N00174.AR.000689
NSWC INDIAN HEAD
5090.3a

PUBLIC NOTICE REGARDING INVITATION TO COMMENT ON PROPOSED PLAN AT SITE 17 NSWC INDIAN HEAD MD
2/1/2009
NAVFAC WASHINGTON

Proposed Plan

Site 17, Disposed Metal Parts along Shoreline

U.S. Navy Announces the Site 17 Proposed Plan

Naval Support Facility, Indian Head

Indian Head, Maryland

February 2009

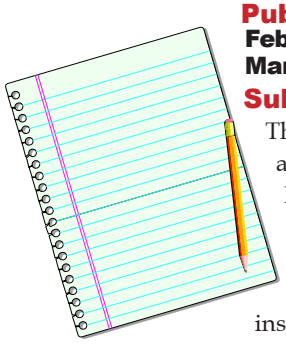
Introduction

This **Proposed Plan** presents the remedial alternatives evaluated and recommended for Site 17, Disposed Metal Parts along Shoreline, at Naval Support Facility Indian Head (NSF-IH) in Indian Head, Maryland. For shallow groundwater, this Proposed Plan recommends in situ **chemical reduction (ISCR)** via one-time soil mixing in the area where trichloroethene (TCE) concentration exceeds or is equal to 1,000 micrograms per liter (µg/L), **monitored natural attenuation (MNA)** in the remaining area where the **site remediation goals (SRGs)** are exceeded, and **institutional controls (ICs)**. For the remaining media (i.e. surface soil, subsurface soil, surface water, and sediment), this Proposed Plan recommends no further remedial action. The ecological risks associated with the surface soil were mitigated through a removal action conducted in 2005. The human health and ecological risk assessments performed during the **Remedial Investigation (RI)** and **Baseline Ecological risk assessment (BERA)** did not reveal **contaminants of concern (COCs)** for subsurface soil, surface water, and sediment.

This Proposed Plan provides the rationale for the recommendations, based on investigative activities performed at Site 17 to date, and explains how the public can participate in the decision making process. The locations of NSF-IH and Site 17 are shown in Figure 1.

The Department of the Navy (Navy) (the lead agency for the site activities) and the U. S. Environmental Protection Agency Region III (EPA) (support agency), in consultation with the Maryland Department of the Environment (MDE) (support agency), issue this document as part of the public participation responsibilities under Title 40 of the Code of Federal Regulations (CFR), Section 300.430(f)(3). Title 40 CFR Part 300 is known as the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**. This Proposed Plan summarizes information that can be found in greater detail in the RI report, **Feasibility Study (FS)** report, and other documents contained in the **Administrative Record File** for this site.

Mark Your Calendar for the Public Comment Period



Public Comment Period

February 9, 2009 through March 9, 2009

Submit Written Comments

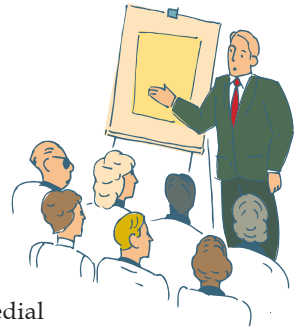
The Navy, EPA, and MDE will accept written comments on the Proposed Plan during the public comment period. To submit comments or obtain further information, please refer to the insert page.

Attend the Public Meeting

February 19, 2009, from 6:00 P.M. to 7:00 P.M

Indian Head Senior Center
100 Cornwallis Square
Indian Head, MD 20640

The public comment period will include a public meeting during which the Navy, EPA, and MDE will provide an overview of the site, previous investigation findings, remedial alternatives evaluated, and the Preferred Alternative, answer questions, and accept public comments.



Location of Information Repository

The Information Repository is available for public viewing at the following locations:

Indian Head Town Hall
4195 Indian Head Hwy.
Indian Head, MD 20640
(301) 743-5511
Hours: Monday through Friday 8:30 a.m. to 4:30 p.m.

Charles County Public Library
2 Garrett Ave.
La Plata, MD 20646-5959
(301) 934-9001 and (301) 870-3520
Hours: Monday through Thursday 9 a.m. to 8 p.m.
Friday and Sunday 1-5 p.m.
Saturday 9 a.m. to 5 p.m.

Naval Support Facility, Indian Head General Library
Building 620 (The Crossroads)
101 Strauss Avenue, Indian Head, MD
Hours: M-F 9:00 a.m. – 5:30 p.m.
Sat/Sun - closed

The Navy and EPA, in consultation with MDE, will make a final decision on the **response action** for the site after reviewing and considering all information submitted during the 30-day public **comment period** and may modify the preferred response action, or select another action based on any new information or public comments. Therefore, community involvement is critical, and the public is encouraged to review and comment on this Proposed Plan. After the public comment period has ended and the comments and information submitted during that time have been reviewed and considered, the Navy and EPA, in consultation with MDE, will document the action selected for the site in a **Record of Decision (ROD)**.

A glossary of specialized terms used in this Proposed Plan is attached. Words listed in the glossary are indicated in bold print the first time they appear in this Proposed Plan.

Site History

Site 17 is a 1,000-foot stretch of shoreline along the Mattawoman Creek where metal parts were discarded from the 1960s until the early 1980s. The discarded materials included rocket motor casings, shipping containers, empty drums, and various metal parts. The **Initial Assessment Study (IAS)** for Site 17 reported the presence of rusted metal parts; some of the submerged materials were covered with bottom sediments (Fred C. Hart Associates, Inc., 1983).

In 1997, the area of the site was expanded to include the forested area 100 feet from the shoreline, where dozens of rusted drums were identified. During a site reconnaissance conducted in January 2000, disintegrated drums containing a yellow, wax-like material were observed at the site. NSF-IH personnel analyzed the contents and concluded that the substance was wax and was safe to handle. Base personnel could not verify the origin of the drums.

Site Characteristics

Soil at Site 17 consists of fill material from the ground surface down to an approximate depth of 10 and 12 feet below ground surface (bgs). The fill is characterized by a mixture of silty sand, sandy silt, and wood fragments. The fill layer is underlain by a silty clay layer from 10-12 feet bgs to 18-20 feet bgs. Underlying the silt is a clay layer from an approximate depth of 18-20 feet bgs to depths greater than 25 feet bgs. However, the total thickness of the clay layer was not assessed.

The groundwater table elevation ranges from 0.8 foot above mean sea level (amsl) to 3.1 feet amsl along the shoreline, and from 4.5 feet amsl to 8.6 feet amsl upgradient of Site 17. Groundwater flow is from northwest to southeast towards Mattawoman Creek.

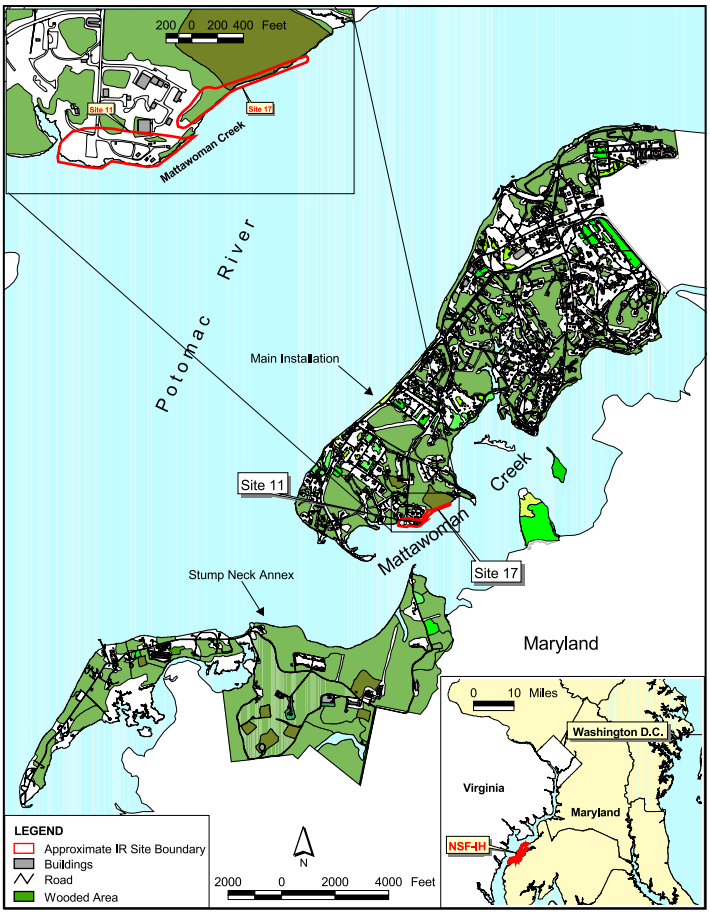


Figure 1 – NSF-IH Facility Map

Environmental Investigation History

Several investigations were conducted at Site 17 between 1983 and 2008. Below is a chronological summary of these investigations.

