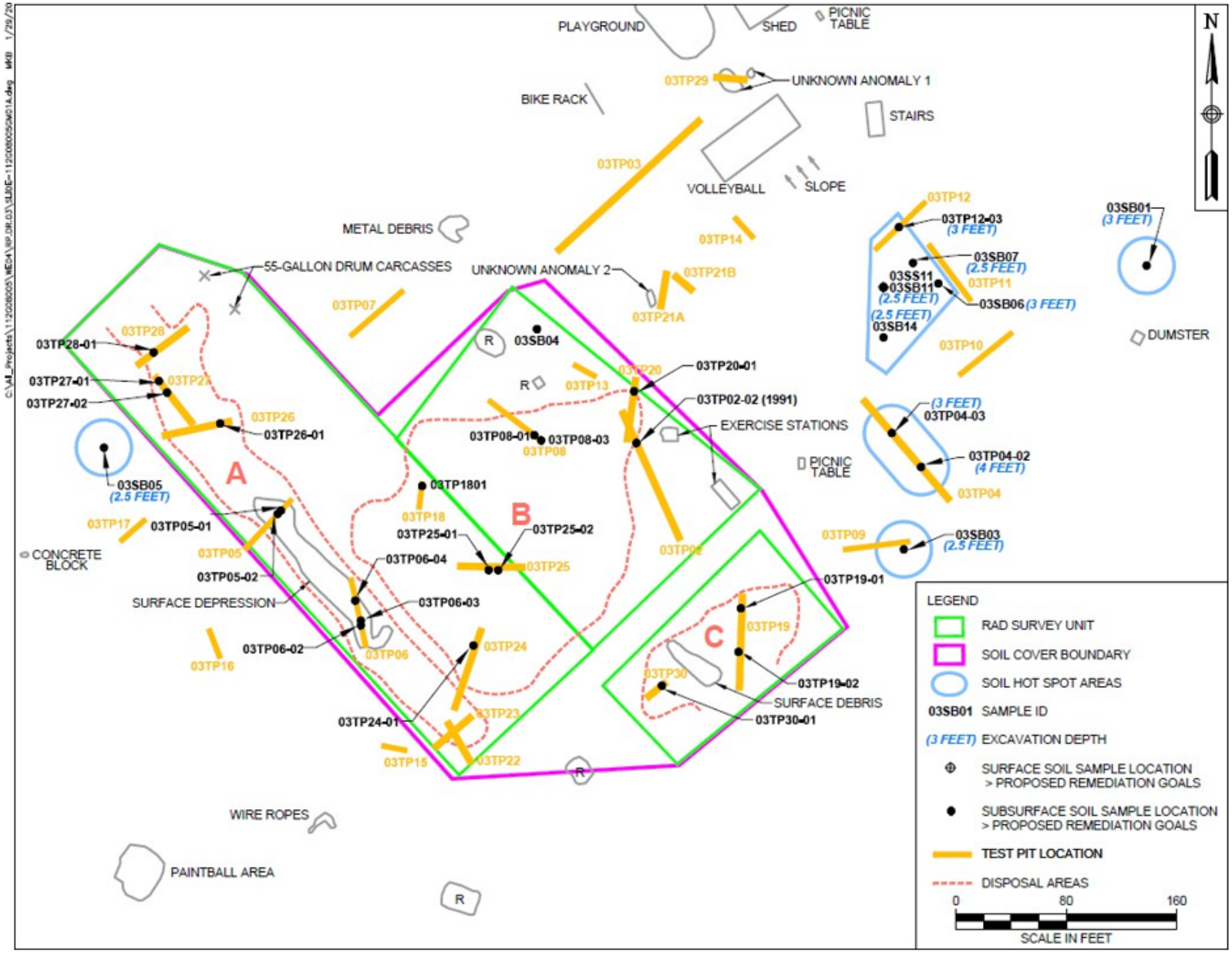

Figure 4: Areas of Elevated Soil Contamination at Landfill Area

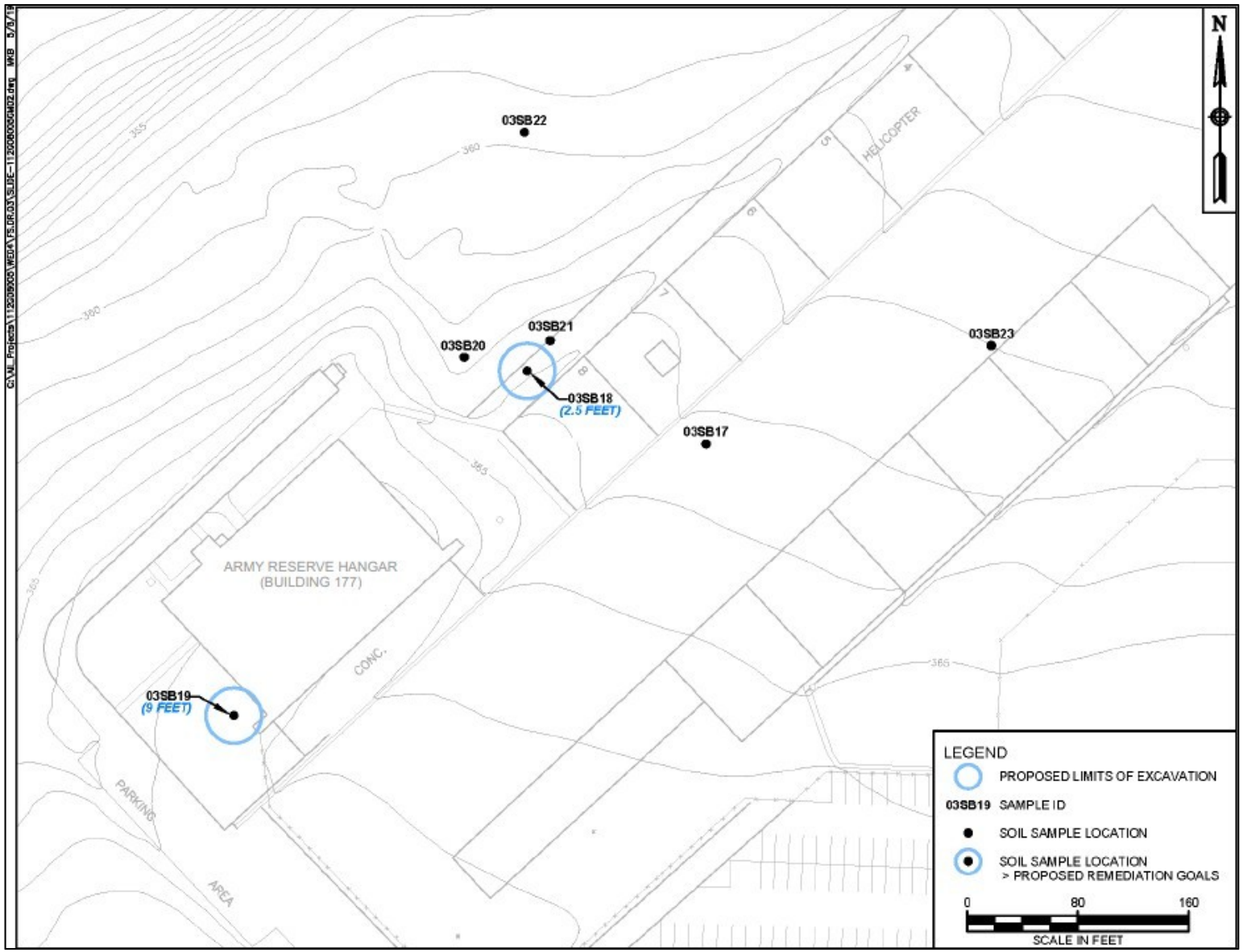

Figure 5: Areas of PAH Contamination in Soil at Hangar Area

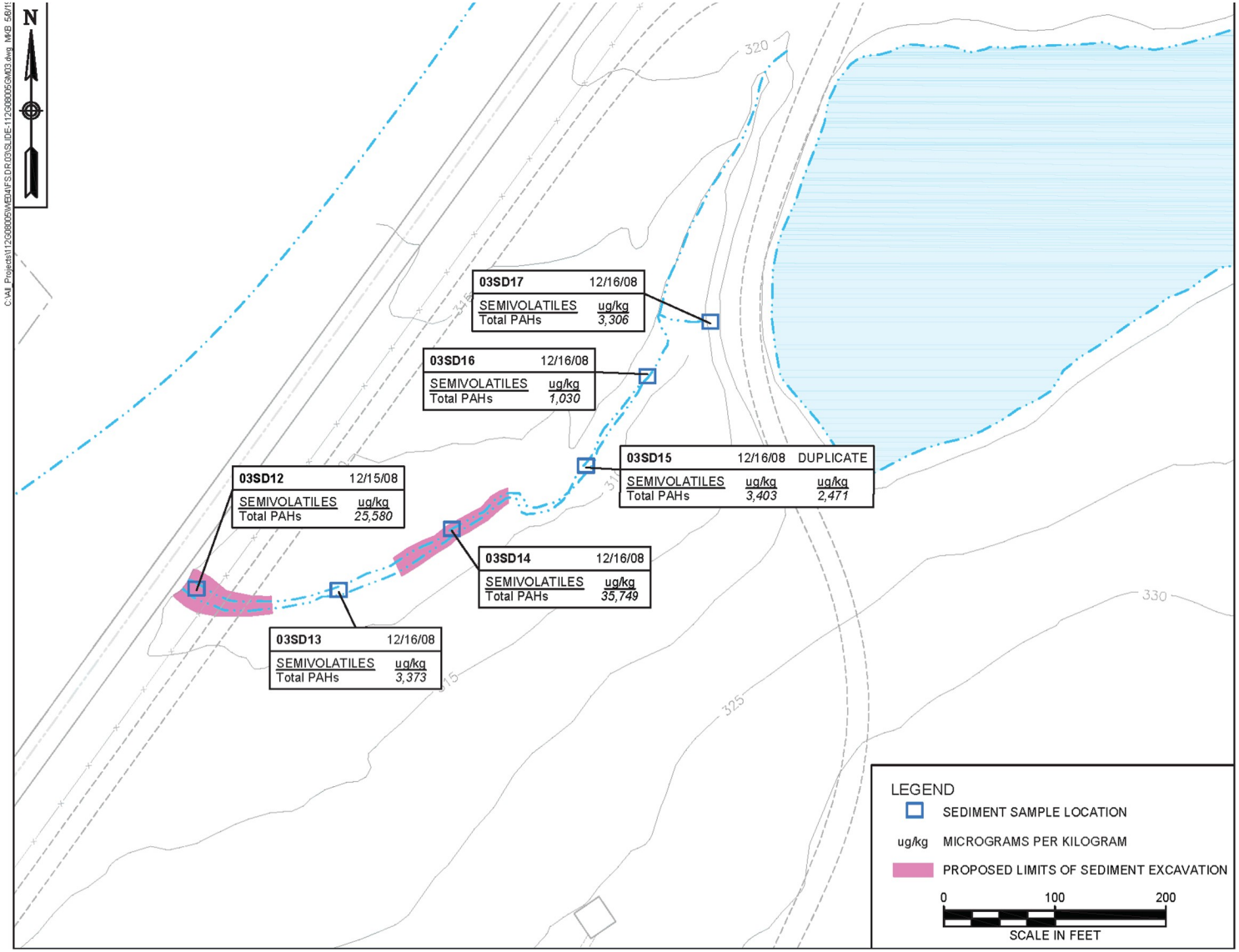

Figure 6: Areas of PAH Contamination in Sediment

Summary of Site Risks

An HHRA for Site 3 was performed to characterize the potential risks to human receptors exposed to media consisting of groundwater, surface soil, total (surface and subsurface) soil, surface water, and sediment under current and potential future land uses. An **ecological risk assessment (ERA)** was conducted to evaluate the potential for adverse ecological impacts of site-related contamination at Site 3. Detailed information for each is included in the Site 3 RI Report.

Summary of Human Health Risk Assessment

The HHRA is a multi-step process to evaluate the baseline risk, which is the likelihood of adverse health effects if no cleanup actions were taken at the site. The HHRA for Site 3 was conducted in accordance with EPA's applicable CERCLA guidance.

Step 1 – Identify Chemicals of Potential Concern

Chemicals of Potential Concern (COPCs) for each medium were selected based on a toxicity screening step to compare detected concentrations to toxicity-based benchmark concentrations. COPCs for soil, sediment, surface water, and groundwater exposure for all receptors were selected in a conservative manner, in most cases by comparing data to EPA or state risk-based screening criteria. The screening values selected for comparison were based on residential exposure which is the most conservative site use. A chemical is selected as a COPC if levels detected at the site exceed the screening criteria.

