Proposed Plan
Former Picnic Pond Stormwater Retention System
Former Naval Air Station Brunswick, Maine

The Proposed Plan

This Proposed Plan has been prepared in accordance with federal laws to present the Navy's proposed cleanup approach for impacted sediment related to historical Navy operations at the former Picnic Pond Stormwater Retention System, at the former Naval Air Station (NAS) Brunswick base located in Brunswick, Maine. The stormwater system was formerly owned and maintained by the Navy; therefore, it is referred to as the "former Picnic Pond System" to address the Navy's historical impacts to the system. The former Picnic Pond System consists of four interconnected water bodies: Pond A, Pond B, the Pond C Area, and Picnic Pond. This plan describes the Navy's proposed cleanup (remedy) for the former Picnic Pond System, which, after careful study consists of complete sediment removal of impacted depths in Ponds A and B with a backfill cover, **enhanced monitored natural recovery/monitored natural recovery** (**EMNR/MNR**) at Picnic Pond, a long-term monitoring program including monitoring of sediments and visual inspections, and **land use controls (LUCs**) for Picnic Pond to prevent recreational users from disturbing the cover system. No **LUCs** are required for Ponds A and B as impacted sediment will be removed.

Introduction

This Proposed Plan provides information to the public on the preferred course of action for the former Picnic Pond System (also referred to as "the Site") at the former NAS Brunswick base, located in Brunswick, Maine. This plan has been prepared to inform the community of the Navy's basis for the preferred course of action for the former Picnic Pond System and encourages community participation in the decision process for the Site.

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. Under this law, the Navy is pursuing cleanup of designated sites at the former NAS Brunswick base. The former Picnic Pond System is identified as a site for assessment and cleanup under **Superfund/CERCLA**. USEPA identifies the former Picnic Pond Stormwater Retention System as Operable Unit 12.

The Navy is issuing this Proposed Plan as part of its public participation responsibilities in accordance with CERCLA Section 177(a) and Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP**).

This document is issued by the Navy, as the lead agency, in conjunction with the United States Environmental Protection Agency (USEPA) and the Maine Department of Environmental Protection (MEDEP).

Opportunity for Public Comment

Public Comment Period

October 9, 2019 to November 8, 2019

The Navy will accept written comments on the Proposed Plan for the former Picnic Pond System during this comment period. Comments can also be sent by mail, e-mail, or fax (see Page 14 for details). You can also offer oral or written comments at the formal public hearing.

Informational Open House & Public Hearing

October 23, 2019

The Navy invites you to attend an informational open house from 5:00 pm to 7:00 pm to learn about the proposed cleanup plan for the former Picnic Pond System. The informational session will include posters describing the Proposed Plan and an informal question-and-answer session. A formal public hearing will follow during which the Navy will receive comments on the Proposed Plan from the public. It is at this formal hearing that an official transcript of the comments will be recorded. The above activities will be held at the Curtis Memorial Library, 23 Pleasant Street, Brunswick, Maine.

For more information, visit the Information Repository at the location provided on Page 14 of this Proposed Plan.

The purpose of this Proposed Plan is to:

- Provide the public with basic background information about the former NAS Brunswick base, including the former Picnic Pond System. This information includes a description of the Site that was developed by reviewing past documents about the Site, conducting investigations, and evaluating potential human and ecological impacts.
- Describe the information used as the basis for the Navy's determination of the proposed remedy for the former Picnic Pond System.
- Provide information to the public on how they can be involved in the remedy selection process.
- Solicit and encourage public review of the Proposed Plan.

Once the public has had the opportunity to review and comment on this Proposed Plan, the Navy will summarize and respond to comments received during the comment period and public hearing in a document called the **Responsiveness Summary**. The Navy, USEPA, and MEDEP will carefully consider all comments received and, based on the comments, could modify the proposed cleanup or even select a course of action different from that proposed. Ultimately, the selected remedy for the former Picnic Pond System will be documented in a **Record of Decision (ROD)** for the former Picnic Pond System. The **Responsiveness Summary** will be issued with the **ROD** and will be publicly available.

This Proposed Plan summarizes information that can be found in greater detail in the 2016 Draft Former Picnic Pond Stormwater Retention System Investigation Summary Report (ISR), the 2017 Final Picnic Pond Data Gap Investigation Work Plan, the 2018 Draft Technical Memorandum Picnic Pond Data Gap Investigation, the 2018 Draft Picnic Pond Feasibility Study Data Gap Technical Memorandum, and the 2019 Sediment Former Picnic Pond Stormwater Retention System **Feasibility Study (FS)** Report and other documents included in the former NAS Brunswick Information Repository, which is located at the Curtis Memorial Library at 23 Pleasant Street, Brunswick, Maine. The Navy, USEPA, and MEDEP encourage the public to review these documents to gain a more comprehensive understanding of the Site and associated environmental activities (see information of the Information Repository on the last page of this plan).

Scope of the Proposed Response Action

The former Picnic Pond System is identified as a site at the former NAS Brunswick base for assessment and cleanup and is following the **Superfund/CERCLA** process. Each site undergoing cleanup under **CERCLA** progresses through the process independently of others. This Proposed Plan addresses the former Picnic Pond System and recommends that remedial actions are necessary to protect human health and the environment from sediment contamination associated with the Navy's past use of the former Picnic Pond System.

The Navy's evaluation of the former Picnic Pond System has concluded with a recommendation for complete sediment removal of impacted depths in Ponds A and B with a backfill cover, **EMNR/MNR** at Picnic Pond, a long-term monitoring program including monitoring of sediments and visual inspections of former Picnic Pond System structures (e.g., dikes, dams), and **LUCs** for Picnic Pond to prevent recreational users from disturbing the cover system. No **LUCs** are required for Ponds A and B as impacted sediment will be removed.

Site Background

Former NAS Brunswick Base: Prior to base closure, NAS Brunswick consisted of approximately 3,094 acres in Brunswick, Cumberland County, Maine (Figure 1). The base supported the Navy's antisubmarine warfare operations in the Atlantic Ocean with several squadrons of P-3 maritime patrol aircraft.

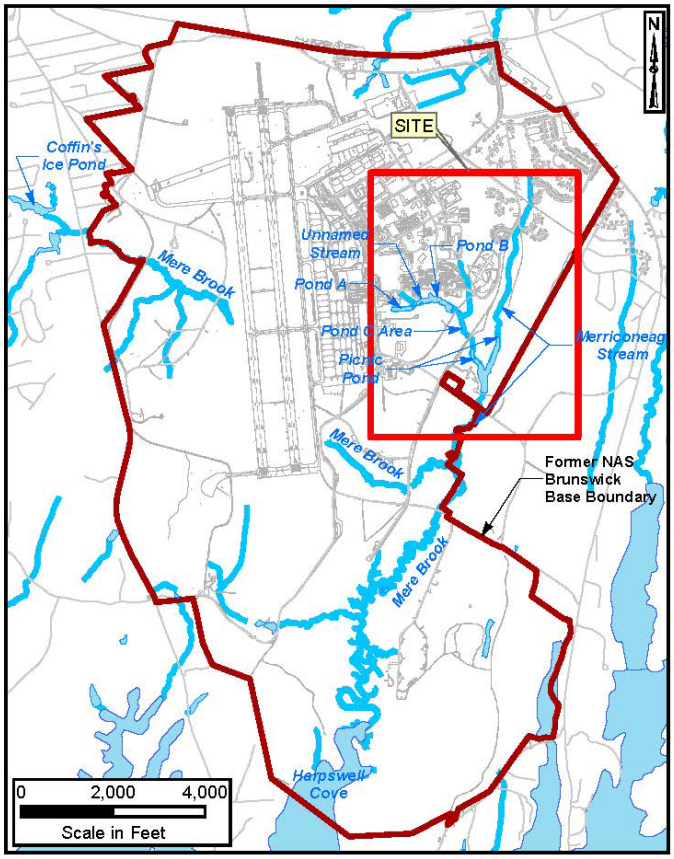


Figure 1 – Facility and Site Location

NAS Brunswick was officially designated as a **Superfund** site in 1987 when USEPA added it to the **National Priorities List (NPL)**. NAS Brunswick was selected in 2005 by the Base Realignment and Closure (BRAC) Commission for closure and was deactivated on May 31, 2011. The base population and facility operations decreased significantly in January 2010 with the end of the base's flying mission.