Initial Assessment Study

The objective of the IAS (Fred C. Hart Associates, 1983) was to identify and assess sites posing a threat to human health or to the environment owing to contamination from past hazardous materials operations at NSF-IH. The IAS identified the area now known as Site 17 as the location of discarded metal parts. The study did not recommend a Confirmation Study for this site because of the inert nature of the materials.

Phase II Resource Conservation and Recovery Act Facility Assessment

EPA conducted a Phase II Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) (A.T. Kearney, Inc., 1988) in 1988, which consisted of a Preliminary Review of available documents and a Visual Site Inspection (VSI) that included Site 17. During the VSI, rusted large metal parts were noted in the reported disposal area, many of which were covered with sediment.

The RFA reported that Naval Ordnance Station representatives stated the metal parts would be removed in late 1988 or early 1989 under the direction of the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Department.

Remedial Investigation

Because no sampling had been conducted at this site prior to the Phase II RFA, groundwater, surface soil, subsurface soil, surface water, and sediment sampling was conducted in 2000 as part of the RI (CH2M HILL, 2004a). Three groundwater monitoring wells (IS17MW01 - total depth of 12.5 feet bgs, IS17MW02 – total depth of 12 feet bgs, and IS17MW03 – total depth of 19 feet bgs) were installed in the shallow aquifer to assess groundwater contamination. Well IS17MW03 was installed hydraulically upgradient of the site.

Fifteen surface soil and 15 subsurface soil samples, including samples in areas considered to be uncontaminated, called **background** samples, were collected and analyzed for **volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), Target Analyte List (TAL) inorganics**, and explosives. Several samples were also sampled for total **organic** carbon (TOC) and **pH**. All surface and subsurface soil samples were collected from the western part of the site, around the former discarded drums area, and from the intermittent swale. Groundwater samples were collected from the three monitoring wells and analyzed for VOCs, SVOCs, total and filtered TAL inorganics, and explosives. Six sediment samples were analyzed for TAL inorganics, explosives, TOC, and pH. Six surface water samples were analyzed for total and filtered TAL inorganics, explosives, and hardness. Figure 2 illustrates the locations of all the RI sampling points. The sampling analytical results are summarized below.

Surface Soil: Surface soil exhibited low levels of VOCs and SVOCs, particularly in the western part of the site. VOC and SVOCs were detected in 11 and 10 surface soil samples, respectively. VOC detections include TCE, cyclohexane, ethylbenzene, toluene, and xylenes. Most commonly detected SVOCs include benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene. Twenty four inorganics, most commonly arsenic, iron, lead, and manganese, were detected at concentrations above the facility-wide background concentrations. Low concentrations of explosives were detected in four surface soil samples.

Subsurface Soil: Low concentrations of VOCs were detected in the subsurface soil, primarily around the former discarded drums area. SVOCs were detected in five samples; most of them are "J" (estimated) qualified, except for benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, carbazole, fluoranthene, and pyrene. Twenty three inorganic analytes were detected in subsurface soil samples; ten were detected in one or more samples at concentrations above the facility-wide background, most commonly arsenic, iron, lead, and manganese. Very low concentrations of explosives were detected in five subsurface soil samples.

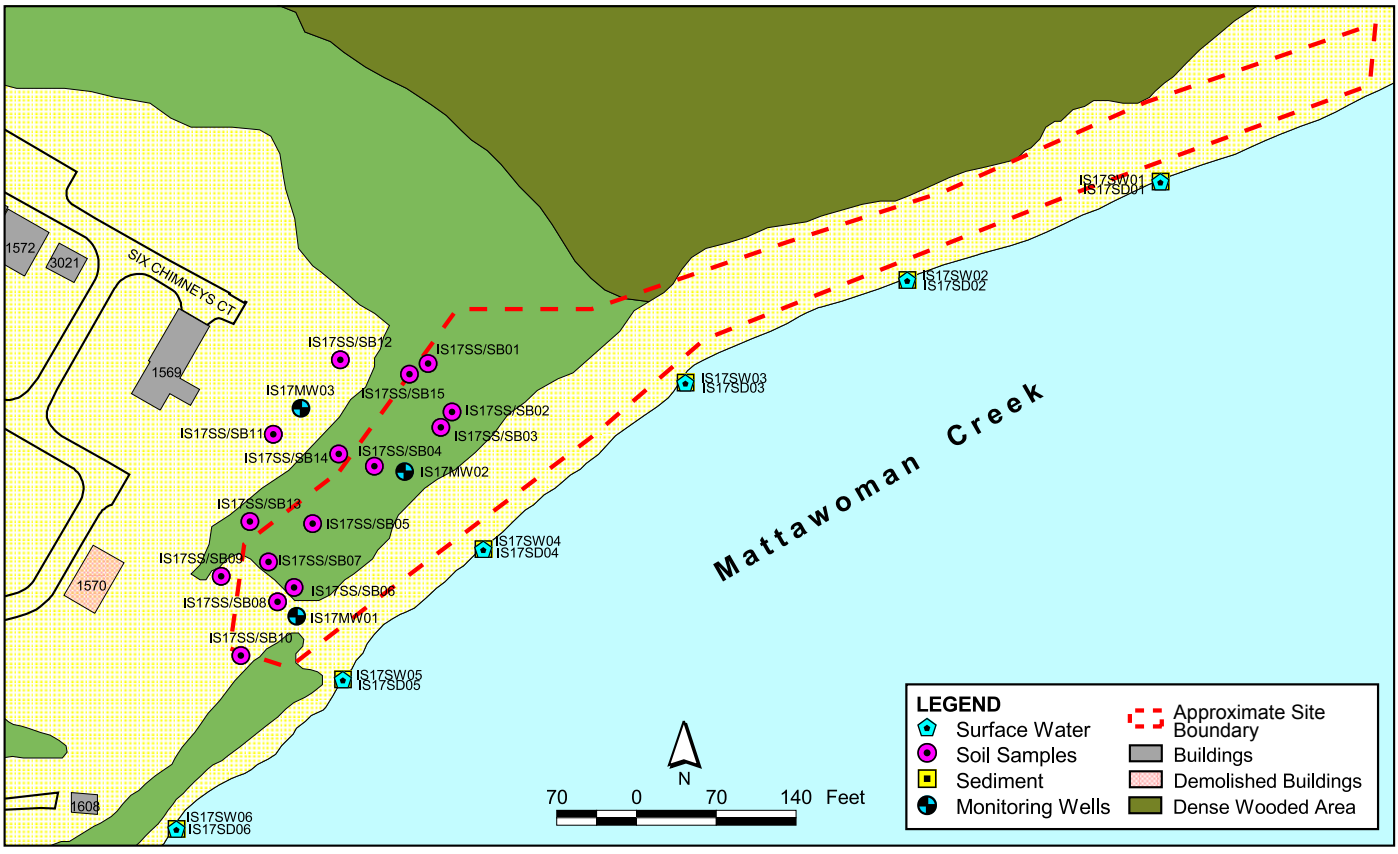


Figure 2 – RI Sampling Locations

Groundwater: A total of four samples were collected including three primary samples and a duplicate sample. Detections of VOCs, explosives, and metals were observed in all monitoring wells. High concentrations of cis-1,2-DCE and VC were observed in one well, IS17MW02. Other VOCs were detected at low concentrations. Very low concentrations of explosives were detected in all monitoring wells. Twenty four inorganics, most commonly aluminum, arsenic, chromium, iron, manganese, and vanadium, were detected at concentration above the facility-wide background concentrations. Very low concentrations of SVOCs (4-methylphenol and phenol) were detected in one well, IS17MW01.