Step 2 – Conduct an Exposure Assessment

This step considers the way that humans may come into contact with contaminants at the site. Potential **receptors** evaluated in the HHRA included current and future child recreational users, current and future adult recreational users, current and future lifetime recreational users, future child residents, future adult residents, future lifetime residents, future construction workers, and current and future industrial workers. The risk evaluation assumed that potential human receptors would be exposed to COPCs in each medium at Site 3 via potential exposure routes including ingestion, dermal (skin) contact, and inhalation.

Step 3 – Complete a Toxicity Assessment

At this step, possible harmful effects from exposure to COPCs are evaluated. Generally, these chemicals are separated into two groups, **carcinogens** (chemicals that may cause cancer) and **non-carcinogens** (chemicals that may cause adverse health effects other than cancer). Chemicals that have both types of effects were evaluated for carcinogenic and non-carcinogenic effects in the HHRA. Further details are provided in the text box on the next page.

Step 4 – Characterize the Risk

The results from Steps 2 and 3 were combined to estimate the overall risk from exposure to chemicals at Site 3.

The results of the HHRA at Site 3 indicate the following:

- Estimated **Reasonable Maximum Exposure (RME**) cancer risks for the most restrictive land use scenario (future lifetime resident) exceeded EPA's acceptable risk range for surface soil, total soil, and groundwater.
- Estimated cancer risk for the lifetime recreational scenario exceeded the acceptable risk range for Landfill Area surface soil and Landfill Area total soil.
- The primary contributors to cancer risk for Landfill Area surface soil were arsenic (which was determined to be attributable to natural background concentrations in the area), chromium (total and hexavalent), PAHs, and dioxin.
- For the Landfill Area total soil, primary contributors to risk were arsenic (determined to be attributable to background), chromium (total and hexavalent), PAHs, pesticides, PCBs, and dioxin. Figure 4 shows the landfill areas where elevated levels of contaminants were found.
- For the Hangar Area, the major risk contributors for total soil were associated with PAHs. Figure 5 shows the hangar areas where elevated levels of PAHs were found.
- The primary contributor to cancer risk for groundwater was arsenic, which was determined to be attributable to naturally occurring background conditions
- PCE exceeded the EPA MCL in one monitoring well.
- Non-cancer HIs developed for the most conservative future land use scenario (future lifetime child resident) exceeded 1 (the EPA target hazard) for groundwater and Landfill Area total soil. Arsenic (attributable to natural conditions) was the risk driver for groundwater, and aluminum and manganese were the risk drivers for soils.
- HIs for all receptors exposed to surface water and sediment were within acceptable levels.
- COPCs were further evaluated to determine if they are within background or other conditions apply that would eliminate the

Expressing Estimated Human Health Risks

Human Health Risk Assessment: When evaluating the risk to humans, the risk estimates for carcinogens (chemicals that may cause cancer) and non-carcinogens (chemicals that may cause adverse effects other than cancer) are expressed differently.

Carcinogens: For cancer-causing chemicals, risk estimates are expressed in terms of probability. For example, exposure to a particular carcinogenic chemical may present a 1 in 10,000 increased chance of causing cancer over an estimated lifetime of 70 years. This can also be expressed as $1x10^{-4}$. The EPA acceptable risk range for carcinogens is $1x10^{-4}$ to $1x10^{-6}$ or a 1 in 10,000 to 1 in 1 million increased chance of getting cancer. In general, calculated risks greater than this range would require consideration of the development and implementation of cleanup alternatives.

Non-Carcinogens: For non-cancer-causing chemicals, exposures are first estimated and then compared to a **reference dose (RfD)** for each chemical. The reference dose is developed by EPA scientists to estimate the amount of a chemical a person (including the most sensitive person) could be exposed to over a lifetime without developing adverse (non-cancer) health effects. The ratio of exposure level to RfD for a single chemical is known as a **hazard quotient (HQ)**. The measure for multiple chemicals affecting the same target organ is known as a **hazard index (HI).** An HQ or an HI for a target organ greater than 1 suggests that adverse effects are possible and the risk is deemed unacceptable.

need to clean up the COPC through the selection of a remedy. This refinement selects the **chemicals of concern (COCs)** driving the site risk. In summary, COCs are COPCs that have been shown through analysis to be those contaminants that are likely to drive risk to potential receptors. COCs are listed in Tables 1 and 2.

Summary of Ecological Risk Assessment

An ERA was conducted for Site 3 to characterize the potential risks from site-related contaminants to potential ecological receptors including terrestrial invertebrates, terrestrial plants, aquatic and benthic (bottom-dwelling) organisms living in sediment, birds and mammals that consume terrestrial invertebrates and plants, and birds and mammals that consume aquatic and benthic organisms.

Several chemicals that were detected in surface soil, surface water, and sediment at Site 3 were retained as ecological COPCs because: 1) their chemical concentrations exceeded screening values; 2) screening values were not available; or 3) the chemicals were bioaccumulative, meaning they are absorbed at a rate faster than that at which the substance is broken down within ecological receptors. These chemicals were then evaluated in the ERA to determine which chemicals have the greatest potential for causing risks to ecological receptors.

Surface soil concentrations of metals tended to be low in most samples and pose negligible potential risks to soil invertebrates and plants. Subsurface soil concentrations of metals tended to be higher than in surface samples. Antimony, copper, vanadium, zinc, and other metals were elevated in some subsurface soil samples. To the extent that ecological receptors are exposed to subsurface soil, the elevated subsurface concentrations of these metals may pose potential risks to these receptors.

WHAT IS AN ECOLOGICAL RISK ASSESSMENT AND HOW IS IT CALCULATED?

An ecological risk assessment evaluates the potential adverse effects human activities have on the plants and animals that make up ecosystems. The ecological risk assessment process follows a phased approach similar to the human health risk assessment. The risk assessment results are used to help determine what measures, if any, are necessary to protect plants and animals.

Ecological risk assessment includes three steps:

Step 1: Problem Formulation
Step 2: Analysis
Step 3: Risk Characterization

In **Step 1**, the problem formulation includes:

- Compiling and reviewing existing information on the site habitat, plants, and animals that are present
- Evaluating how plants and animals may be exposed
- Identifying and evaluating area(s) where site-related chemicals may be found
- Evaluating potential movement of chemicals in the environment
- Evaluating routes of exposure (for example, ingestion)
- Identifying receptors (plants and animals that could be exposed)
- Identifying exposure media (soil, air, water)
- Developing how the risk will be measured for all complete pathways (determining the risk where plants and/or animals can be exposed to chemicals)

In **Step 2**, the potential exposures to plants and animals are estimated and the concentrations of chemicals at which an effect may occur are evaluated.