The former operational area of the base covers approximately 138 acres east of the two parallel runways extending north to south in the northern portion of the facility. The former operational area included numerous office buildings, barracks, recreational facilities, hangars, repair shops, and other facilities that formerly supported NAS Brunswick aircraft. Building demolition associated with base closure and redevelopment activities are ongoing. Forested areas, grasslands, shrubland, marsh, and open water comprise approximately 83 percent of the base, with the remaining 17 percent consisting of paved areas (primary flight ramps and runways) of the operations area. The southern edge of the base borders coves and estuaries of the Gulf of Maine.

Former Picnic Pond System: The former Picnic Pond System is located at the northeastern portion of the former NAS Brunswick base (Figure 1). The system consists of four interconnected water bodies: Pond A (approximately 0.3 acres), Pond B (approximately 1.6 acres), the Pond C Area (encompassing approximately 1.5 acres) and Picnic Pond (approximately 3.7 acres). The system was constructed with a network of ditches, storm drains and impoundment ponds used to channel and control stormwater drainage on the former NAS Brunswick base. Key portions of the former Picnic Pond System are shown in Figure 2.

Originally, the stormwater retention system was part of the sanitary sewer system; however, in 1954 the two systems were separated, and Picnic Pond was dammed. In 1997, dikes were constructed to create separate impoundment ponds along the Unnamed Stream (Ponds A, B and C Areas). Construction of the dikes flooded the Pond A area and partially flooded the Pond B area.

The former Picnic Pond System is fed by two natural streams. The Unnamed Stream begins at Outfall 09 The Galley, flows through Ponds A, B and the Pond C Area, and discharges to the northern end of the western branch of Picnic Pond. Merriconeag Stream discharges into Picnic Pond at the northern end of the eastern branch and flows south through Picnic Pond to the dam at the southern end. Merriconeag Stream continues beyond the dam at the southern end of Picnic Pond, joining Mere Brook approximately 1,700

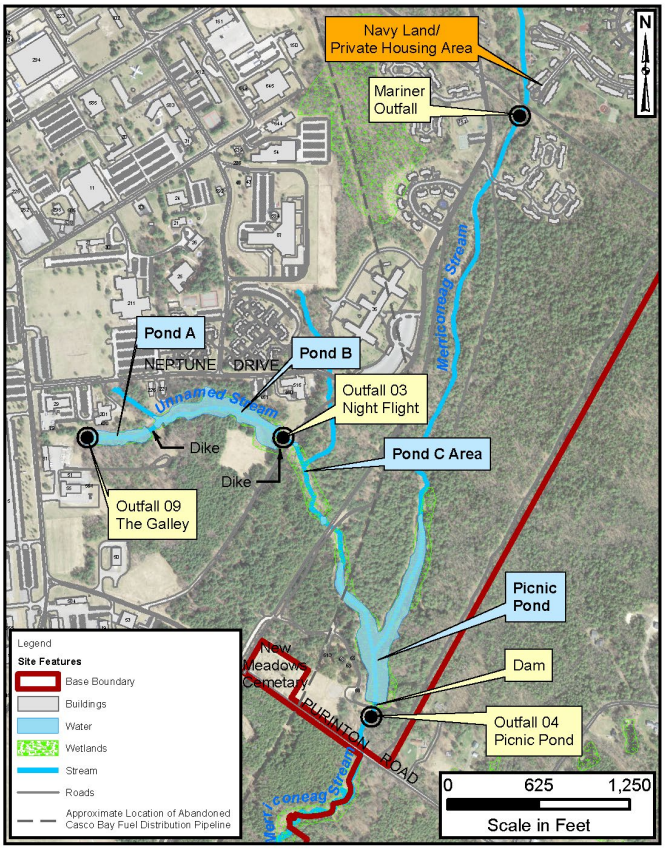


Figure 2 – Study Area

feet downstream of the dam. Mere Brook continues to flow south to Harpswell Cove.

When the base was operational, more than 80% of the stormwater discharged from the industrial portions of the installation was captured by the former Picnic Pond System.

Current and Future Land Use

Currently, captured discharge of the former Picnic Pond System is from the same area as it was historically; however, the current runoff has been reduced due to significantly less airport operations and industrial activities. In addition, potential stormwater impacts related to new development are managed/minimized through compliance with the MEDEP stormwater program. Since the closure of the base in 2011, the Flight Line transferred ownership and currently operates as the Brunswick Executive Airport (BXM) and this area continues to discharge to Pond A of the Picnic Pond System. The airport operates as a private airport with limited flights of small aircraft. Surface drainage from developed and undeveloped areas also drains into the Picnic Pond System.

The Unnamed Stream flows east of Pond A into Pond B and flows eastward toward the dike at the eastern

end. Pond B receives discharge from Pond A, a small unnamed tributary at the westernmost portion of Pond B, and surface drainage from the surrounding developed and undeveloped areas. The Unnamed Stream then flows approximately 500 feet beyond the dike, is culverted beneath a road and discharges into the Pond C Area. An unnamed tributary discharges to the northern portion of the Unnamed Stream within the Pond C Area. Picnic Pond is a Y-shaped pond, formed by the discharge of the Unnamed Stream to the western branch and Merriconeag Stream to the eastern branch. Merriconeag Stream begins at the Navy Land/Private Housing Area and is surrounded by tree-covered, undeveloped land from the housing area to Picnic Pond.

Upon closure of the base on September 15, 2011, the stormwater systems infrastructure at the former NAS Brunswick base were transferred to the **Midcoast Regional Redevelopment Authority (MRRA**). Therefore, the infrastructure associated with the former Picnic Pond System was transferred to MRRA; however, the land is still currently owned by the Navy. The current and future operation of the Picnic Pond System is subject to the Multi-Sector General Permit (MSGP) that **MRRA** holds, as overseen by MEDEP as the authorized regulatory agency. **MRRA** has developed the Brunswick Naval Air Station Reuse Master Plan (Master Plan). According to the Master Plan, the area in which Ponds A and B are located is proposed for business and technology industries while the area around the Pond C Area and Picnic Pond are proposed for recreational use. As such, it is assumed the ponds will remain waterways in the future, with some access by the public for recreational use. The Master Plan also includes current and future residential land use in close vicinity to the Picnic Pond System.

History of Site Investigations at the former Picnic Pond System

Construction on the former Picnic Pond System as currently configured, occurred in 1997; therefore, data collected prior to 1997 are not considered representative of current conditions. Below is a list of historical investigations that have included sampling within the former Picnic Pond System. A brief summary of the most recent investigations is also provided below.