Sediment: A total of six sediment samples (no duplicate) were collected along the shoreline of Site 17. Low concentrations of explosives were detected at three locations. Twenty one inorganics were detected from all sampling locations. Thirteen of these, most commonly arsenic, iron, lead, and manganese, were detected in one or more samples at a concentration above the facility-wide background concentrations. In general, downstream samples (from locations IS17SD05 and IS17SD06) exhibited the highest concentrations and most frequent detections of metals among all sediment samples. These samples were collected closest to Site 11, which has been shown to be a source of metals to sediment at that site.

Surface Water: A total of seven surface water samples (including one duplicate) were collected along the shoreline of Site 17, at the locations where the sediment samples were collected. Very low concentrations were observed for all analytes.

A baseline human health risk assessment and a **screening-level ecological risk assessment (SERA)** were performed as part of the RI. The results are presented in the "Summary of Site Risks" section.

Pre-Feasibility Study

Following the RI, a Pre-Feasibility Study was conducted in 2002 to define the distribution of VOCs (specifically, TCE, cis-1,2-dichloroethene [cis-1,2-DCE], and vinyl chloride [VC]) in groundwater, to determine if VOCs in groundwater are adversely affecting Mattawoman Creek, and to assess the viability of MNA as a remedial alternative for groundwater (CH2M HILL, 2002). A tidal study was also conducted to determine the influence of the tides on groundwater levels. Key findings are summarized below:

- The potential presence **of dense non-aqueous phase liquid (DNAPL)** is indicated by a TCE concentration of 310,000 µg/L from the **direct-push technology (DPT)** groundwater sample collected at IS17GW02. The value represents 28.2% of the pure-phase solubility of TCE (1.1×10^6 µg/L), which suggests the presence of DNAPL (EPA, 1994).

Photograph 1: Looking southeast across Site 17 towards Mattawoman Creek

- There were no detections of TCE, cis-1,2-DCE, and VC in surface water samples taken from Mattawoman Creek; this suggests that VOCs in groundwater are not adversely affecting Mattawoman Creek.
- Key natural attenuation indicators and favorable geochemical conditions for natural biodegradation were found to be present.

Engineering Evaluation/Cost Analysis (EE/CA) and Non Time-Critical Removal Action

An EE/CA was completed in August 2004 (CH2M HILL, 2004b), which resulted in a **non-time-critical removal action (NTCRA)** of soil and rusted drums that was completed in December 2005 (FSSI, 2006). The purpose of the removal action was to mitigate the risks to **ecological receptors** associated with surface soil to acceptable levels through excavation and removal of the soil and drums from the site. After the removal action, the site was restored as an open grassy area (Photograph 1). Figure 3 shows the drum removal and excavation area.

Baseline Ecological Risk Assessment

A BERA was conducted in 2004 to further evaluate potential ecological risks from metal contamination in the nearshore sediment resulting from the historical disposal of metal parts along the Mattawoman Creek shoreline within Sites 11 and 17 (CH2M HILL, 2005). The results showed that no unacceptable risk was associated with the sediment at Site 17.

Additional Investigation

The *Pre-Draft Focused Feasibility Study (FS) Report for Site 17 Groundwater* (CH2M HILL, 2004c) recommended an additional investigation to address data gaps before finalizing the FS. The objectives of this additional investigation were as follows: 1) define the boundary and estimate the mass of the chlorinated VOCs in groundwater for ***in situ* chemical oxidation (ISCO)** treatment; 2) evaluate

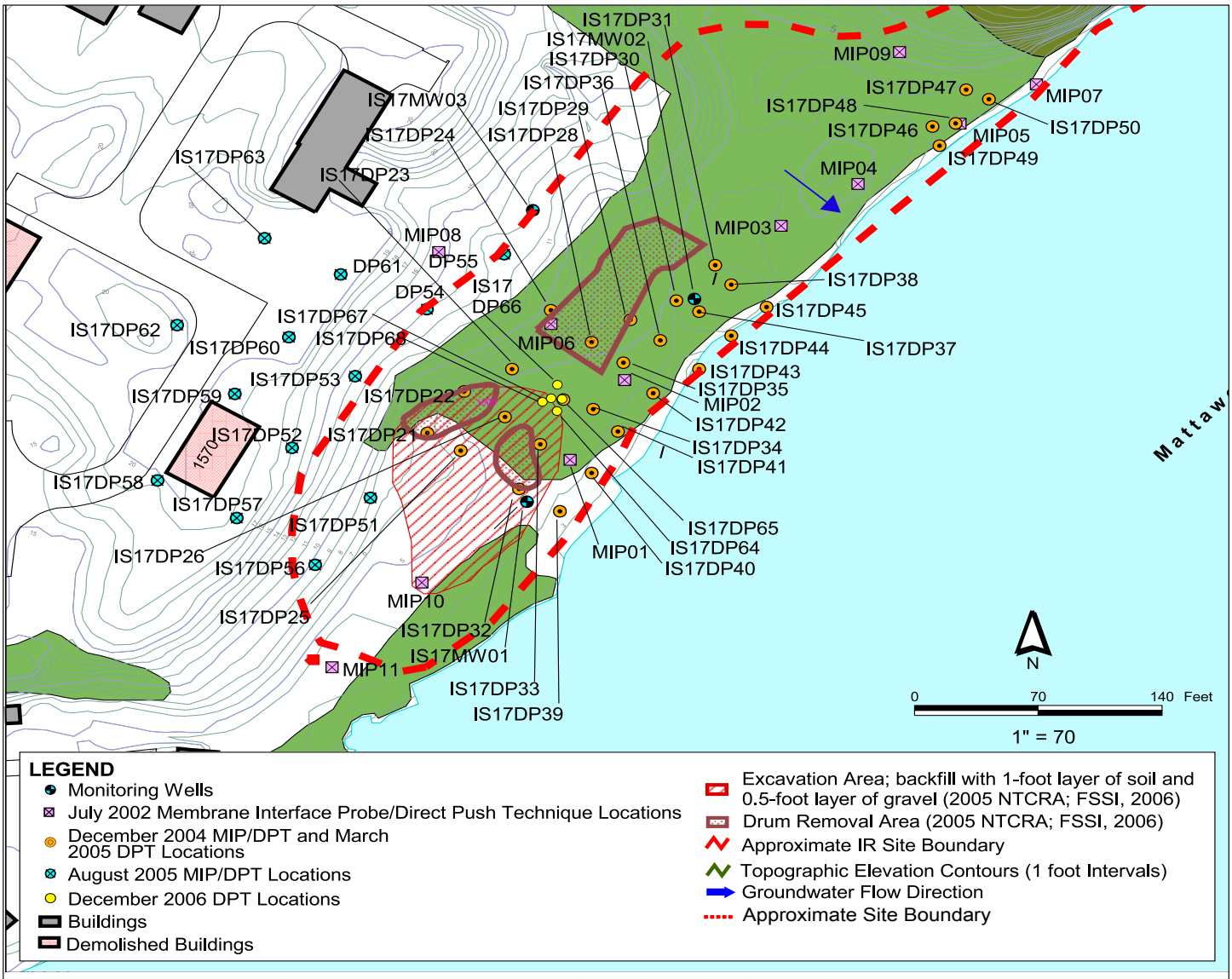


Figure 3 - NTCRA Area and Sampling Locations During the Additional and Upgradient Investigations

natural attenuation characteristics of groundwater; and 3) determine temporal trends in chlorinated VOC concentration in groundwater.

The objectives were met through the following activities:

- **Membrane Interface Probe (MIP)** investigation – MIP advancement at four locations (MIPA4, MIPB4, MIPC4, and MIPD3) to a depth range of 14 and 22 feet bgs. Refusal was encountered at the fifth location (MIPD4).
- Monitoring well sampling – measurement of water levels and field parameters and collection of three primary samples and a duplicate sample for **Target Compound List (TCL)** VOCs, filtered organic carbon, iron and manganese, chloride, nitrate/nitrite, sulfate, and methane, ethane, ethene (MEE).
- **Hydraulic Conductivity (K)** test - measurement of K from all three monitoring wells by a slug test.
- DPT groundwater sampling - Forty-one groundwater grab samples were collected from 30 locations (IS17DP21 through IS17DP50) using a DPT rig from February 22, 2005, through March 2, 2005. Twenty-eight shallow (2-foot depth interval below the water table) groundwater samples were collected from all locations except locations IS17DP30 and IS17DP43 because groundwater was not encountered at these locations. Thirteen deep (2-foot depth interval above the low-conductivity clay layer) groundwater samples were collected from locations IS17DP22 through 24, IS17DP26 through 28, IS17DP32 through 34, IS17DP36, and IS17DP40.
- Ten shallow and deep groundwater samples were further analyzed for filtered organic carbon. These samples were collected from six locations: IS17DP32, IS17DP35, IS17DP37, IS17DP40, IS17DP42, and IS17DP48.
- VOCs were detected in all groundwater samples collected. The most commonly detected VOCs (detected in more than 50 percent of the samples) were cis-1,2-DCE, total 1,2-DCE, VC, and TCE. Both cis-1,2-DCE and total 1,2-DCE were detected in 37 of the samples, in concentrations ranging from 1 µg/L to 220,000 µg/L

and 1 µg/L to 170,000 µg/L, respectively. VC concentrations ranged from 1 µg/L to 80,000 µg/L in 33 of the samples. Detections of TCE ranged from 2 µg/L to 490,000 µg/L in 26 of the samples.