In **Step 3**, all the information identified in the first two steps is used to estimate the risk to plants and animals. Also included is an evaluation of the uncertainties (potential degree of error) that are associated with the predicted risk evaluation and their effects on the conclusions that have been made.

Concentrations of PAHs were elevated in some soil samples and pose risks to soil invertebrates, especially in two surface samples and two subsurface samples. Potential PAH-related risks to plants are largely limited to the vicinity of one sample location. Potential risks to soil invertebrates and plants from other SVOCs at the site are considered minor.

Table 1: Proposed Total Soil[1] Remediation Goals

COC	Background Concentration (milligram per kilogram [mg/kg])	Maximum Detected Site Concentration (mg/kg)	Proposed Remediation Goal[2] (mg/kg)	Rationale for Remediation Goal
Total 2,3,7,8-TCDD Equiv.	NA	3.4E-4	1.7E-5	Risk-Based PRG
Antimony	NA	281	8.4	Risk-Based PRG
Total Chromium	15.3	348	37	Risk-Based PRG
Chromium (VI)	NA	NA	4.0	Risk-Based PRG
Copper	10.7	9,660	2,000	Risk-Based PRG
Iron	14,800	236,000	17,000	Risk-Based PRG
Lead	30.6	6,480	400	EPA Soil Lead Guidance, OSWER 9355.4-12
Manganese	642	20,000	642	Background
4,4'-DDD	NA	72	9.5	Risk-Based PRG
4,4'-DDT	3.01	270	11	Risk-Based PRG
PCBs (total)	NA	4	1.4	Risk-Based PRG
Dieldrin	0.179	10	0.2	Risk-Based PRG
Benz(a)anthracene	0.306	65	6.0	PA Act 2 MSC[3]
Benzo(a)pyrene	0.394	48	0.58	PA Act 2 MSC[3]
Benzo(b)fluoranthene	0.507	58	3.5	PA Act 2 MSC[3]
Benzo(k)fluoranthene	0.370	31	4.0	PA Act 2 MSC[3]
Dibenz(a,h)anthracene	0.161	4.8	0.69	Risk-Based PRG
Indeno(1,2,3-cd)pyrene	0.251	19	3.5	PA Act 2 MSC[3]

Notes:

1. Total soil exposure considers surface soil and subsurface soil.
2. PRG numerical values for carcinogens and non-carcinogens are based on residential exposure. When COCs share the same target organ effects, the HQ goal for an individual COC must be < 1. Risk goals selected so each chemical contributes the cancer risk fraction shown to a total target risk <= 1E-4.
3. PA Act 2 - Pennsylvania Land Recycling and Environmental Remediation Standards Act; MSCs - Medium Specific Concentrations for Residential Exposure.

NA = Not available.

The PRG for chromium represents the total chromium. Based on Technical Memorandum - Chromium Speciation Evaluation in Site 3, the hexavalent chromium RG of 4 mg/kg is equivalent to 37.0 mg/kg total chromium.

Note that although arsenic was selected as a COPC, further evaluation indicates the levels present are within background. Arsenic was removed from consideration as a COC and an RG was not established.

Table 2: Proposed Hangar Area Total Soil[1] Remediation Goals

COC	Background Concentration (mg/kg)	Maximum Detected Site Concentration (mg/kg)	Proposed Remediation Goal[2] (mg/kg)	Rational for Remediation Goal
Benz(a)anthracene	0.306	65	6	PA Act 2 MSC[3]
Benzo(a)pyrene	0.394	48	0.58	PA Act 2 MSC[3]
Benzo(b)fluoranthene	0.507	58	3.5	PA Act 2 MSC[3]
Dibenz(a,h)anthracene	0.161	4.8	1	PA Act 2 MSC[3]
Indeno(1,2,3-cd)pyrene	0.251	19	3.5	PA Act 2 MSC[3]

Notes:
1. Total soil exposure considers surface soil and subsurface soil.
2. RG numerical values for carcinogens and non-carcinogens are based on residential exposure. When COCs share the same target organ effects, the HQ goal for an individual COC must be < 1. Risk goals selected so each chemical contributes the cancer risk fraction shown to a total target risk <= 1E-4.
3. PA Act 2 - Pennsylvania Land Recycling and Environmental Remediation Standards Act; MSCs - Medium Specific Concentrations for Residential exposure.

Soil concentrations of pesticides, dioxins, and VOCs indicate negligible or minor potential risks to plants and soil invertebrates, or risks that are similar to risks posed by background conditions. PCBs were infrequently detected and at relatively low concentrations in soil and were determined to pose negligible risks to plants.

Sediment concentrations of metals tended to be low and pose negligible potential risks to benthic organisms, or do not appear to be related to former activities at the landfill. Potential metals-related toxicity to benthic organisms at downstream locations appears to be minor. Concentrations of several PAHs were elevated in sediment and exceeded background sediment values. Sediment concentrations of total PAHs exceeded the consensus-based **probable effects concentration (PEC)** of 22,800 ppb in two samples. The PEC is a derived ecological risk-based screening level at which toxic effects are expected to occur. The surface water and sediment data indicate that potential risks from other COPCs are probably minor.

The food chain modeling indicates that mercury in soil may pose potential risk to herbivorous mammals with small home ranges (such as voles) in select areas. Additionally, PAHs in soil may pose risks to herbivorous mammals with small home ranges (such as voles) and to insectivorous mammals with small home ranges (such as shrews) in select areas. Bioaccumulative COPCs in sediment and surface water were determined to likely pose potential minor risks via the food chain.

Summary of Risk

As a result of past activities at Site 3, concentrations of PAHs in sediment and soil, and select metals in soil could result in unacceptable future risks. Therefore, it is the current judgement of the Navy, with concurrence from EPA and PADEP, that the preferred alternative, or one of the other active measures identified in this Proposed Plan, is necessary to protect human health and the environment from actual or threatened releases of hazardous substances into the environment.

Although the PCE concentration in groundwater at one well exceeds the MCL, PCE was not carried forth as a COC requiring remediation. Remediation is not required because there is no discernible plume to treat. This differs from what was documented in the Feasibility Study

The selected remedy to protect human health will also effectively reduce potential ecological risks originating from Site 3 soil or sediment contamination.

Remedial Action Objectives

Remedial action objectives (RAOs) are medium-specific goals that define the objectives of conducting remedial actions to protect human health and the environment. RAOs have been developed for soil at Site 3.