- **Historical**: National Pollutant Discharge Elimination System (NPDES) stormwater sampling.
- **Historical and Ongoing Activities:** Investigations conducted associated with Site 9 (Neptune Drive Disposal Area) and the former Orion Street Skeet Range (OSSR).
- **Late 1980s:** Sampling was conducted as part of the Basewide **Remedial Investigation (RI)**.
- **1995**: United States Fish and Wildlife Services (USFWS) toxicity study and fisher stock assessment and constituent survey of golden shiners from Picnic Pond.
- **1999/2000**: Expression of Eastern Plume Groundwater into Surface Water study.
- **2001**: Hydrologic Study of the Picnic Pond Stormwater Retention System.
- **2008**: USEPA/MEDEP/Navy porewater sampling for impacts due to the Eastern Plume.
- **2008**: Phase II Environmental Condition of Property for Picnic Pond.
- **2015**: A comprehensive investigation was conducted to evaluate the nature and extent of impacts within the former Picnic Pond System from prior and/or current potential sources. Seventeen surface water, 32 sediment, and nine porewater samples were collected. Results indicated elevated pesticides (specifically, total **DDx** compounds) concentrations in one sediment sample location at the 0 to 6 inch and 6 to 12 inch depth intervals in Pond A. Results also indicated potential risks from **polycyclic aromatic hydrocarbons (PAHs)** to human health via surface water exposure in Pond B and to organisms (or invertebrates) that live in sediment in Pond A, Pond B and Picnic Pond sediment. **Total petroleum hydrocarbon (TPH)** (C11-C22 aromatics) concentrations in Picnic Pond sediments also indicated potential risk to human health.
- **2017**: OSSR lead investigation of sediment and hydric soil in Pond B. Data were incorporated into the 2017 Data Gap Investigation.
- **2017**: The 2017 Data Gap Investigation was conducted to fill data gaps identified from the 2015 investigation and to support the OSSR lead investigation. The intent of the investigation was to confirm or horizontally delineate target constituents in sediments. Sediments were analyzed from 0 to 6 inch and 6 to 12 inch depth intervals for **DDx** in Pond A, **PAHs** in Pond B and Picnic Pond and Merriconeag Stream, **TPH** from Picnic Pond and lead in Pond B (related to the OSSR study). The results completed delineation of **DDx** in Pond A associated with the single location with high **DDx** concentrations. **PAHs** in Pond B were horizontally delineated and were detected throughout Pond B with the majority of samples exceeding ecological screening values in the middle and eastern portions of the pond. In

addition, lead concentrations exceeded ecological screening values in many samples in Pond B. **PAHs** were horizontally delineated in Picnic Pond and no 2017 samples exceeded the ecological screening value. No new elevated **TPH** areas were located within Picnic Pond.

- **2018**: The 2018 Data Gap Investigation included vertical delineation of Pond A, Pond B and Picnic Pond; sediment sample collection from stormwater catch basins discharging from Pond A and Pond B to assess future recontamination; collection of dewatering data from each pond; and bathymetric surveys. The results indicated that **PAHs** are generally delineated horizontally and vertically in Pond A, Pond B and Picnic Pond.

Chemicals of Concern

During the 2015 comprehensive investigation, environmental samples were collected from surface water and sediment. Primary contaminants identified as present in samples consisted of metals (arsenic, cadmium, chromium, and lead), pesticides (total **DDx**), perfluorooctanoic acid (PFOS) and perfluorooctane sulfonate (PFOA), **PAHs**, and **TPH**.

The following provides a summary of the chemicals detected in surface water and sediment at the former Picnic Pond System:

- *Inorganics (metals):* Several inorganics were detected in surface water and sediment. Arsenic, cadmium, chromium, and lead were detected in surface water in Pond A and Pond B with lower concentrations detected in the Pond C Area and in Picnic Pond. In sediments, arsenic, cadmium, and lead were detected; it appears these metals are contained within the former Picnic Pond System and not migrating downstream. Additional investigation associated with the OSSR indicated that lead is present above human health and ecological screening values in Pond B sediment and hydric soil (saturated soil at the edge of Pond B); therefore, is included in the Picnic Pond FS.
- *PFOS and PFOA*: In surface water, concentrations of PFOS and PFOA did not follow a discernible pattern and were detected in all ponds. The PFOS and PFOA patterns in the former Picnic Pond System sediments show PFOS greater than PFOA in all ponds except the Pond C Area, where PFOA concentrations were higher than PFOS. Neither PFOS nor PFOA were identified as a **chemical of concern (COC)** for the former Picnic Pond System. The presence and nature of PFOS and PFOA in the environment at the former NAS Brunswick base are the subject of separate ongoing evaluations by the Navy and are not addressed by this proposed cleanup action.
- *Semi-volatile Organic Compounds (SVOCs):* In surface water, **PAHs**, a class of SVOCs, were not detected or detected infrequently and are considered risk drivers for human health in Pond B surface water. The overall pattern of **PAHs** in sediments shows potential inputs to the former Picnic Pond System in Pond A and Pond B. From there, **PAHs** have migrated to Picnic Pond. Based on the distribution of the **PAH** data, the west branch of Picnic Pond and the main portion of Picnic Pond are retaining **PAHs**. Detection of **PAHs** below remedial goals have been found south of the Picnic Pond dam.
- *Pesticides (DDx):* Pesticides were not detected or infrequently detected in surface water. **DDx** was detected in sediment at very high concentrations in the eastern portion of Pond A and was sporadically detected in Pond B, the Pond C Area and Picnic Pond, although these **DDx** concentrations are not linked to benthic (i.e., organisms that live in bottom sediments) invertebrate risk. Lower levels of constituents at the outlet of Picnic Pond and in the southern portion of Merriconeag Stream suggest limited downstream migration of **COCs**.
- *Total Petroleum Hydrocarbons:* **TPH** was not detected or detected infrequently in surface water. Based on the distribution of **TPH** data, the western branch of Picnic Pond and the main portion of Picnic Pond are retaining **TPH**.

Summary of Site Risks

As a part of the 2015 comprehensive investigation, the Navy completed human health and ecological **risk assessments** to evaluate the potential risk to human health and the environment associated with current and future exposure to contaminants in Site sediment and surface water. The results of the risk assessments are described below.

Human Health Risks

The human health risk assessment estimates the baseline risk, which is the likelihood of adverse health effects occurring if no cleanup action were taken at the Site. To estimate the baseline risk for humans, a four-step process was used.

Step 1 –Chemicals of Potential Concern

Chemicals of potential concern (COPC) are chemicals found at the Site at concentrations greater than current federal and state risk-based human health screening levels. Where published screening levels are not available, they were developed to be

protective of site-specific current/future human exposure scenarios. These chemicals are evaluated further in Steps 2 through 4 of the risk assessment.

Step 2 –Exposure Assessment

In this step, ways that humans could come in contact with surface water and sediment at the Site are considered:

- Under current conditions, a trespassing teenager could come in contact with surface water and sediments at the former Picnic Pond System. It was conservatively assumed that "no trespassing" signs could be ignored and teenagers may trespass onto the former Picnic Pond System property. These exposures may occur through direct contact with surface water and sediment within any of the exposure areas of the former Picnic Pond System.
- Under future conditions, on-site maintenance workers were conservatively assumed to possibly wade into ponds to perform periodic/routine maintenance work and come in contact with surface water or sediment.
- Under future conditions, a construction worker exposure scenario was evaluated assuming construction activities may occur adjacent to the ponds, potentially resulting in contact with surface water or sediment.
- Under future conditions, exposure to surface water and sediment by a recreational user was evaluated as MRRA's Reuse Master Plan includes development of portions of the former Picnic Pond System for recreational use. This scenario is also protective of nearby residents or workers who may access sediment and surface water within the ponds recreationally under a current or future use scenario.