Figure 3 shows the sampling locations during the Additional Investigation.

Upgradient Investigation

The results of the 2004-2005 additional investigation indicated that the extent of chlorinated VOCs west of the site was not delineated. Consequently, upgradient MIP and DPT sampling occurred from August 29, 2005, through September 1, 2005. The objectives of the upgradient investigation were: 1) determine if there is an upgradient source of chlorinated VOCs and 2) delineate the chlorinated VOCs on the western portion of the site. Figure 3 shows the sampling locations during the Upgradient Investigation.

A total of 17 DPT groundwater samples were collected from 12 locations and analyzed for TCL VOCs. Of the 17 samples collected, 12 samples were collected from one depth interval at each location; 3 samples were collected from a second depth interval at three locations (IS17DP54, IS17DP55, and IS17DP56); and 2 samples were duplicate samples. In general, the DPT groundwater results indicated that the VOC plume was laterally delineated to the west of the site.

VOCs were detected in 11 of the 17 groundwater samples collected. The most commonly detected VOC was TCE, which was detected in 7 of the samples. The next most commonly occurring VOC detections were total 1,2-DCE, 2-butanone, and cis-1,2-DCE, with five detections each.

Bench-scale Studies

The draft version of the FS (CH2M HILL, 2006) identified uncertainties associated with the effectiveness of selected ISCO technologies for treating TCE. Subsequently, bench-scale studies were conducted to evaluate the effectiveness of certain ISCO technologies (CH2M HILL, 2008a). The specific objectives of the bench-scale studies were to: 1) evaluate the effectiveness of select ISCO in treating TCE; 2) determine the site-specific demand of reagents; and 3) identify potential side effects of the select technologies that may not be compatible with the current site use.

The overall findings of the bench-scale studies suggest that: 1) the COC contamination primarily lies within the saturated vertical interval of approximately 8 to 18 feet bgs in the silty clay soil; 2) both unactivated and iron-activated persulfate as oxidant were equally effective and efficient for treating TCE; and 3) soil mixing shall be considered as treatment reagent delivery method because of the tight soil.

Feasibility Study

An FS was completed to address potential sources of contamination at Site 17 and to evaluate remedial alternatives to mitigate potential hazards associated with the shallow groundwater (CH2M HILL, 2008b). These remedial alternatives are presented for public comment in this document.

What is a "Principal Threat?"

The National Contingency Plan establishes an expectation that EPA will use treatment to address "principal threats" posed by a site wherever practicable [40 CFR Section 300.430 (a)(1)(iii)(A)]. The "principal threat" concept is applied to the characterization of "source materials" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to groundwater, surface water, or air, or acts as a source for direct exposure. Contaminated groundwater generally is not considered to be a source material; however, non-aqueous-phase liquids (NAPLs) in groundwater may be viewed as a source material. Principal threat wastes are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur. The decision to treat these wastes is made on a site-specific basis through a detailed analysis of the alternatives using the nine remedy selection criteria. If, through this analysis, a treatment remedy is selected, then this selection is reflected in the Record of Decision, which will include a finding that the remedy uses treatment as a principal element.

Principal Threats

The principal threat in Site 17 is the potential presence of the TCE DNAPL. A remedial alternative involving treatment will be used to eliminate this significant risk to human health. Principal threats are explained in the box on this page.

Scope and the Role of the Action

This Proposed Plan addresses the evaluation of the preferred alternative for Site 17 only. It does not include or directly affect any other sites at the facility. The purpose of this Proposed Plan is to summarize activities performed to date to investigate Site 17 and provide a rationale for the proposed response action. The preferred remedy is to use ISCR via one-time soil mixing in the area where TCE concentration exceeds or equals 1,000 µg/L, MNA in the remaining area where the SRGs are exceeded, and ICs.

Summary of Site Risks

This section presents an overview of the risks associated with the current and future land uses of Site 17. A detailed discussion of potential risks at Site 17 and the risk evaluation process can be found in the *Final Remedial Investigation Report, Sites 11, 13, 17, 21, and 25, Naval District Washington Indian Head, Indian Head, Maryland (CH2M HILL, 2004a), Final Baseline Ecological Risk*

WHAT IS HUMAN HEALTH RISK AND HOW IS IT CALCULATED?

A human health risk assessment estimates "baseline risk." This is an estimate of the likelihood of health problems occurring if no cleanup action were taken at a site. The Navy undertakes a four-step process to estimate baseline risk at a site:

Step 1: Analyze Contamination
Step 2: Estimate Exposure
Step 3: Assess Potential Health Dangers
Step 4: Characterize Site Risk

In Step 1, the Navy looks at the concentrations of contaminants found at a site as well as past scientific studies on the effects these contaminants have had on people (or animals, when human studies are unavailable). Comparisons between site-specific concentrations and concentrations reported in past studies help the Navy to determine which contaminants are most likely to pose the greatest threat to human health.

In Step 2, the Navy considers the different ways that people might be exposed to the contaminants identified in Step 1, the concentrations that people might be exposed to, and the potential frequency and duration of exposure. Using this information, EPA calculates a "reasonable maximum exposure" (RME) scenario that portrays the highest level of human exposure that reasonably could be expected to occur.

In Step 3, the Navy uses the information from Step 2, combined with information on the toxicity of each chemical, to assess potential health risks. The Navy considers two types of risk: cancer risk and non-cancer risk. The likelihood of any kind of cancer resulting from a site is generally expressed as an upper-bound probability, for example, a "1 in 10,000 chance." In other words, for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure to site contaminants. An extra cancer case means that one more person could get cancer than would normally be expected to from all other causes. For non-cancer health effects, the Navy calculates a "hazard index (HI)." The key concept here is that a "threshold level" (measured usually as a hazard index of less than 1) exists below which adverse, non-cancer health effects are no longer predicted.

In Step 4, the Navy determines whether site risks are great enough to cause health problems for people at or near the site. The results of the three previous steps are combined, evaluated, and summarized. The Navy adds together the potential risks from the individual contaminants to determine the total risk resulting from the site.

Assessment Report, Sites 11 and 17, Naval District Washington Indian Head, Indian Head, Maryland (CH2M HILL, 2005), and Final Site 17 Groundwater Feasibility Study, Naval Support Facility, Indian Head, Indian Head, Maryland (CH2M HILL, 2008b).

Human Health Risks

As part of the RI, a baseline **human health risk assessment (HHRA)** was performed for soil, surface water, sediment, and groundwater at Site 17 to determine current and future effects of constituents in site media on human health. Section 6.6 in the RI report details the HHRA. Table 6-10 of the RI report summarizes the calculated risk estimates for exposure to combined surface and subsurface soil and groundwater.

Chemicals of potential concern (COPCs) were identified for each medium in the initial screening of site chemicals against values based on EPA Region III risk-based concentrations (RBCs). Because the screening process is conservative, the identification of COPCs does not necessarily mean that a risk exists. These COPCs were further screened in subsequent steps in the HHRA process to identify the COCs for each medium evaluated. The text box on page 7, provides an explanation of the human health risk assessment process.

During the FS process, the HHRA COCs were further evaluated to determine which COCs would require remediation. Note that not all of the COCs identified in the HHRA process require remediation.

Soil

The baseline HHRA for soil evaluated the current and potential future effects of **contaminants** in surface and subsurface soils on human health. The potential receptors identified and evaluated in the risk assessment were those associated with the following uses:

- For current land uses: adolescent trespasser/visitor and adult trespasser/visitor; there is no current exposure to site or construction workers because the site is not currently used
- For future land uses: adolescent trespasser/visitor, adult trespasser/visitor, adult resident, child resident, industrial worker, and construction worker

The Navy evaluated the residential exposure scenario to confirm that no land use restrictions would be necessary at the site. The site is part of an industrial facility. It is unlikely that this land use will change in the future.