The RAOs for Site 3 soil are as follows:

Landfill Area

- Prevent contact with surface soil and subsurface soil contaminated with COCs at concentrations greater than **remediation goals (RGs)** and prevent contact with landfill waste materials present within the landfill area.
- Prevent degradation of groundwater quality by mitigating potential contaminant migration from buried landfill wastes and contaminated soils into groundwater.

Hangar Area

- Mitigate potential human health risks associated with contaminated soils of the Hangar Area by excavating contaminated soils and consolidating them under the landfill.

Remediation Goals

Data from the RI and HHRA, together with **Applicable or Relevant and Appropriate Requirements (ARARs),** federal and more stringent state environmental laws and regulations, were reviewed to identify the Site 3 COCs that would be used to determine the appropriate RGs. An RG is the concentration of a contaminant in an environmental medium that, when attained, should achieve RAOs. COCs for soil were identified because site-related contaminants are present at concentrations that pose potentially unacceptable human health and ecological risk. Tables 1 and 2 provide the proposed total soil RGs for Site 3 Landfill Area and Hangar Area along with the basis for their selection. These proposed soil RGs were developed to ensure that contaminant concentrations remaining on site are protective of human health and the environment. Note that risk based **Preliminary Remediation Goals (PRGs)** are not ARARs. These are to be considered (TBC); however, they have been selected, where indicated in Tables 1 and 2, as RGs to ensure the protection of human health and the environment.

Remedial Alternatives Considered

The purpose of the alternatives development and screening process was to assemble an appropriate range of possible remedial options to achieve the RAOs identified for Site 3 soil.

In this process, technically feasible technologies and retained process options, which are subsets of feasible technologies, were combined to form remedial alternatives that provide varying levels of risk reduction. Soil and groundwater remedial alternatives were developed in accordance with the NCP and are detailed in the Site 3 FS dated August 2019. However, as stated above, since the single PCE MCL exceedance has been determined not to represent a discernible plume requiring remediation, the groundwater alternatives developed in the FS have not been carried forward into this Proposed Plan.

Summary of Remedial Alternatives

Alternative S-1: No Action

The no action alternative was developed as the baseline case, as required by the NCP. Under this alternative, no remedial actions would be taken to protect human health or the environment. No LUCs would be established. Both potential for exposure of human and ecological receptors to landfill waste materials and contaminated soils and the potential for migration of contaminants from the site to the environment would remain.

There are no costs associated with Alternative S-1 because no remedial actions or measures would occur.

Alternative S-2: Limited Soil Removal, On-Site Consolidation, Soil Cover, Land Use Controls, and Long-Term Monitoring

Alternative S-2 relies on containment and LUCs to achieve soil RAOs. A 2-foot-thick soil cover would be placed over the landfill areas of soil containing COC concentrations that exceed soil RGs and survey units established during the radiological investigation. The contaminated soils at the baseball field and Hangar Area hot spots located outside of the capping areas would be removed and placed under the cover system. Drainage improvements with selective removal to address previously discussed elevated levels of PAHs in sediment would be conducted at the intermittent drainage channel downstream of the storm water retention basin. Any excavated sediment would be placed in the capping area for on-site consolidation. The site would be graded to control surface water runoff, prevent ponding, and minimize future erosion potential. The site would be reseeded to establish a final vegetative cover. The soil cover would eliminate potential exposure of human and ecological receptors to the buried landfill waste materials and reduce infiltration of precipitation into the landfill. The soil cover would be designed to meet PADEP requirements. LUCs would be implemented to prevent damage of or intrusion into the cover system, and to prevent disturbance of subsurface soils beneath the survey units established during the radiological investigation. Long-term monitoring would be conducted to assess the alternative's effectiveness and identify any potential threats to human health and the environment that might occur after implementation. Monitoring would be used to ensure that leaching to the groundwater from the landfill hasn't created an unacceptable risk for the groundwater. Site conditions and protectiveness would be reviewed every 5 years because waste would remain onsite.

The capital cost for Alternative S-2 is estimated to be $2,507,000. During Years 1 to 10, the annual operation and maintenance (O&M) costs including monitoring costs would be $30,800. In Years 11 through 30, annual O&M and monitoring costs would be $24,800. Five-year reviews would cost $20,000 per event. Over a 30-year period, the present value of the total cost for Alternative S-2 is estimated to be $3,134,000 based on a 2.8 percent discount rate.

Alternative S-3: Limited Soil Removal, Off-Site Disposal, Soil Cover, Land Use Controls, and Long-Term Monitoring

Alternative S-3 relies on containment and LUCs to achieve soil RAOs. The contaminated soils at the baseball field and Hangar Area hot spots located outside of the capping areas would be removed and transported off-site to disposal facilities for appropriate disposal. As described in Alternative S-2, a soil cover would be placed over the landfill waste materials to eliminate potential exposure of human and ecological receptors to the buried landfill waste materials and reduce the infiltration of precipitation into the landfill. Drainage improvements with selective sediment removal would be conducted as part of Alternative S-3. Excavated sediment would be dewatered, characterized, and transported to a permitted disposal facility for off-site disposal. Alternative S-3 incorporates all other components of Alternative S-2 with the exception of on-site waste consolidation.

The capital cost for Alternative S-3 is estimated to be $2,875,000. During Years 1 to 10, the annual O&M costs including monitoring costs would be $30,800. In Years 11 through 30, annual O&M and monitoring costs would be $24,800. Five-year reviews would cost $20,000 per event. The present value of the total cost for Alternative S-3, based on a 30-year period and a percent discount rate, is estimated to be $3,502,000.

Alternative S-4: Complete Removal, Treatment and Off-Site Disposal

Alternative S-4 would involve the excavation of landfill waste materials and contaminated soils with COC concentrations greater than Site 3 RGs. Lead-contaminated soils that exceed EPA's toxicity characteristic leaching procedure criterion for lead toxicity would be chemically treated on site to stabilize the leachable lead, and all landfill waste and contaminated soils would be excavated and disposed off-site as non-hazardous waste. Landfill waste materials and contaminated soil would be excavated from within the removal area boundaries. The areas of the landfill identified in the Radiological Scoping Survey Report would also be surveyed to obtain a free-release for radiological impacts. If soils are characterized as **low-level radioactive waste (LLRW)**, these will be segregated from the other landfill waste and sent for disposal to a licensed LLRW facility. Excavation in 6-inch lifts, followed by a radiological survey of each lift would be required as the radiological scoping survey only cleared surface soils. Drainage improvements with selective sediment removal would be conducted as was detailed in Alternative S-3.