Step 3 –Toxicity Assessment

At this step, possible harmful effects from exposure to the individual **COPCs** are evaluated. Generally, these chemicals are separated into two groups: **carcinogens** (chemicals that may cause cancer) and **noncarcinogens** (chemicals that may cause adverse effects other than cancer).

Step 4 – Risk Characterization

The results of Steps 2 and 3 were combined to estimate the overall potential risks from exposure to former Picnic Pond System contaminants. Risk characterization terms for the human health assessment are explained in the text box, *Expressing Estimated Human Health Risks.*

The estimated potential carcinogenic risk and noncarcinogenic hazard index (HI) were evaluated in comparison to USEPA criteria.

Using USEPA risk criteria for carcinogens and noncarcinogens, potential risks were identified for developing cancer or effects other than cancer when exposed to **PAHs** in surface water in Pond B or **TPH** in sediment in Picnic Pond.

Expressing Estimated Human Health Risks

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

For **carcinogens**, risk estimates are expressed in terms of probability. For example, exposure to a particular carcinogenic chemical may present a 1 in 10,000 chance of causing cancer over an estimated lifetime of 70 years. This can also be expressed as $1x10^{-4}$.

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. This measure is known as a hazard index (HI). A HI greater than 1 suggests that adverse effects are possible.

The primary medium for exposure was determined to be sediment; surface water and porewater were evaluated to have limited or no risk. **PAHs** detected in surface water are likely reflective of **PAHs** in the sediment. No human health risks above USEPA criteria were identified from exposure to surface water or sediment in Pond A or the Pond C Area. In addition, results from the 2017 OSSR investigation indicated that lead is present above human health screening values in Pond B sediment; therefore, is included in the Picnic Pond FS.

Ecological Risks

The ecological risk assessment (ERA) is completed in three steps, as discussed below.

Step 1 -- Problem Formulation

For the former Picnic Pond System, the primary objective of the ERA is to evaluate whether **COPCs** attributable to past operations have the potential to cause unacceptable risk to ecological receptors based primarily on surface water and sediment exposure

pathways. Due to the potential for upwelling of volatile organic compounds (VOCs) from the Eastern Plume into the former Picnic Pond System, porewater samples were evaluated in the ERA.

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

- Fish and aquatic invertebrates directly exposure to surface water,
- Benthic invertebrates directly exposed to surface sediments (0-6 inches) and porewater, and
- Birds and mammals exposed through incidental ingestion of sediment, ingestion of surface water, and by ingestion of contaminated prey items impacted by sediment and surface water.

Similar to the human health risk assessment, chemicals found at the Site in concentrations above ecological risk-based screening levels are identified as **COPCs**. These are considered to be the chemicals that could possibly present potential risks to the environment and thus, require site-specific risk calculation (i.e., Steps 2 through 3 described below).

Step 2 -- Risk Analysis

In this step, possible adverse effects from exposure to the individual **COPCs** are evaluated. This step includes estimating or measuring the amount of a chemical in porewater, surface water and sediment or plant/animal tissue, and then evaluating ecological receptor exposure to these chemical concentrations.

Step 3 -- Risk Characterization

The results of the risk analysis are analyzed to determine the likelihood of adverse effects to ecological receptors at the former Picnic Pond System. Based on the risk characterization, ecological receptors with the potential for adverse effects include sediment invertebrates and wildlife (i.e., wading/foraging nearshore birds). It is anticipated under current conditions that ecological receptors may come in contact with surface sediment (0 to 6 inches) of the ponds. The risk drivers for benthic exposure include **DDx** in Pond A and **PAHs** in Pond A, Pond B and Picnic Pond. In addition, results from the 2017 OSSR investigation indicated that lead is present above ecological screening values in Pond B sediment and hydric soil (saturated soil at the edge of Pond B); therefore, is included in the Picnic Pond FS.

Risk Summary-Why action is needed at the site.

The Navy, with concurrence from USEPA and MEDEP, have agreed with the findings of the human health and ecological risk assessments. They have agreed that cleanup of sediment following the **CERCLA** process is necessary for the former Picnic Pond System based on the results of the risk assessments. Therefore, it is the current judgement of the Navy, with concurrence from USEPA and MEDEP, that the preferred alternative, or one of the remedial measures identified below in this Proposed Plan, is necessary to be protective of human health and the environment.

Remedial Action Objectives

Remedial Action Objectives (RAOs) are the goals that a cleanup plan should achieve. **RAOs** consist of medium-specific goals for protecting human health and the environment and provide a basis for remedial alternative development and evaluation during the **FS** process. The **RAOs** developed to address impacted sediment related to historical Navy operations were developed based on human health and ecological risk assessment results and additional lead investigation at Pond B. Specific **RAOs** relevant to sediment in the former Picnic Pond System should be considered for lead, **DDx**, **PAHs** and **TPH**. Cleanup levels were developed for the **FS** (and referred to as **preliminary remediation goals** (**PRGs**)) for lead, **DDx**, **PAHs** and **TPH.** The **RAOs** include the following:

- Prevent or reduce risk and exposure of ecological receptors to concentrations of **DDx** and **PAHs** in Pond A sediment that exceed respective ecological **PRGs**.
- Prevent or reduce, in the case of **EMNR/MNR** implementation, risk and exposure of ecological receptors to concentrations of PAHs and lead in Pond B sediment which exceed respective ecological **PRGs**.
- Prevent exposure by recreational users to concentrations of lead in Pond B sediment that exceed the human health **PRG**.
- Prevent or reduce, in the case of **EMNR/MNR** implementation, risk and exposure of ecological receptors from concentrations of **PAHs** in sediment in the western branch and main portion of Picnic Pond which exceed the ecological **PRG**.
- Prevent or reduce risk and exposure by recreational users from concentrations of TPH-C11-C22-aromatic in Picnic Pond sediment that exceed the human health **PRG**.

Summary of Remedial Alternatives

Remedial alternatives, or cleanup options, were identified in the Sediment Picnic Pond System **FS** to meet the **RAOs** identified above. Alternatives considered for the Site included the no action alternative and eight active cleanup alternatives. The

goal of each active alternative is to protect human and ecological receptors by preventing contact with and ecological receptors by preventing contact with **COCs**.

Remediation areas and volumes for each of the impacted ponds were established based on all available historical data post 1997 (see Site Investigation History on page 4 for further description). Two approaches to estimate area and volume were taken: one approach used each individual sample point concentration and compared it to **PRGs** (Entire Pond) and the second approach looked at the 95% **Upper Confidence Limit (UCL)** of all detected points and compared to **PRGs** (Partial Pond).