The risk assessment initially screened the observed maximum concentration of all constituents against their respective EPA Region III residential soil RBCs. For the current scenario, surface soil concentrations were used in the risk assessment. For the future scenario, the soil concentration was estimated by pooling the results from the analyses of the surface soil and subsurface soil because it was assumed that future construction or excavation activities would result in mixing of surface and subsurface soils.

Surface Soil: The baseline risk assessment concluded that under current site use conditions, surface soil does not represent an unacceptable risk to the adolescent trespassers/visitors and adult trespassers/visitors. This means that the non-cancer **hazard index [HI]** was below 1 and the calculated **carcinogenic** risk was within the EPA's acceptable cancer risk range of 1×10^{-4} to 1×10^{-6}.

Combined Surface and Subsurface Soil: Under future land use conditions, combined surface and subsurface soil does not represent unacceptable risks (both non-cancer and cancer) to the adult resident, adolescent trespassers/visitors, adult trespassers/visitors, industrial

workers, and construction workers. Soil, however, posed unacceptable non-cancer risks to the child resident (HI = 2.7), based on the **reasonable maximum exposure** scenario. This HI was above the EPA's benchmark of 1, and was mostly attributable to incidental ingestion of iron. Based on the current condition, this hazard is likely overestimated because the drums and surface soil (1-foot layer) that served as a continuing source of iron contamination were removed during the 2005 NTCRA.

Surface Water

No COPCs were identified for surface water; therefore, exposure to surface water was not quantified in the risk assessment.

Sediment

The baseline HHRA performed for sediment evaluated the current and potential future effects of sediment contaminants on human health. The potential receptors identified and evaluated in the risk assessment included those associated with the following uses:

- For current and future land uses: adult and child recreational users

Under current and future land use conditions, sediment does not represent unacceptable risks (both non-cancer and cancer) to the adult and child recreational users.

Groundwater

The baseline HHRA performed for shallow groundwater evaluated the potential future effects of groundwater contaminants on human health. The potential receptors identified and evaluated in the risk assessment included those associated with the following uses:

- For future land uses: adult resident, child resident, and construction worker

In groundwater, the unacceptable human health risks were associated with the following:

- Non-carcinogenic hazard (HI = 64) from the use of groundwater as a potable residential water supply for future adult resident; hazard is associated with exposure mostly to VC, and cis-1,2-DCE, with iron, manganese, and vanadium contributing.
- Non-carcinogenic hazard (HI = 131) from the use of groundwater as a potable residential water supply for future child resident; hazard is associated with exposure to VC, cis-1,2-DCE, aluminum, chromium, iron, manganese, and vanadium.
- Carcinogenic risk (6.9×10^{-2}) to future lifetime resident associated with exposure to VC.
- Non-carcinogenic hazard (HI = 1.7) for future construction worker associated with exposure to VC in groundwater during excavation.

WHAT IS ECOLOGICAL RISK AND HOW IS IT CALCULATED?

An ecological risk assessment evaluates the potential adverse effects that human activities have on the plants and animals that make up ecosystems. The ecological risk assessment process follows a phased approach similar to that of 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

The problem formulation includes:

- Identifying area(s) and environmental media (e.g., surface water, soil, sediment) in which site-related constituents may be present;
- Evaluating potential transport pathways (i.e., movement) of constituents in these areas/media;
- Consideration of site-specific habitat information for identification of ecological receptors; and
- Identifying exposure pathways and routes for these receptors.

Step 2: Risk Analysis

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

Step 3: Risk Characterization

The risk characterization uses all of the information identified in the first two steps to estimate the risk to plants and animals. This step also includes an evaluation of the uncertainties (potential degree of error) associated with the predicted risk evaluation and their effects on the conclusions that have been made.

Ecological Risk Assessment

An SERA was conducted for Site 17 to estimate the risks the site would pose to ecological receptors if no action were taken. The SERA provided a conservative assessment of potential ecological risk. The general approach and site-specific approach for the ecological risk assessment are discussed in Section 3.4 and Section 6.7, respectively, in the RI report. Ecological risks were identified in soil and sediment. Lead, mercury, and zinc risks in surface soil were addressed through a removal action, which was completed in December 2005. Risk in sediment was further evaluated in the BERA, as discussed in Section 2.2.5 of the FS report. The BERA results concluded that there is no unacceptable risk associated with the sediment at Site 17. The ecological risk assessment process is explained in the box on this page.

Remedial Action Objectives

The **Remedial Action Objectives (RAOs)** for Site 17 shallow groundwater are:

- Prevent unacceptable risks to human receptors from exposure to contaminants in the shallow groundwater

- Prevent migration or discharge of groundwater with FS COCs above SRGs to Mattawoman Creek
- Return the shallow groundwater to its beneficial use to the extent practicable

Summary of Remedial Alternatives

Section 3.4 of the FS report discusses how the SRGs for Site 17 were developed for the COCs in groundwater. The SRGs were identified based on the greater of site-specific, **preliminary remediation goals (PRGs)**, facility-wide background concentrations (95 percent **Upper Confidence Limit**), or State of Maryland or federal groundwater MCLs, unless this value was deemed to provide insufficient protection of human health, in which case an SRG that was protective and/or conforms with EPA, MDE, and Navy environmental restoration guidance was selected by risk managers. The Navy Environmental Restoration Program Manual (Navy, 2006) recommends not performing any remediation to levels below background concentrations.

A human health risk-based PRG was not developed for TCE because it was not detected in the monitoring well groundwater samples. Based on the additional investigation and upgradient investigation analytical results, it was concluded that all three RI monitoring wells were constructed on the periphery of the VOC plumes. Furthermore, the DPT groundwater result at location IS17DP27 was observed at a concentration of 870,000 µg/L; this translates to approximately 82 percent of its solubility limit, a strong indication of DNAPL. In addition, TCE represents a constituent that would be originally released to the environment rather than a breakdown product such as cis-1,2-DCE or VC. For these reasons, the SRG evaluation for TCE will not follow the steps outlined above for the other FS COCs. The MCL of 5 µg/L will be used as the SRG for TCE.

For the FS COCs other than TCE, PRGs were calculated for the potential future adult resident, future child resident, future lifetime resident, and future construction worker, although it is unlikely that the site will become a residential area. The technical memorandum provided in Appendix H of the FS report summarizes the risk results used to identify the constituents for inclusion in the PRG calculations and the results. The higher concentration among the PRG, background concentration, and MCL was selected as the SRG for each FS COC.

To evaluate the FS COCs that require remediation, their respective maximum concentration was compared to the SRGs. If the maximum concentration was greater than the SRG, the FS COC was retained for remediation; if the maximum concentration was less than the SRG, the FS COC was eliminated from the list of COCs required to be addressed by remediation. The table below presents the SRGs for each of the FS COCs requiring remediation.