The capital cost for Alternative S-4 is estimated to be $8,994,000. There are no recurring costs (i.e., for LUCs or O&M) associated with this alternative.

Evaluation of Alternatives

As part of the FS, the soil remedial alternatives were evaluated using nine evaluation criteria, as established by the NCP. The criteria are:

- Overall Protection of Human Health and the Environment;
- Compliance with ARARs;
- Long-term Effectiveness and Permanence;
- Reduction of Toxicity, Mobility, and Volume through Treatment;
- Short-term Effectiveness;
- Implementability;
- Cost;
- State Acceptance; and
- Community Acceptance.

The remedial alternatives were compared to each other based on the first seven criteria, to identify differences among the alternatives and discuss how site contaminant threats are addressed. Public comments on this Proposed Plan will help address the two remaining criteria, state and community acceptance.

(1) Overall protection of human health and the environment

Alternative S-1 would provide no additional protection of human health and the environment since no actions would be taken to prevent exposure of human and ecological receptors to landfill waste materials and contaminated soils. Alternatives S-2 and S-3 would provide the same level of protection of human health and the environment, and satisfy all RAOs, because they both have limited soil removals, selective sediment removal, and containment measures that prevent direct contact with contaminants and reduce infiltration and off-site migration of contaminants. Both alternatives would also employ LUCs which would maintain the current site status (Industrial Zoning) and prevent intrusive activities or future redevelopment. Alternative S-4 would provide the greatest overall protection of human health and the environment because all of the landfill waste materials and contaminated soils would be permanently removed.

(2) Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Alternative S-1 would not comply with chemical-specific ARARs since no actions would be taken to remediate contamination in soil. Alternatives S-2 and S-3 would comply with applicable location-specific and action-specific ARARs and would meet chemical-specific ARARs at limited soil removal areas. Alternative S-4 would comply with

all chemical-specific, location-specific, and action-specific ARARs.

(3) Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Alternative S-1 would not comply with chemical-specific ARARs since no actions would be taken to remediate contamination in soil. Alternatives S-2 and S-3 would comply with applicable location-specific and action-specific ARARs and would meet chemical-specific ARARs at limited soil removal areas. Alternative S-4 would comply with all chemical-specific, location-specific, and action-specific ARARs.

(4) Long-term effectiveness and permanence

Alternative S-1 would not provide any long-term protection of human health or the environment. Alternatives S-2 and S-3 are considered effective alternatives to prevent direct contact of human and ecological receptors with site contaminants, and to reduce infiltration of precipitation; therefore, these two alternatives would satisfy all the RAOs for soil. Both use common and proven technology (i.e., capping) that is reliable and provide long-term effectiveness. Alternatives S-2 and S-3 would require periodic monitoring, inspection and maintenance to ensure their integrity, performance, and long-term reliability. Alternative S-4 would provide long-term protection of human health and the environment by achieving the RAOs for soil, and it would result in permanent reduction of all potential health risks.

(5) Reduction of toxicity, mobility, and volume through treatment

Alternatives S-1, S-2, and S-3 would not reduce the toxicity, mobility, or volume of contaminants through treatment because no treatment is included.

Alternative S-4 would reduce the toxicity, mobility, and volume of lead contaminants in the landfill waste materials through treatment since chemical stabilization would be conducted.

(6) Short-term effectiveness

Since no active response actions would be implemented under Alternative S-1, no additional short-term impacts would be anticipated. However, Alternative S-1 would not achieve RAOs, which is one of the considerations under this criterion. Alternatives S-2, S-3, and S-4 are equally effective in the short-term, although more local truck traffic would be associated with implementing Alternative S-4 than Alternatives S-2 and S-3. There would be minimal risks, if any, to the community, workers, or the environment in implementing Alternatives 2, 3, or 4. All workers would require training and medical monitoring in accordance with Occupational Safety and Health Standards. Exposure to contaminants and other site hazards by workers can be minimized by wearing personal protective equipment and following health and safety procedures of the Health and Safety Plan. Other hazards to remediation workers related to standard construction risks would be addressed using standard safety practices. The biggest impact to the community for Alternatives S-2, S-3, and S-4, particularly the residents adjacent to Site 3, would be noise and dust. Construction would be restricted to agreed-upon hours, and dust would be controlled using engineering controls such as dust suppression by wetting. No permanent adverse impacts to the human health or the environment would be anticipated to result from implementation of Alternatives S-2, S-3, and S-4.

(7) Implementability

Alternative S-1 would be readily implementable since no remedial actions or measures would occur. Alternatives S-2 and S-3 include construction of soil cover and implementation of the LUCs, which would require readily available resources. In general, major engineering, administrative, and construction difficulties would not be anticipated in the implementation of Alternatives S-2, S-3, and S-4. The implementation of these alternatives involves standard construction techniques and equipment.

Experienced and OSHA-certified workers and companies are readily available to implement these alternatives.

Alternative S-4, would be somewhat more difficult to implement because it would require on-site treatment for any leachable lead, radiological surveys for the potential LLRW and off-site disposal. However, no difficulties are anticipated in implementing this alternative because multiple general and specialized contractors have the capability to perform the specified activities, and disposal facilities that accept contaminated soils are available.

(8) Cost

Estimated costs are summarized in Table 3. There are no costs associated with Alternative S-1 because no remedial actions or measures would occur. The estimated capital costs of implementing Alternatives S-2, S-3, and S-4 range from $2,507,000 to $8,994,000 with Alternative S-4 being the most expensive alternative to implement. Alternative S-3 would be more expensive than Alternative S-2 due to off-site disposal of limited soil and sediment removal. The estimated capital cost for implementation of Alternative S-2 is $2,507,000 versus $2,875,000 for Alternative S-3. The estimated present worth value costs are $3,134,000 for Alternative S-2, $3,502,000 for Alternative S-3, and $8,994,000 for Alternative S-4. During Years 1 to 10, the annual O&M including monitoring costs for Alternatives S-2 and S-3 would be $30,800. In Years 11 through 30, annual O&M and monitoring costs for Alternatives S-2 and S-3 would be $24,800. Five-year reviews would cost $20,000 per event.

(9) State concurrence

PADEP has been a partner in the development and review of the remedial action decision-making process. Formal agreement from PADEP (in the form of a concurrence letter) on this Proposed Plan is anticipated before the ROD for Site 3 is finalized.

(10) Community acceptance

This criterion will be addressed following the receipt of public comments on this proposed plan and will be discussed in the responsiveness summary in the ROD that will document the selection of a remedial action for the soil of Site 3.