The alternatives evaluated for the former Picnic Pond System includes the following:

- Alternative 1: No Action.
- Alternative 2: Shallow Sediment Removal and Backfill Cover with Sorptive Media in Ponds A and B (Entire Pond); **EMNR/MNR** at Picnic Pond.
- Alternative 2A: Shallow Sediment Removal and Backfill Cover with Sorptive Media in Ponds A and B (Partial Pond); **EMNR/MNR** at Picnic Pond.
- Alternative 3: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Entire Pond); **EMNR/MNR** at Picnic Pond.
- Alternative 3A: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Partial Pond); **EMNR/MNR** at Picnic Pond.
- Alternative 4: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Entire Pond); Hot Spot Removal/**MNR** at Picnic Pond.
- Alternative 4A: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Partial Pond); Hot Spot Removal/**MNR** at Picnic Pond.
- Alternative 5: Complete Sediment Removal of Impacted Depth in Ponds A and B and Picnic Pond with Cover Material Backfill.

Alternative 1: No Action

This alternative is used as a baseline for comparison to the other alternatives in accordance with the NCP (USEPA, 1990) and **Remedial Investigation/ Feasibility Study (RI/FS)** guidance (USEPA, 1988). This alternative would not achieve **RAOs**. This alternative does not include removal actions, capping, or **LUCs**, monitoring, or associated costs; however, there is a cost associated with conducting 5-year reviews and preparing status reports which is incorporated into the cost estimate.

Alternative 2: Shallow Sediment Removal and Backfill Cover with Sorptive Media in Ponds A and B (Entire Pond); EMNR/MNR at Picnic Pond

Alternative 2 would include removal of sediment in Ponds A and B to a depth of 12 inches across the entire pond. Removal in Ponds A and B would be conducted in the dry after dewatering the ponds. Excavated sediment would be stockpiled at an approved location and allowed to dewater by gravity. Liquids resulting from the dewatering process would either be collected and transported for off-site treatment or discharged at an on-site groundwater treatment plant should it be available. Dewatered sediment would be transported for off-site disposal based on characterization data.

Following shallow sediment removal, clean material would be backfilled into dredged areas and this material would be augmented with carbon sequestering amendments to sorb any dissolved **COCs** potentially contained in sediment porewater that may upwell through the cover from underlying sediment driven upward by groundwater. The use of carbon sequestering amendments is a proven technology and the design phase will include determination of the appropriate amendment for use at the site and if a treatability study would be beneficial.

A long-term monitoring program would be established during the design phase for Ponds A and B, which would include a visual inspection for the first five years and then every five years after this for up to 30 years.

Sediments in Picnic Pond would be managed with **EMNR** which consists of the placement of a thin layer of sand over areas exceeding **PRGs**. While Picnic Pond is a net depositional environment, the rate of deposition has not been confirmed; **EMNR** accelerates natural recovery by adding a thin sand layer and preventing direct contact in the short-term. During the design phase, an **MNR** assessment would be defined and conducted consistent with relevant federal and state guidance to confirm continued recovery. A long-term monitoring program would be established during the design phase to measure accumulation of sediment in Picnic Pond from upstream locations.

Implementation of **LUCs** for Ponds A, B and Picnic Pond would be conducted to prevent disturbance including, but not limited to, signage and/or fencing in the area to prevent recreational users from disturbing the cover system.

Annual inspections would be conducted for the first five years for Ponds A, B and Picnic Pond to assess the condition of the containment cover and the surrounding

area to ensure the protectiveness of the remedy. Frequency of inspections will be assessed after the first five years.

Prior to implementation, the Navy contractor would conduct an engineering inspection of the key components/infrastructure of the Picnic Pond System dikes and dam structures and provide recommendations as to repairs and future inspection activities necessary to support protectiveness of this remedy.

Alternative 2A: Shallow Sediment Removal and Backfill Cover with Sorptive Media in Ponds A and B (Partial Pond); EMNR/MNR at Picnic Pond

Alternative 2A is the same as Alternative 2 except that the sediment removal area would be less than the entire pond. Sediment impacted by **COCs** would be removed to reduce the **COC** risk in Ponds A and B. Therefore, the sediment removal area would be less than the entire pond. Alternative 2A for Picnic Pond is the same as Alternative 2.

Alternative 3: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Entire Pond); EMNR/MNR at Picnic Pond

Alternative 3 would include the same sediment removal as Alternative 2, however, instead of removing just the top 12 inches of sediment, the full depth of sediment in excess of **PRGs** would be removed from both Ponds A and B or approximately 18 inches plus a 6 inch overdredge. The sediment removal methods would be the same as Alternative 2.

Following excavation, Ponds A and B would be backfilled with up to 12 inches of material to manage residuals replenishing some backfill thickness and increasing settling capacity of Ponds A and B. Since all impacted sediment in Ponds A and B would be removed in this alternative, there would be no need for placing amended backfill material as a cover.

The **EMNR** for Picnic Pond for Alternative 3 is the same as for Alternative 2.

Implementation of **LUCs** for preventing disturbance to Picnic Pond will include, but not be limited to, signage and/or fencing in the area to prevent recreational users from activities that might disturb the cover system.

An inspection event will be conducted for Ponds A and B after construction in order to assess the condition of the restoration, backfill and the surrounding terrain. Future inspections may not be required unless the initial inspection suggested there was a need to continue additional inspections.

Annual inspections will be conducted for the first five years for Picnic Pond to assess the condition of **EMNR** of Picnic Pond and the surrounding area to ensure the protectiveness of the remedy. Frequency of inspections will be assessed after the first five years.

Alternative 3A: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Partial Pond); EMNR/MNR at Picnic Pond

Alternative 3A for Ponds A and B is the same as Alternative 3 except that the sediment removal area would be less than the entire pond. Sediment impacted by **COCs** would be removed to reduce the **COC** risk in Ponds A and B. Therefore, the sediment removal area would be less than the entire pond. Alternative 3A for Picnic Pond is the same as Alternative 3.

Alternative 4: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Entire Pond); Hot Spot Removal/MNR at Picnic Pond

Alternative 4 would include the same sediment removal for Ponds A and B as Alternative 3. Cover material backfill for Ponds A and B for Alternative 4 is also the same as for Alternative 3. Sediment removal methods would be the same as for Alternative 2 and 3.

In this alternative, the individual sample location areas exceeding **PRGs** in Picnic Pond would be removed as hot spots in the wet.

Similar to Alternatives 2 and 3, a monitoring plan to measure accumulation of sediment in Picnic Pond from upstream locations for confirmation of continuing recovery will be implemented. During the design, an estimation of the sedimentation rate would be made to predict the period of time monitoring should be conducted. This would be adjusted over time based on collected data. Monitoring activities will include sediment core sampling and analysis.

Implementation of **LUCs** for Picnic Pond for Alternative 4 is the same for Alternative 3.

Inspection of Ponds A and B for Alternative 4 is the same as for Alternative 3.

The annual inspections requirement for Picnic Pond for Alternative 4 is the same as for Alternative 3.

Alternative 4A: Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Partial Pond); Hot Spot Removal/MNR at Picnic Pond

Alternative 4A for Ponds A and B is the same as Alternative 3 except that the sediment removal area would be less than the entire pond. Sediment impacted by **COCs** would be removed to reduce the

COC risk in Ponds A and B. Therefore, the sediment removal area would be less than the entire pond. Alternative SED-4A for Picnic Pond is the same as for Alternative SED-4.

Alternative 5: Complete Sediment Removal of Impacted Depth in Ponds A and B and Picnic Pond with Cover Material Backfill

Complete Sediment Removal for Ponds A and B for Alternative 5 is the same as for Alternative 3 and 4. Sediment removal methods would be the same as for Alternative 2 to 4.