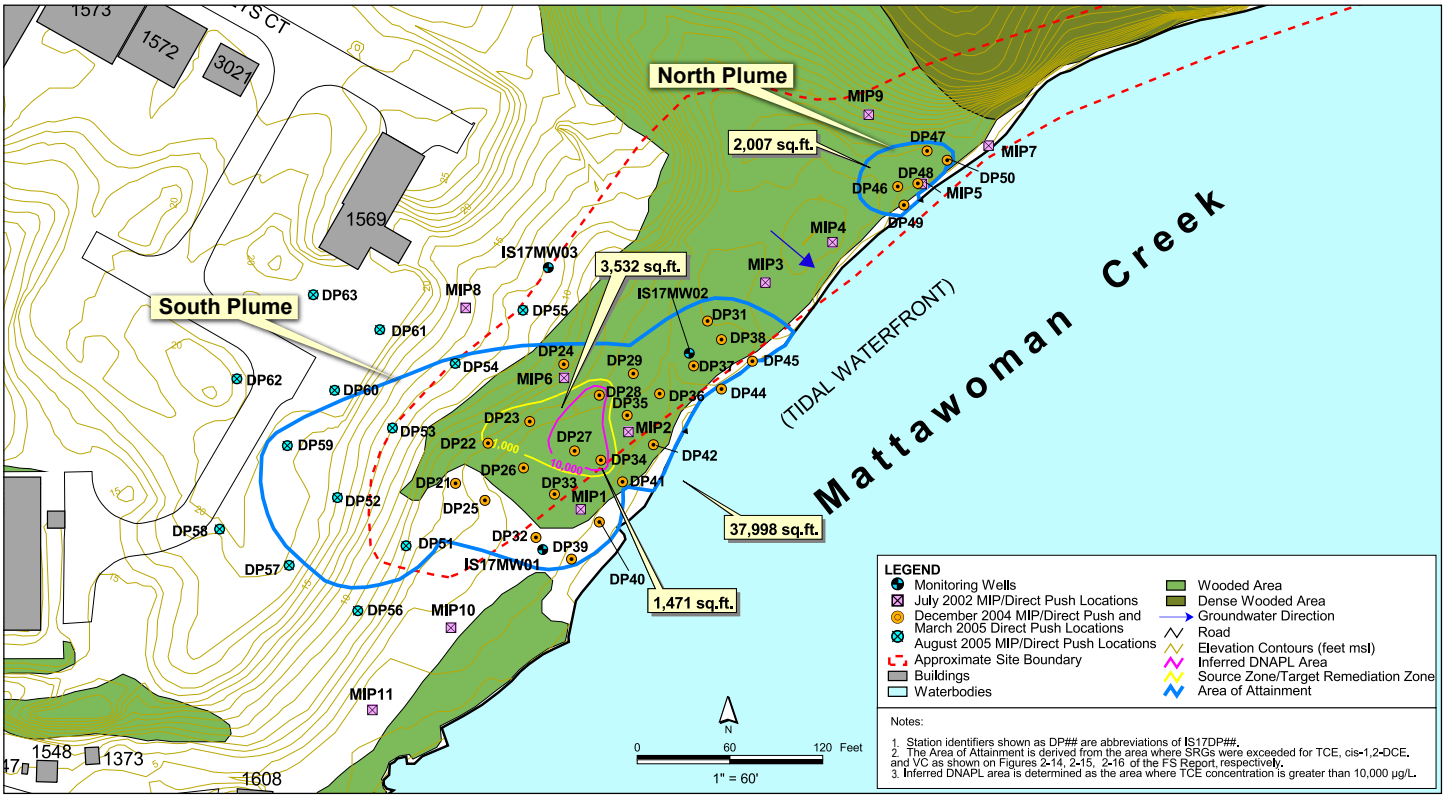


Figure 4 - Area of Attainment and Target Remediation Zone

Contaminants Requiring Remediation	SRG (µg/L)
Trichloroethene	5
cis-1,2-Dichlorothene	150
Vinyl Chloride	2

The area where SRGs are exceeded is defined as the area of attainment (AA). For the shallow groundwater at Site 17, two AAs are identified: South Plume and North Plume. The North Plume encompasses approximately 2,000 square feet (ft^2), and the South Plume encompasses approximately 38,000 ft2 (Figure 4).

Within the South Plume lies the source zone area, where TCE concentrations are greater than 1,000 µg/L. The source zone area consists of two sub- areas: the inferred DNAPL area (TCE > 10,000 µg/L) and the dissolved area (1,000 µg/L < TCE < 10,000 µg/L).

Five remedial alternatives were developed for the AAs. Two alternatives involve the use of a passive approach (no action, MNA, and ICs), and three alternatives involve a combination of active approach (treatment or removal of the source zone) and passive approach (MNA and ICs for the area outside the source zone in the South Plume and all of the North Plume area). The five remediation alternatives are summarized below.

Alternative 1 – No Action

This alternative is required by the NCP as a baseline. Under this alternative, no remediation or action is planned.

Alternative 1 - Estimated Cost	
2007/2008 Capital Cost	$0
Lifetime Operation and Maintenance (O&M) Cost	$0
Lifetime Present-Worth O&M Cost	$0
Projected Time Frame to Achieve RAOs	Not Applicable

Alternative 2 – MNA and ICs

Alternative 2 involves a continuous implementation of ICs in the form of land- and groundwater-use restrictions, in conjunction with a long-term monitoring program for groundwater and surface water to monitor changes in water quality, MNA of COCs, and the potential for offsite migration of COCs.

Alternative 2 - Estimated Cost	
2007/2008 Capital Cost	$24,300
2007/2008 Lifetime O&M Cost	$1,004,400
Lifetime Present-Worth O&M Cost	$460,600
Total Present-Worth Cost	$484,900
Projected Time Frame to Achieve RAOs	100 years

Alternative 3 – Source Zone Treatment using ISCO, MNA, and ICs

Alternative 3 uses ISCO technology for treatment of TCE in the source zone via one-time soil mixing, in conjunction with MNA and ICs. A long-term (30-year) groundwater monitoring program will be used to assess the MNA effectiveness.

Alternative 3 - Estimated Cost	
2007/2008 Capital Cost	$1.526,200
2007/2008 Lifetime O&M Cost	$522,800
Lifetime Present-Worth O&M Cost	$348,200
Total Present-Worth Cost	$1,874,400
Projected Time Frame to Achieve RAOs	30 years

Alternative 4 – Source Zone Treatment using ISCR, MNA, and ICs

Alternative 4 uses ISCR technology via one-time soil mixing for treatment of TCE in the source zone, in conjunction with the MNA components and ICs described in Alternative 2.

Alternative 4 - Estimated Cost	
2007/2008 Capital Cost	$1,394,700
2008 Lifetime O&M Cost	$522,800
Lifetime Present Worth O&M Cost	$348,200
Total Present-Worth Cost	$1,742,900
Projected Time Frame to Achieve RAOs	30 years

Alternative 5 – Source Zone Removal and Offsite Disposal, MNA, and ICs

Alternative 5 removes the contaminant mass in the source zone through excavation and offsite disposal, in conjunction with the MNA components and ICs described in Alternative 2.

Alternative 5 - Estimated Cost	
2007/2008 Capital Cost	$2,866,400
2008 Lifetime O&M Cost	$522,800
Lifetime Present-Worth O&M Cost	$348,200
Total Present-Worth Cost	$3,214,600
Projected Time Frame to Achieve RAOs	30 years

Evaluation of Remedial Alternatives

The NCP outlines the approach for comparing remedial alternatives. Remedial alternatives are evaluated using **nine evaluation criteria** to compare the relative performance of the alternatives and provide a means to identify their advantages and disadvantages. The criteria are:

1. Overall protection of human health and the environment
2. Compliance with **Applicable or Relevant and Appropriate Requirements (ARARs)**
3. Long-term effectiveness and permanence
4. Reduction of toxicity, mobility, and volume
5. Short-term effectiveness
6. Implementability
7. Cost
8. State acceptance
9. Community acceptance

The FS report provides a detailed analysis and evaluation of the remedial alternatives based on criteria 1 through 7. Criteria 8 and 9 will be evaluated after receipt of the public's comments on this Proposed Plan during the 30-day comment period. Table 1 summarizes how each alternative satisfies each criterion and how it compares to the other alternatives.

Preferred Remedial Alternatives

The Navy and EPA, with the support of the MDE, are proposing Alternative 4, source zone treatment using ISCR via one-time soil mixing, MNA in the remaining area where the SRGs are exceeded, and ICs as the final remedy. This alternative is expected to be protective of human health and the environment, and will comply with the ARARs. The components of this alternative include the following:

- Clearing and removal of **munitions and explosives of concern (MEC)** and non-MEC objects prior to soil mixing.
- Applying granular zero valent iron via soil mixing in the area where the TCE concentration exceeds or equals 1,000 µg/L.
- Conducting short-term performance sampling events at baseline (before soil mixing), 6, 9, and 12 months after soil mixing.
- Conducting a long-term groundwater monitoring for an assumed duration of 29 years after completing the short-term performance sampling.
- Conducting 5-year reviews for up to 30 years.
- Implementing and enforcing ICs in the form of land, and groundwater use restrictions such as prohibiting the potable use of groundwater. Any future building construction would require an evaluation of potential human health risks. ICs will be maintained until contaminant levels present allow for unlimited use and unrestricted exposure.

The components of this remedial alternative will be refined or modified when the detailed design of the soil mixing and its auxiliary activities and the performance monitoring plan are prepared after the ROD is signed.