Preferred Remedial Alternative

The Navy and EPA prefer Alternative S-2 which consists of limited soil removal, on-site consolidation, soil cover, LUCs, drainage improvements with selective sediment removal, and long-term monitoring for the remediation of landfill waste materials and contaminated soils at Site 3. The Navy expects the preferred soil alternative to satisfy the following statutory requirements of CERCLA Section 121(b): to be protective of human health and the environment; to comply with ARARs; to be cost effective; and to utilize permanent solutions and alternative treatment technologies to the maximum extent practicable.

Preferred Soil Alternative S-2 – Limited Soil Removal, On-Site Consolidation, Soil Cover, Land Use Controls, and Long-Term Monitoring

The components of this soil alternative include the following:

- A soil cover would be placed over the landfill waste materials to eliminate potential exposure of human and ecological receptors to the buried landfill waste materials and reduce the infiltration of precipitation into the landfill.
- The contaminated soils at the baseball field and Hangar Area hot spots located outside of the capping areas would be removed and placed under the cover system. Confirmatory sampling would ensure removal of all soils exceeding RGs in these areas.

Table 3: Comparative Analysis of Soil Remedial Alternatives

Criteria	Alternative S-1	Alternative S-2	Alternative S-3	Alternative S-4
Overall Protectiveness of Human Health and the Environment	X	●	●	●
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	X	●	●	●
Long-Term Effectiveness and Performance	X	●	●	●
Reduction of Toxicity, Mobility, or Volume Through Treatment	X	X	X	●
Short-Term Effectiveness	X	●	●	●
Implementability	●	●	●	●
Total Cost	$0	$3,134,000	$3,502,000	$8,994,000
State/Support Agency Acceptance	X	●	●	●
Community Acceptance	TBD	TBD	TBD	TBD

Legend: ● - Satisfies Criterion ¤- Partially Satisfies Criterion X - Poorly Satisfies Criterion
TBD - To Be Determined
Cost is the total present worth value. Cost accuracy ranges from -30% to +50%

- Drainage improvements with selective sediment removal would be conducted at the intermittent drainage channel downstream of the retention basin, and excavated sediment would be sent to the capping area for on-site consolidation.
- LUCs, consisting of deed restrictions, would be implemented to prevent damage of or intrusion into the cover system, and to prevent disturbance of survey units established during the radiological investigation.
- The perimeter of the landfill would be fenced to limit vehicular access to the covered area.
- Long-term monitoring and five-year reviews would be required to assess contaminant status and site conditions.

Community Participation

Community acceptance of the preferred remedial action will be evaluated at the conclusion of the public comment period and will be described in the ROD. The ROD is the document that will present the Navy's decision for Site 3 soil.

The Navy encourages written comments from the community on the Proposed Plan for Site 3 - Ninth Street Landfill. The public comment period is from **September 10, 2020 to October 25, 2020** to encourage public participation in the decision process.

The Navy will hold a public meeting during the comment period. At the public meeting, the Navy, with input from EPA, will present the Proposed Plan, and solicit both oral and written questions. The Navy will host a virtual public meeting for the Proposed Plan for Site 3 on **September 23, 2020 between 6:00 to 8:00 p.m. The virtual public meeting will utilize a webinar tool known as WebEx.** The link to the WebEx is HTTPS://TINYURL.COM/WGPP3-12
The phone number is 1-408-418-9388 (toll free) and the access code is 132 480 1632.

Comments received during the public comment period will be summarized and responses will be provided in the Responsiveness Summary section of the ROD.

Please send written comments via U.S. Mail or via email to the contact below:

Mr. Willington Lin, BRAC Environmental Coordinator
Base Closure and Realignment
Program Management Office East
4911 South Broad Street
Philadelphia, PA 19112-1303
Phone: (215) 897-4900
Email: willie.lin@navy.mil

For further information, contact:

Ms. Sarah Kloss, Remedial Project Manager
Environmental Protection Agency, Region III
1650 Arch Street (Mail Code: 3SD11)
Philadelphia, PA 19103
Phone: (215) 814-3379
Fax: (215) 814-3025
Email: kloss.sarah@epa.gov

Please note that all comments must be submitted and postmarked on or before October 25, 2020.

Terms Used in the Proposed Plan

Administrative Record: An official compilation of site-related documents, data, reports, and other information that are considered important to the status of and decisions made relative to a CERCLA site. The public has access to this material through the following website: https://www.bracpmo.navy.mil/brac_bases/northeast/reserve_base_willow_grove/documents.html.

Applicable or Relevant and Appropriate Requirements (ARARs): The federal and more stringent state environmental and facility siting requirements that a selected remedy must attain. These requirements may vary among sites and remedial activities.

Background: Concentrations of chemicals that would be found in the environment even if there had been no man-made sources or releases of chemicals at the site.

Cancer Risk: A type of risk resulting from exposure to chemicals that may cause cancer in one or more organs.

Carcinogen: A substance capable of causing cancer.

Chemicals of Concern (COCs): Subset of COPCs (see below) which, through evaluation, are expected to drive risk associated with contaminants at the site.

Chemicals of Potential Concern (COPCs): Chemicals found at the site at concentrations greater than federal and state risk-screening levels which are, therefore, included in the risk assessment evaluations.

Comment Period: A time for the public to review and comment on various documents and actions taken, either by the Navy, EPA, or PADEP. A minimum 30-day comment period is held to allow community members to review the Administrative Record and review and comment on the Proposed Plan.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA), and subsequent amendments, to investigate and clean up abandoned or uncontrolled hazardous substance facilities.

Ecological Risk Assessment (ERA): Evaluation and estimation of the current and future potential for adverse ecological effects from exposure to contaminants**.**

Feasibility Study (FS): Report identifying and evaluating alternatives for addressing the contamination present at a site or group of sites.

Hazard Index (HI): The sum of chemical-specific Hazard Quotients. An HI greater than 1 is considered to indicate the likelihood that adverse non-cancer health effects may occur.

Hazard Quotient (HQ): A comparison of the level of exposure to a substance in contact with the body per unit of time to a chemical-specific Reference Dose to evaluate potential non-cancer health effects. Exceedance of an HQ of 1 is associated with an increased level of concern about adverse non-cancer health effects.

Historical Radiological Assessment (HRA): The HRA is a screening tool used to determine sites or areas that need further action or pose no threat to human health based on the potential for radioactive contamination.