Cover material backfill for Ponds A and B for Alternative 5 is the same as for Alternatives 3 and 4.

In addition, Alternative 5 includes removal of sediment from Picnic Pond in a contiguous area to the full impact depth compared to isolated hot spot removal in Alternative 4.

Alternative 5 includes backfilling to grade with sand in Picnic Pond to manage residuals. Sand backfill could be kept to a minimum thickness of 12 inches to increase settling capacity of Picnic Pond.

There is no need to enforce **LUCs** of this remedial alternative because all impacted sediment would be removed from the Site.

A single inspection event will be conducted for Ponds A, B and Picnic Pond after construction in order to assess the condition of the restoration, backfill and surrounding terrain. Future inspections would not be required unless the initial inspection suggested there was a need. A Site Closeout final inspection and report is included.

Evaluation of Alternatives

USEPA has established nine criteria for use in comparing the advantages/disadvantages of the cleanup alternatives. These criteria fall into three groups: threshold criteria, primary balancing criteria, and modifying criteria. These nine criteria are explained in the text box, *What are the Nine Evaluation Criteria?*

What are the Nine Evaluation Criteria?

The following is a summary of the nine criteria used to evaluate the remedial alternatives. The first two criteria are considered threshold criteria, and any alternative selected must meet them. The next five criteria are balancing criteria. The last two (the modifying criteria), state (MEDEP) and community acceptance, will be addressed after the public comment period on this Proposed Plan.

Threshold Criteria

1. ***Overall Protection of Human Health and the Environment*** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
2. ***Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)*** evaluates whether an alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified.

Primary Balancing Criteria

3. ***Long-Term Effectiveness and Permanence*** considers the ability of an alternative to maintain protection of human health and the environment.
4. ***Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment*** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.
5. ***Short-Term Effectiveness*** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation.
6. ***Implementability*** considers the technical and administrative feasibility of implementing an alternative, including factors such as the relative availability of goods and services.
7. ***Cost*** includes estimated capital and annual operations and maintenance (O&M) costs, as well as present worth cost. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. The alternative should provide the necessary protection for a reasonable cost. Cost estimates are expected to be accurate within a range of +50 to -30 percent.

Modifying Criteria

8. ***State/Support Agency Acceptance*** considers whether the state agrees with USEPA's and Navy's analyses and recommendations, as described in the **FS** and Proposed Plan.
9. ***Community Acceptance*** considers whether the local community agrees with the Navy and USEPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

A detailed analysis of the alternatives can be found in the **FS**. The evaluated alternatives are compared based on seven of the nine criteria for Alternatives 1, 2, 2A, 3, 3A, 4, 4A and 5 in Table 1. The two modifying criteria, State Agency and Community Acceptance, are evaluated following the public comment period.

Preferred Alternative

The Navy's preferred Picnic Pond System cleanup plan (Preferred Alternative) to meet the established **RAOs** is Alternative 3A, Complete Sediment Removal of Impacted Depth with Cover Material Backfill in Ponds A and B (Partial Pond); **EMNR/MNR** at Picnic Pond (Figure 3). The Navy proposes that the Preferred Alternative be the final remedy for the former Picnic Pond System. Alternative 3A is preferred over the other Alternatives because it meets the two threshold criteria for protection of human health and the environment and compliance with **ARARs** while achieving the best balance of tradeoffs with respect to the primary balance criteria. The Navy may decide to change its preferred alternative in response to public comment or new information. After the end of the public comment period on this Proposed Plan, the Navy, with the concurrence of USEPA and MEDEP, will document its selected remedy in a **ROD**.

Assessment of the Preferred Alternative Against the Nine Criteria

The Navy expects the preferred alternative to satisfy the following statutory requirements of **CERCLA** Section 121(b): (1) be protective of human health and the environment; (2) comply with **ARARs**; (3) be cost-effective; and (4) utilize permanent solutions to the maximum extent practicable. The paragraphs below detail how the Preferred Alternative meets these statutory requirements.

Protection of Human Health & the Environment: The Preferred Alternative would be protective of human health and the environment through 1) the removal of sediment impacted by **COCs** to reduce **COC** risk in Ponds A and B with subsequent application of a backfill cover, 2) implementation of **EMNR/MNR** at Picnic Pond and 3) application of **LUCs** and annual inspections for at least the first five-years and **CERCLA** five-year reviews. Impacted sediments would remain on Site at Picnic Pond which would be remediated/monitored via **EMNR/MNR**. **LUCs** would be established to provide additional protection of human health and ecological health through restricting activities that might disturb the **EMNR** material in Picnic Pond.

Compliance with **ARARs**: With proper execution of this Preferred Alternative, all chemical- and location-specific **ARARs** and criteria to be considered (TBCs) would be met and action-specific **ARARs** and TBCs would be complied with.

Long-Term Protectiveness & Permanence: The Preferred Alternative includes the removal of sediment impacted by **COCs** to reduce **COC** risk from Ponds A and B. Upon removal of impacted sediments, backfill covers will be placed to further reduce risks to ecological receptors. Adequacy of this alternative would be confirmed through construction monitoring and during post-remediation annual and **CERCLA** five-year reviews. Long-term effectiveness and permanence of the Preferred Alternative will depend on the durability of the cover and the reliability of long-term maintenance and monitoring to protect it. The **EMNR** management of sediments at Picnic Pond would accelerate natural recovery and **LUCs** would be implemented to prevent disturbance of the backfill by recreational users. **LUCs** are reliable if properly enforced. Monitoring would also be required at Picnic Pond to monitor the **EMNR**.

Reduction of toxicity, mobility or volume through treatment: The Preferred Alternative does not include treatment.

Short-Term Protectiveness: The Preferred Alternative will be effective in the short-term as long as work is done properly, with the necessary controls in place. Risks to the Brunswick Landing community would be minor with the implementation of this cleanup plan. During removal and environmental sampling, short-term risks to construction workers would be mitigated through use of proper personal protective equipment. Short-term impacts to the ecological habitat would occur, but it is anticipated that the ecological habitat present in the ponds will be significantly improved after remediation is complete. **RAOs** would be achieved once the excavation and backfilling is completed and the **LUCs** in combination with **EMNR/MNR** and inspections/reviews are officially put into effect. It is anticipated that this timeframe is approximately 5 years.

Implementability: Sediment sampling, excavation, backfill placement, **LUCs** and **EMNR/MNR** are proven technologies and are readily implemented. The Preferred Alternative is expected to be reliable in achieving the desired risk reduction established via the **RAOs**. Effectiveness of this alternative would be confirmed through use of construction monitoring, survey techniques, site observations, annual inspections, and **CERCLA** five-year reviews. Monitoring would be established to track accumulation of sediment from upstream locations at Picnic Pond. Approval for disposal of contaminated sediments would require coordination with regulatory agencies.

Cost: As part of this alternative, costs are associated with delineation sediment sampling, dewatering Ponds A and B, excavation/dredging, sediment dewatering and processing, transport and disposal, backfill, environmental sampling, **LUCs** and inspections/**CERCLA** five-year reviews. The present-value cost of the Preferred Alternative is $3,610,000.

Details of the Preferred Alternative

The Preferred Alternative will include the removal of sediment impacted by **COCs** to reduce **COC** risk in Ponds A and B. Following sediment removal, Ponds A and B would be backfilled with up to 12 inches of backfill material to manage residuals. Not replenishing the full backfill thickness increases settling capacity of Ponds A and B. Since all impacted sediment in Ponds A and B would be removed in this alternative, there would be no need for placing amended backfill material as a cover.