Community Participation

The Navy and EPA provide information regarding the cleanup of NSF-IH to the public through public meetings, the Administrative Record File for the site, **the information repository**, and announcements published in the Southern Maryland Newspapers. The Navy and EPA encourage the public to gain a more comprehensive understanding of the site and **the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** activities that have been conducted at the site.

The public comment period provides the public time to review and comment on the information provided in this Proposed Plan. The 30-day public comment period for this Proposed Plan is February 9, 2009 through March 9, 2009. The public meeting will be held on February 19,

Table 1 - Comparative Analysis of Remedial Alternatives

Criteria	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Overall Protectiveness of Human Health and the Environment	○	○	●	●	●
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	NA	○	●	●	●
Long-Term Effectiveness and Permanence	○	○	●	●	●
Reduction of Toxicity, Mobility or Volume Through Treatment	○	○	●	●	◉
Short-Term Effectiveness	○	◉	◉	◉	○
Implementability	●	●	●	●	●
Cost (Millions)[1]	$0	$0.5	$1.87	$1.74	$3.2
State/Support Agency Acceptance	○	○	●	●	●
Community Acceptance	To Be Determined	To Be Determined	To Be Determined	To Be Determined	To Be Determined

Ranking: ● Satisfies criterion ◉ Partially satisfies criterion ○ Does not satisfy criterion

Alternative 1 – No Action
Alternative 2 – Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)
Alternative 3 – Source Zone Treatment using In Situ Chemical Oxidation (ISCO), MNA, and ICs
Alternative 4 – Source Zone Treatment using In Situ Chemical Reduction (ISCR), MNA, and ICs
Alternative 5 Source Zone Removal and Offsite Disposal, MNA, and ICs
NA – Not Applicable
1 – Cost is the total present worth value ($Million); Cost accuracy ranges from -30% to +50%.

2009, from 6:00 P.M. to 7:00 P.M. at the Indian Head Senior Center, 100 Cornwallis Square, Indian Head, Maryland. The location of the Administrative Record and information repository are provided on Page 1 of this Proposed Plan.

Minutes of the public meeting will be included in the Administrative Record file. All comments received during the public meeting and comment period will be summarized, and responses will be provided in the **Responsiveness Summary** section of the ROD. The ROD is the document that will present the selected remedy and will be included in the Administrative Record file.

Written comments can be submitted via mail, e-mail, or fax, and should be sent to the following addressee:

Naval Support Activity South Potomac
Attn: Public Affairs Officer, Code 00P
6509 Sampson Rd.
Dahlgren, VA 22448-5108
(540) 653-1475
(540) 653-6148 (Fax)
gary.wagner@navy.mil

For further information, please contact:

Mr. Jeffrey Bossart – Installation Restoration Project Manager
Naval Support Facility, Indian Head
Environmental Program Office
3972 Ward Road, Suite 101
Indian Head, MD 20640-5157
Phone: 301-744-4705
Fax: 301-744-4180
Email: jeffrey.bossart@navy.mil

Mr. Joe Rail – Remedial Project Manager
Naval Facilities Engineering Command Washington
1314 Harwood St. SE
Washington Navy Yard, DC 20374-5018
Phone: 202-685-3105
FAX: 202-433-6193
Email: joseph.rail@navy.mil

Mr. Nathan Delong – Remedial Project Manager
Naval Facilities Engineering Command Washington
1314 Harwood St. SE
Washington Navy Yard, DC 20374-5018
Phone: 202-685-3279
FAX: 202-433-6193
Email: nathan.delong@navy.mil

Mr. Dennis Orenshaw – Remedial Project Manager
U.S. Environmental Protection Agency, Region III
1650 Arch Street
Philadelphia, PA 19103-2029
Phone: 215-814-3361
FAX: 215-814-3051
Email: orenshaw.dennis@epa.gov

Mr. Curtis DeTore – Remedial Project Manager
Maryland Department of the Environment
1800 Washington Blvd., Suite 645
Baltimore, MD 21230-1719
Phone: 410-537-3344
FAX: 410-537-4133
Email: cdetore@mde.state.md.us

References

A.T. Kearney, Inc. 1988. *Phase II RCRA Facility Assessment of the Naval Ordnance Station, Indian Head,* Maryland.

CH2M HILL. 2002. *Pre-Feasibility Study Field Activities and Results, Site 17, Indian Head Division – Naval Surface Warfare Center, Indian Head, Maryland*. September.

CH2M HILL. 2004a. *Final Remedial Investigation Report, Sites 11, 13, 17, 21, and 25, Naval District Washington, Indian Head, Indian Head, Maryland*. April.

CH2M HILL. 2004b. *Final Site 17 Engineering Evaluation/Cost Analysis, Naval District Washington, Indian Head, Indian Head, Maryland.* August.

CH2M HILL. 2004c. *Pre-Draft Focused Feasibility Study Site 17 Groundwater, Naval District Washington, Indian Head, Indian Head, Maryland.* June.

CH2M HILL. 2005. *Final Baseline Ecological Risk Assessment Report, Sites 11 and 17, Naval District Washington Indian Head, Indian Head, Maryland.* July.

CH2M HILL. 2006. *Draft Site 17 Feasibility Study, Naval Support Facility, Indian Head, Indian Head, Maryland.* November.

CH2M HILL. 2008a. *Draft Memorandum Results of the Site 17 Bench-Scale Studies, NSF-IH, Indian Head, Maryland.* April.

CH2M HILL. 2008b. *Final Site 17 Groundwater Feasibility Study, Naval Support Facility, Indian Head, Indian Head, Maryland.* October.

EPA. 1994. *DNAPL Site Characterization*. OSWER 9355.4-16FS. EPA/540/F-94/049. September.

Fred C. Hart Associates, Inc. 1983. *Initial Assessment Study of Naval Ordnance Station, Indian Head, Maryland.*

FSSI. 2006. *Final Closeout Report Remedial/Removal Action for Site 42 – Olsen Road Landfill and Site 17, NSF-IH, Indian Head, Maryland.* December.

Navy. 2006. *Navy Environmental Restoration Program Manual.* August.

Glossary of Terms

Administrative Record File: A record made available to the public that includes all information considered and relied on in selecting a remedy for a site.

Applicable or Relevant and Appropriate Requirements (ARARs): State and Federal laws and regulations that must be complied within the implementation of a remedial action.

Background: Area not affected by facility or site activities.

Baseline Ecological Risk Assessment (BERA): BERAs are used to estimate whether current or future chemical exposures will pose risks to the site ecological community. A site BERA is more complex than a site SERA and occurs after SERA has been completed.

Carcinogenic: Causing or inciting cancer.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act of 1986 (SARA). CERCLA provides the authority and procedures for responding to releases of hazardous substances, pollutants, and contaminants from inactive hazardous waste disposal sites.

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

Contaminant: Any physical, biological, or radiological substance or matter that, at a high enough concentration, could have an adverse effect on human health or the environment.

Contaminants of Concern (COCs): COCs are the site-specific chemical substances that have been selected for further evaluation of potential health effects. Identifying COCs is an iterative process that requires a health assessor to examine contaminant concentrations at the site, the quality of environmental-sampling data, and the potential for human exposure.

Dense Non-Aqueous Phase Liquid (DNAPL): A DNAPL is a liquid that is denser than water and does not dissolve or mix easily in water.

Direct-Push Technology (DPT): DPT is a category of equipment that pushes or drives steel rods into the ground. They allow cost-effective, rapid sampling and data collection from unconsolidated soils and sediments.

Ecological Receptors: Non-human plant or animal species that may be exposed to site contaminants.

Feasibility Study (FS): An analysis of the appropriateness, efficacy, feasibility, and cost of potential remedial options or cleanup alternatives for a site.

Hazard Index (HI): The Highest daily intake of a chemical not expected to cause adverse effects. The reference dose represents the highest daily intake of a chemical not expected to cause adverse health effects. Therefore, an HI of 1 means that the amount to which a receptor is exposed is equivalent to the highest amount not expected to cause adverse health effects.

Human Health Risk Assessment (HHRA): Human health risk assessments are used to estimate whether current or future chemical exposures will pose health risks to individuals or a broad population.

Hydraulic conductivity (K): A property of soil or rock that describes the ease with which water can move through pore spaces or fractures.