Human Health Risk Assessment (HHRA): An evaluation and estimation of the current and future potential for adverse human health effects from exposure to contaminants.

Information Repository: A file containing information, technical reports, and reference documents regarding an NPL site. This file is usually maintained in a place with easy public access, such as a library.

Initial Assessment Study (IAS): A preliminary investigation usually consisting of review of available data and information on a site, interviews, and a non-sampling site visit to observe areas of potential waste disposal and migration pathways.

Installation Restoration Program (IRP): Navy program to restore old waste sites for reuse and to protect human health and the environment.

Low-Level Radioactive Waste (LLRW): A general term for a wide range of items that have become impacted with radioactive material or have become radioactive through exposure to neutron radiation.

Land Use Controls (LUCs): A set of controls which may consist of non-engineered instruments, such as administrative and legal controls or engineered and physical barriers, such as fences and security guards. LUCs help to minimize the potential for exposure to contamination and/or protect the integrity of a response action and are typically designed to work by limiting land and/or resource use or by providing information that helps modify or guide human behavior at a site.

Maximum Contaminant Levels (MCLs): The maximum permissible level of a contaminant in water delivered to any user of a public water system. MCLs are established by EPA under the Safe Drinking Water Act and are enforceable standards.

Metals: Metals are naturally occurring elements. Some metals such as arsenic and mercury can have toxic effects. Other metals such as iron are essential to the metabolism of humans. Metals are classified as inorganic because they are of mineral and not biological origin.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The purpose of the NCP is to provide the organizational structure and procedures for preparing and responding to discharges of oil and releases of hazardous substances, pollutants, or contaminants.

National Priorities List (NPL): A list of sites where uncontrolled hazardous substance releases may potentially present serious threats to human health and the environment.

Non-carcinogen: A substance that is not known to cause cancer but may cause other adverse health effects.

Operable Unit (OU): Complex sites may be divided into several distinct areas to make the response more efficient. These areas, known as OUs, may address geographic areas, specific problems, or media (e.g., groundwater, soil) where a specific action is required.

Per- and polyfluoroalkyl Substances (PFAS): A group of man-made chemicals that have been in use since the 1940s, and that are (or have been) found in many consumer products like cookware, food packaging, and stain repellants. PFAS manufacturing and processing facilities, airports, and military installations that use firefighting foams are some of the main sources of PFAS.

Polychlorinated biphenyls (PCBs): A chemical mixture commonly used in electrical transformers and other electrical components because they conduct heat well, are heat resistant, and are good electrical insulators. The sale and reuse of PCBs were banned in 1979.

Polycyclic aromatic hydrocarbons (PAHs): A subgroup of semivolatile organic chemicals.

Preliminary Remediation Goal (PRG): The average concentration of a chemical in an exposure area that will not cause an exceedance of the specified target risk in an individual who is exposed at random within the exposure area.

Probable Effects Concentration (PEC): Concentration at which an adverse effect is likely to occur.

Proposed Plan: Also known as a Proposed Remedial Action Plan, this document is a public participation requirement of CERCLA and the NCP in which the lead agency summarizes the preferred cleanup strategy and rationale. The document also summarizes the alternatives presented in the detailed analysis of the feasibility study, if prepared. The Proposed Plan may be prepared either as a fact sheet or as a separate document. In either case, it must actively solicit public comment on all alternatives under consideration.

Radiological Scoping Survey: The scoping survey provides site-specific information based on field measurements.

Receptor: An individual, either a human, plant, or animal, that may be exposed to chemicals present at the site.

Reasonable Maximum Exposure (RME): Human health risk assessment calculation approach using 90th percentile receptor risk behavior patterns to estimate a conservative expectation of receptor risk.

Record of Decision (ROD): An official public document, issued by the lead agency following the public comment period, that selects the cleanup alternative(s) that will be used at an NPL site. The ROD, which is based on information and technical analysis generated during the RI/FS and consideration of public comments and community concerns, is a legal document that explains the remedy selection process.

Reference Dose (RfD): An estimate developed by EPA scientists of the amount of a chemical a person (including the most sensitive person) could be exposed to over a lifetime without developing adverse (non-cancer) health effects.

Remedial Action Objective (RAO): Medium-specific or OU-specific goals for protecting human health and the environment.

Remediation Goals (RG): The concentration of a contaminant in an environmental medium that, when attained, should achieve RAOs.

Remedial Investigation (RI): Study that determines the nature and extent of contamination at a site.

Risk Assessment: Evaluation and estimation of the current and future potential for adverse human health and/or ecological effects from exposure to contaminants.

Safe Drinking Water Act (SDWA): The federal law that protects public drinking water supplies throughout the nation. Under the SDWA, EPA sets standards for drinking water quality and with its partners implements various technical and financial programs to ensure drinking water safety.

Semivolatile organic compounds (SVOCs): A group of organic (carbon-containing) compounds that evaporate less readily at normal temperatures than VOCs.

Site Inspection (or Investigation) (SI): Sampling investigation with the goal of identifying potential sources of contamination, types of contaminants, and potential migration of contaminants. The SI is conducted prior to the RI.

Superfund: see CERCLA.

Tetrachloroethene (PCE): A **VOC** also known as perchloroethylene (PCE) or perc, is a nonflammable colorless organic liquid with a mild, chloroform-like odor. It is used in the textile industry, as a component of aerosol dry-cleaning products, as a metal degreasing solvent, and as a chemical intermediate. Chemical intermediate is any chemical substance produced during the conversion of some reactant to a product.

Volatile organic compounds (VOCs): A group of organic (carbon-containing) chemicals that evaporate readily at normal temperatures. Typical VOCs include the light fraction of gasoline (benzene, toluene, xylenes) and low molecular weight solvents such as trichloroethylene and vinyl chloride.

The Navy encourages your written comments on the Proposed Plan; this form can be used to provide written comments. If you have questions about how to comment, please contact the BRAC Environmental Coordinator, Mr. Willington Lin, at (215) 897-4900 or via email at willie.lin.@navy.mil. E-mailed comments are also accepted.

Use this space to write your comments or to be added to the mailing list. Please provide your comments, postmarked or e-mailed, **no later than October 25, 2020 ,** to the address shown below:

COMMENT SHEET

Commenter name: _____

Address: _____

Please provide comments (postmarked or e-mailed) by October 25, 2020 to:

Mr. Willington Lin, BRAC Environmental Coordinator

Base Closure and Realignment
Program Management Office Northeast
4911 South Broad Street
Philadelphia, PA 19112-1303
willie.lin@navy.mil