Areas of Picnic Pond sediment exceeding **PRGs** would be remediated over time through **EMNR/MNR**.

A monitoring plan would be established to track the accumulation of clean sediments over time and the resultant recovery of the sediment within all ponds.

Implementation of **LUCs** for preventing disturbance to Picnic Pond will include, but not be limited to, signage and/or fencing in the area to prevent recreational users from activities that might disturb the cover system. No **LUCs** are needed for Ponds A and B as all impacted sediment will be removed.

A single inspection event will be conducted for Ponds A and B after construction in order to assess the condition of the restoration, backfill and the surrounding terrain. Future inspections would not be required unless the initial inspection suggested there was a need to continue additional inspections.

Annual inspections will be conducted for the first five years for Picnic Pond to assess the condition of **EMNR** of Picnic Pond and the surrounding area to ensure the protectiveness of the remedy. Frequency of inspections will be assessed after the first five years.

Comments and Feedback

Community acceptance of this Proposed Plan is the next step in the cleanup process for the former Picnic Pond System. The public is encouraged to review this plan and submit comments to the Navy. You do not have to be a technical expert to comment! The Navy would like to know your thoughts before making a final decision on whether Alternative 3A is appropriate for the former Picnic Pond System.

During the public comment period from October 9, 2019 to November 8, 2019, the Navy will accept formal written comments on this Proposed Plan via U.S. mail, e-mail or fax. The Navy will also hold a public informational open house and public hearing to accept either oral or written comments. It is important

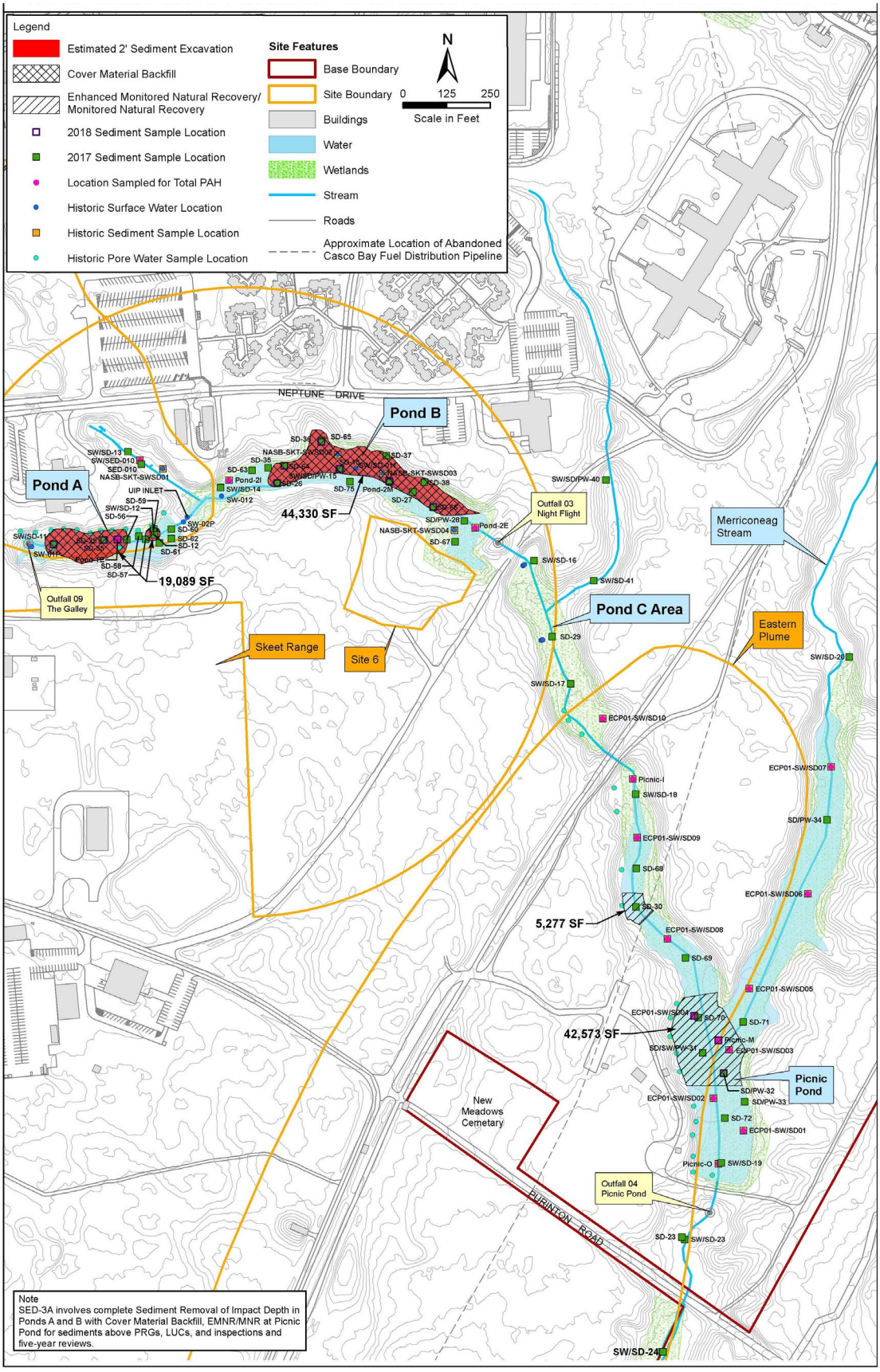
TABLE 1 COMPARISON OF ALTERNATIVES FOR THE FORMER PICNIC POND SYSTEM

Evaluation Criteria	Remedial Alternative							
	1 –No Action	2	2A	3	3A	4	4A	5
Protection of Human Health and the Environment	○	◐	◐	●	●	●	●	●
Compliance with Applicable or Relevant and Appropriate Requirements	○	●	●	●	●	●	●	●
Long-term Effectiveness and Permanence	○	◐	◐	◐	◐	●	●	●
Reduction of Toxicity, Mobility, or Volume through Treatment	NA	●	●	NA	NA	NA	NA	NA
Short-term Effectiveness	○	◐	◐	◐	◐	◐	◐	◐
Implementability	●	●	●	●	●	●	●	◐
Cost (Present Value Costs)	$182K [1]	$4,852K	$3,624K	$4,895K	$3,610K	$5,234K	$3,949K	$5,935K
State Acceptance	○	Pending	Pending	Pending	Pending	Pending	Pending	Pending
Public Acceptance	○	Pending	Pending	Pending	Pending	Pending	Pending	Pending

Relative comparison of the Nine Balancing Criteria and each alternative:
NA= not applicable ○ Poor ◐ Average ● Good

1. Costs associated with SED-1 are related to 5-year reviews and periodic site status reports which would be required. No other costs would be anticipated.

Figure 3 –Alternative 3A, Preferred Alternative



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 text box, *Understanding the Formal Comment Process*)

The dates for the public comment period, and the date, time, and place of the public informational session and public hearing, are provided on the first page of this Proposed Plan.

Understanding the Formal Comment Process

The Navy will accept public comments during a 30-day formal comment period and hold a public informational open house and public hearing to accept formal verbal comments.