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

Initial Assessment Study (IAS): The first of two phases of environmental investigation under the Navy Assessment and Control of Installation Pollutants program. The IAS is a preliminary evaluation of a facility that (1) identifies areas potentially contaminated by previous handling, storage, and disposal of hazardous substances; (2) assesses the potential effects of the contamination on human health and animals; and (3) recommends remedial measures appropriate for the contaminated areas. The second phase of the Navy Assessment and Control of Installation Pollutants program, the Confirmation Study, is completed if further action is required.

Inorganic: Inorganic compounds are considered to be of mineral, not biological, origin.

In Situ Chemical Oxidation (ISCO): The introduction of a chemical oxidant into the subsurface for the purpose of transforming groundwater or soil contaminants into less harmful chemical species.

In Situ Chemical Reduction (ISCR): The introduction of a chemical reductant into the subsurface for the purpose of transforming groundwater or soil contaminants into less harmful chemical species.

Institutional Control (IC): A legal or administrative action or requirement imposed on a property to limit or prevent property owners or other people from coming into contact with contamination on the property. Institutional controls may be used to supplement a cleanup (by limiting contact with residual contamination), or may be used instead of conducting a cleanup. Examples include deed notices, deed restrictions, and long-term site monitoring or site security requirements.

Lifetime Present-Worth Cost: The sum of all discounted (i.e., finding the present value at some future date) costs over the lifetime of the project.

Maximum Contaminant Level (MCL): MCLs are standards that are set by the U.S. Environmental Protection Agency (EPA) for drinking water quality in Title 40 of the Code of Federal Regulations. An MCL is the legal threshold limit on the amount of a hazardous substance that is allowed in drinking water under the Safe Drinking Water Act.

Membrane Interface Probe (MIP): A screening tool with semi-quantitative capabilities, acting as an interface between the contaminants in the subsurface and gas phase detectors at the surface.

Monitored Natural Attenuation (MNA): Natural attenuation relies on natural processes (e.g., microbial action, adsorption, absorption, dilution, evaporation) to clean up or attenuate pollution in soil and groundwater. The right conditions must exist underground to clean sites properly, and scientists monitor or test these conditions to make sure natural attenuation is working.

Munitions and Explosives of Concern (MEC): Classification for those military munitions that pose an explosive safety risk. Military munitions include all ammunitions

products and components produced for or used by the armed forces for national defense and security.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): 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): EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response. The list is based, primarily, on the score a site receives on the Hazard Ranking System. EPA is required to update the NPL at least once a year.

Nine Evaluation Criteria: Criteria used by EPA at all Superfund sites to evaluate remediation alternatives and select a preferred alternative to be presented in a Proposed Plan.

Non-Time-Critical Removal Action (NTCRA): NTCRAs are appropriate responses to releases where a planning period of at least 6 months is available before onsite activities must begin and the need is less immediate.

Organic: Organic compounds are considered to be from biological origins.

pH: pH is the measure of the acidity or alkalinity of a solution, and is a measure of the effective concentration of dissolved hydrogen ions (H+).

Preliminary Remediation Goals (PRGs): PRGs are useful for risk assessment and decision making at CERCLA sites. PRGs are upper concentration limits for specific chemicals in specific environmental media that are anticipated to protect human health or the environment.

Proposed Plan: A public participation requirement of the Superfund Amendments and Reauthorization Act (SARA) in which the lead agency summarizes the preferred cleanup strategy and rationale for the public. This agency also reviews the alternatives presented in the detailed analysis of the FS. The Proposed Plan may be prepared either as a fact sheet or as a separate document. In either case, it must actively solicit public review and comment on all alternatives under consideration.

Reasonable Maximum Exposure: The maximum exposure reasonably expected to occur in a population.

Resource Conservation and Recovery Act (RCRA): RCRA is the United States' primary law governing the disposal of solid and hazardous waste. RCRA, which amended the Solid Waste Disposal Act of 1965, set national goals for protecting human health and the environment from the potential hazards of waste disposal, conserving energy and natural resources, reducing the amount of waste generated, and ensuring that wastes are managed in an environmentally sound manner.

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

Remedial Investigation (RI): An in-depth study designed to gather data needed to determine the nature and extent of contamination at a Superfund site, establish site cleanup criteria, identify preliminary alternatives for response action, and support technical and cost analyses of alternatives.

Remedial Action Objectives (RAOs): Describes what the proposed site cleanup is expected to accomplish. These objectives typically serve as the design basis for the remedial alternatives.

Response Action: As defined by Section 101(25) of CERCLA, a removal, remedy, or response action, including related enforcement activities.

Responsiveness Summary: A summary of oral and written public comments received by the lead agency during a comment period and the responses to these comments prepared by the lead agency. The responsiveness summary is an important part of the ROD, highlighting community concerns for decision makers.

Screening-Level Ecological Risk Assessment (SERA): SERAs involve chemical toxicity evaluations, exposure estimates, and risk calculations for a site's ecological community.

Semi-volatile Organic Compound (SVOC): An organic compound that has a boiling point higher than water and that may vaporize when exposed to temperatures above room temperatures. Semi-volatile organic compounds include phenols and polycyclic aromatic hydrocarbons.

Site Remediation Goals (SRGs): The (lower) concentration levels of constituents in a particular media that are met and are protective of human health and the environment, as a result of remediation activities.

Superfund: The program operated under the legislative authority of CERCLA and SARA that funds and carries out EPA Hazardous substances emergency and long-term removal and remedial activities. These activities include establishing the NPL, investigating sites for inclusion on the NPL, determining their priority, and conducting and/or supervising the cleanup and other remedial actions.

Target Analyte List (TAL): A list of chemicals to be sampled originally derived from the EPA Priority Pollutant List. In the years since the inception of the Contract Laboratory Program, compounds and analytes have been added to and deleted from this list, based on advances in analytical methods, evaluation of method performance data, and the needs of the Superfund program.

Target Compound List (TCL): A list of chemicals to be sampled originally derived from the EPA Priority Pollutant List. In the years since the inception of the Contract Laboratory Program, compounds and analytes have been added to and deleted from this list, based on advances in analytical methods, evaluation of method performance data, and the needs of the Superfund program.

Upper Confidence Limit: Value of the upper end of the confidence interval, the region of the sample mean that is likely to be representative of site-specific conditions.

Volatile Organic Compounds (VOCs): Naturally occurring or manmade chemicals containing carbon. Volatile organics can evaporate more quickly than semi-volatile organics.

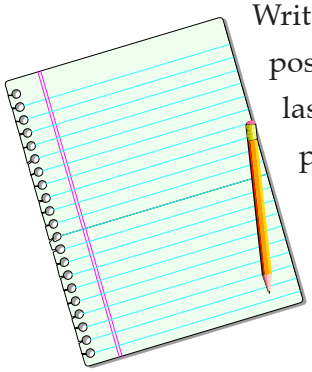
Please print or type your comments below.

Mark Your Calendar for the Public Comment Period

Public Comment Period

February 9, 2009 through March 9, 2009.

Submit Written Comments

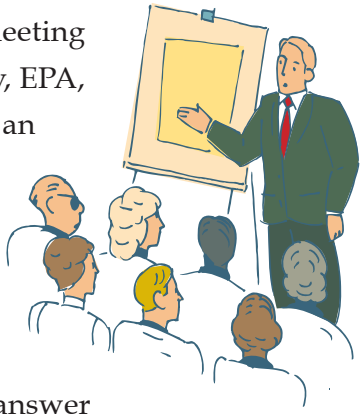


Written comments must be postmarked no later than the last day of the public comment period, which is March 9, 2009. Based on the public comments or on any new information obtained, the Navy may modify the Preferred Alternative. The insert page of this Proposed Plan may be used to provide comments, although the use of the form is not required. If the form is used to submit comments, please fold page, seal, add postage where indicated, and mail to addressee as provided.

Attend the Public Meeting

February 19, 2009, from 6:00 P.M. to 7:00 P.M

Indian Head Senior Center
100 Cornwallis Square
Indian Head, MD 20640



The public comment period will include a public meeting during which the Navy, EPA, and MDE will provide an overview of the site, previous investigation findings, remedial alternatives evaluated and the Preferred Alternative; answer questions; and accept public comments on the Proposed Plan.

FOLD HERE

Place stamp here

Public Affairs Officer
Naval Support Activity South Potomac
Attn: Public Affairs Officer, Code 00P
6509 Sampson Rd.
Dahlgren, VA 22448-5108
(540) 653-1475