To make a formal comment on this Proposed Plan, you may:

1) Offer oral or written comments during the public informational session and public hearing on October 23, 2019, during which a stenographer will record all offered comments, or

2) Send written comments by U.S. mail, fax or e-mail, postmarked no later than November 8, 2019, to:

Mr. Paul Burgio
BRAC PMO East
Building 679, Naval Business Center
4911 South Broad Street
Philadelphia, PA 19112-1303

Email: *paul.burgio@navy.mil*
Fax: 215-897-4902

The Navy will review the transcript of comments received during the hearing and written comments received during the comment period before making a final cleanup decision. The Navy will then prepare a written response to all formal written and oral comments received. Your formal comment will become part of the official public record.

The transcript of comments and the Navy's written responses will be issued in the **Responsiveness Summary** when the Navy releases the **ROD**, which will be made available to the public online and at the Curtis Memorial Library.

Next Steps

Once the community has commented on this Proposed Plan, the Navy, with concurrence from USEPA and MEDEP, 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.

The Navy will not respond to your comments during the formal Public Hearing. The Navy will hold a brief informational open house prior to the start of the formal public hearing on October 23, 2019. You may send comments by U.S. mail, fax or e-mail. A tear-off mailer is provided as part of this Proposed Plan.

Commitment to the Community

The Navy is committed to keeping the community informed on the environmental cleanup programs at the former NAS Brunswick base. This Proposed Plan was prepared to help the public understand and comment on the proposed remedy for the former Picnic Pond System and provides a summary of historical reports and studies. The technical and public information documents used by the Navy to prepare this Proposed Plan are available at the Information Repository.

The Navy will announce the final decision on the cleanup plan through the local media and at Restoration Advisory Board (RAB) meetings.

For More Information…

Contact

If you have questions or comments about this Proposed Plan, or any other questions, please contact Paul Burgio via email at *paul.burgio@navy.mil* or fax at 215-897-4902.

Information Repository

Documents relating to environmental cleanup activities for the former NAS Brunswick base are available for public review at the following Information Repository:

Curtis Memorial Library
23 Pleasant Street
Brunswick, Maine 04011-2261
(207) 725-5242

Glossary of Terms

This glossary defines the bolded terms used in this Proposed Plan. The definitions in this glossary apply specifically to this Proposed Plan and may have other meanings when used in different circumstances.

Applicable or Relevant and Appropriate Requirements (ARARs): The federal, state, and local environmental rules, regulations, and criteria that must be met by the selected cleanup action under **CERCLA**.

Carcinogens: Chemicals that cause cancer.

Chemical of Concern (COC): A substance detected at a level and/or in a location where it could have an adverse effect on human health and the environment.

Chemical of Potential Concern (COPC): Chemicals found at concentrations greater than applicable screening levels.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law also known as "Superfund." This law was passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act. This law created a tax on the chemical and petroleum industries and provided broad federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment.

DDx: The sum of DDD, DDE, and DDT. Dichlorodiphenyltrichloroethane (DDT) is a synthetic pesticide and persistent contaminate that was banned in the US in 1972 based on adverse impacts to human health and the environment. Dichlorodiphenyldichloroethane (DDD) and dichlorodiphenyldichloroethylene (DDE) were present in minor amounts in commercial DDT mixtures and are also breakdown products of DDT.

Enhanced Monitored Natural Recovery (EMNR): A sediment remediation practice that involves implementing **MNR** combined with thin-layer placement of clean sediment. This thin-layer placement can accelerate reductions in surface concentrations.

Feasibility Study (FS): A report that presents the description and analysis or evaluation of potential cleanup alternatives for a site.

Land Use Controls (LUCs): A restriction or administrative action arising from the need to reduce risk to human health and/or the environment. Restrictions may include non-engineered instruments (such as legal controls) or engineered and physical barriers (such as fencing or barriers).

Midcoast Regional Reuse Authority (MRRA): MRRA is a public municipal corporation established by the Maine State Legislature to implement the Reuse Master Plan for the former NAS Brunswick base.

Monitored Natural Recovery (MNR): A practice that relies on un-enhanced natural processes to protect human health and environmental receptors from unacceptable exposures to contaminants. This sediment remediation approach involves leaving sediments in place, relying upon effective source control and ongoing natural processes.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): More commonly called the National Contingency Plan, it is the federal government's blueprint for responding to both oil spills and hazardous substance releases. Following the passage of Superfund (**CERCLA**) legislation in 1980, the National Contingency Plan was broadened to cover releases at hazardous waste sites requiring emergency removal actions. A key provision involves authorizing the lead agency to initiate appropriate removal action in the event of a hazardous substance release.

National Priorities List (NPL): The list of sites of national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants throughout the US and its territories. The NPL is intended to primarily guide the USEPA in determining which sites warrant further investigation.

Noncarcinogens: Chemicals that may cause adverse effects other than cancer.

Preliminary Remediation Goals (PRGs): PRGs are developed based on an evaluation of risk-based PRGs, background concentrations, practical quantitation limits (PQLs), and other site-specific considerations (e.g., **ARARs**).

Polycyclic Aromatic Hydrocarbons (PAHs): High molecular weight, relatively immobile, and moderately toxic solid organic chemicals with multiple benzenic (aromatic) rings in their chemical formulas. PAHs are normally formed during the incomplete combustion of coal, oil, gas, garbage, or other organic substances.

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

Record of Decision (ROD): An official document that describes the selected action for a specific site. The ROD documents the remedy selection process and is issued by the Navy following the public comment period.

Remedial Action Objective (RAO): A cleanup objective agreed on by the Navy and USEPA, in consultation with MEDEP. One or more RAOs are typically formulated for each environmental site.

Remedial Investigation: An in-depth study designed to gather data needed to determine the nature and extent of contamination at a Superfund site.

Responsiveness Summary: A section of the Record of Decision that includes a listing of the written and oral formal comments received during the public comment period and public hearing on the Proposed Plan and Navy's responses to the comments.

Risk Assessment: Evaluation and estimation of the current and future potential for adverse human health and/or ecological effects from exposure to contaminants. A human health risk assessment is an evaluation of current and future potential for adverse human health effects from exposure to site contaminants. An ecological risk assessment is a study that evaluates the potential risk to ecological receptors (various types of plants and animals) from contaminants at a site.

Superfund: Another name for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (see above).

Total Petroleum Hydrocarbons (TPH): TPH is a term used to describe a large family of several hundred chemical compounds that originally came from crude oil. TPH is a mixture of chemicals made from hydrogen and carbon, called hydrocarbons.

Upper Confidence Limit (UCL): The 95% UCL of the arithmetic mean concentration. Otherwise stated, the concentration that equals or exceeds the true arithmetic mean concentration 95% of the time. Used in risk assessment to provide a health-protective estimate of the potential exposure concentration.

Use This Space to Write Your Comments

The Navy encourages your written comments on the Proposed Plan for the former Picnic Pond System, located at the former NAS Brunswick. You can use the form below to send written comments. If you have questions about how to comment, please contact Paul Burgio via U.S. mail, e-mail at *paul.burgio@navy.mil* or via fax at 215-897-4902. This form is provided for your convenience. Please mail this form or additional sheets of written comments, postmarked no later than November 8, 2019 to:

Mr. Paul Burgio
BRAC PMO East
Building 679, Naval Business Center
4911 South Broad Street
Philadelphia, Pennsylvania 19112-1303

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Comment Submitted by: _____

Address: _____

Mr. Paul Burgio

BRAC PMO East

Building 679, Naval Business Center

4911 South Broad Street

Philadelphia, Pennsylvania 19112-1303

Fold on line, staple, stamp, and mail