RECORD OF DECISION

SITE 45

for

Naval District Washington, Indian Head

Indian Head, Maryland

September 2005

NAVFAC
Naval Facilities Engineering Command
NAVFAC WASHINGTON

NAVAL DISTRICT WASHINGTON
WASHINGTON, D.C.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

MDE

Contents

Tables

Figures

Acronyms and Abbreviations

BERA	Baseline Ecological Risk Assessment
bgs	below ground surface
BTAG	Biological Technical Assistance Group
CDI	Chronic Daily Intake
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CSF	Cancer Slope Factor
CSM	Conceptual Site Model
ELCR	Excess Lifetime Cancer Risk
EPA	United States Environmental Protection Agency
FS	Feasibility Study
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IHDIV-NSWC	Indian Head Division, Naval Surface Warfare Center
IR	Installation Restoration
LOAEL	Lowest Observed Adverse Effect Level
MHSPE	Ministry of Housing, Spatial Planning, and Environment
MDE	Maryland Department of the Environment
Navy	Department of the Navy
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NDWIH	Naval District Washington Indian Head
NEESA	Naval Energy and Environmental Support Activity
NOAEL	No Observed Adverse Effect Level
NPL	National Priorities List
PA	Preliminary Assessment
RAB	Restoration Advisory Board
RBC	Risk-Based Concentration
RfD	Reference Dose
RI	Remedial Investigation
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SERA	Screening-Level Ecological Risk Assessment

SI	Site Inspection
SVOC	semivolatile organic compound
TAL	Target Analyte List
TCL	Target Compound List
TtNUS	Tetra Tech NUS, Inc.
UCL	upper confidence limit
VOC	volatile organic compound
mg/kg	milligram(s) per kilogram
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter

SECTION 1

Declaration

1.1 Site Name and Location

Site 45, Abandoned Drums
Naval District Washington, Indian Head
Indian Head, Maryland
CERCLIS ID No. MD7170024684

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the Selected Remedy for Site 45, Abandoned Drums, at the Naval District Washington, Indian Head (NDWIH). The Selected Remedy was chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA), and, to the extent practical, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on information contained in the Administrative Record file for NDWIH.[1]

The Department of the Navy (Navy) and the U.S. Environmental Protection Agency (EPA) jointly selected the remedy and the Maryland Department of the Environment (MDE) concurs with the selected remedy.

1.3 Description of the Selected Remedy

The no further action remedy selection is based on the evaluation of site conditions and site-related risks during a remedial investigation, which indicated that current conditions are protective of human health and the environment.

1.4 Statutory Determinations

This remedy will not result in hazardous substances, pollutants, or contaminants remaining on site above levels that prevent unlimited use and unrestricted exposure; therefore, a 5-year review will not be required for this remedial action.

[1] On October 1, 2003, the installation management functions at Indian Head transferred from the Indian Head Division, Naval Surface Warfare Center (IHDIV-NSWC) to Naval District Washington. This installation will now be referred to as Naval District Washington, Indian Head (NDWIH).
.

1.5 Authorizing Signatures

J. L. SMITH
By direction
Capt, USN
Area Operations Officer
Naval District Washington,
West Area

20 Sept 05
Date

ABRAHAM FERDAS, Director
Hazardous Site Cleanup Division
U.S. EPA - Region III

9/29/05
Date

SECTION 2

Decision Summary

2.1 Site Name, Location, and Description

Naval District Washington, Indian Head, CERCLIS ID No. MD7170024684, is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, District of Columbia. NDWIH is a Navy facility consisting of the main installation on the Cornwallis Neck Peninsula and the Stump Neck Annex on the Stump Neck peninsula. The main installation contains approximately 2,500 acres and is bounded by the Potomac River to the northwest, west, and south, Mattawoman Creek to the south and east, and the town of Indian Head to the northeast (Figure 2-1). Included as part of the main installation are Marsh Island and Thoroughfare Island, which are located in Mattawoman Creek.

The Navy is the lead agency for site activities at NDWIH. The EPA and the MDE are support agencies. Funding is provided by the Navy.

Site 45 is a wooded area in the northwest-central portion of the NDWIH approximately 250 feet west of Building 1363 (Figure 2-2).

2.2 Site History, Enforcement Activities, and Investigations

2.2.1 Site History

Site 45 is a wooded area which had previously contained 21 empty, rusted 55-gallon drums and two overpack drums. The drums were rusted through in places and some appeared to have been cut and welded end-to-end in a manner similar to the drums that were used at Site 44 (Soak Out Area) located approximately 300 feet east of Site 45. The origin and contents of the drums are not definitely known. Based on historical information, it is likely that the drums were present at Site 45 during the same time as the soak out process was reported to have been actively used at Site 44. During the soak out process, a soak tank, which consisted of two 55-gallon drums welded together, was filled with solvent to remove propellant from rocket motor catapult tubes (Naval Energy and Environmental Support Activity (NEESA), 1992). The solvent was believed to be Pennchem 901B, a polysulfide, nonflammable solvent containing mercaptan (NEESA, 1992). Thus, it is suspected that the abandoned drums originally contained a hazardous waste, probably solvent. Had the 21 55-gallon drums and two overpack drums been full when placed at the site, up to 1,300 gallons of liquid could have leaked to the underlying soil (Engineering Field Activity Chesapeake, 2003). In 1995, the rusted remains of the abandoned drums were removed from the site and taken to the Scrap Yard as scrap metal.

2.2.2 Enforcement Activities

Site 45 has been under regulatory enforcement since 1992 when the Supplemental Preliminary Assessment (PA) Report (NEESA, 1992) recommended the site for further

investigation. The Supplemental PA Report noted that 23 corroded drums were found in the woods west of Building 1363, but no signs of stressed vegetation were evident. It was reported that the drums may have been present at the site for 15 to 20 years.

A Site Inspection (SI) was performed in 1992 and was documented in the 1994 Final SI Report, Phase II (Ensafe/Allen & Hoshall, 1994). During this investigation, 3 surface soil samples and 4 soil gas samples were collected. No signs of stressed vegetation or stained soil were observed during the field investigation. Carbon disulfide and dimethylphenol were each detected in only one of the surface soil samples and at concentrations less than the U.S. EPA Region III Risk-Based Concentration (RBC) screening levels. In addition, cadmium and cobalt were detected at concentrations slightly above background conditions. Low levels of total volatiles, xylene, and tetrachloroethene were detected in all four soil gas samples. All of the detected concentrations were below the U.S. EPA Region III RBC screening levels for air inhalation.

In September 1995, the entire NDWIH facility, including, by definition, Site 45, was placed on the National Priorities List (NPL).

In 2001, a RI was performed at Site 45. The objective was to determine whether the contents of the previously abandoned drums had caused contamination of the surrounding soil and the underlying groundwater. As part of the RI field work, surface soil samples, shallow subsurface soil samples, and grab shallow groundwater samples were collected and analyzed. In addition, the RI field work included the collection and analysis of surface water and sediment samples from the adjacent emergent wetland. Based on an evaluation of the data, it was determined that the wetland has not been affected by any chemicals released at Site 45.

Based on the conclusions of the RI, a Feasibility Study (FS) was not warranted and a No Further Action Proposed Plan was prepared and made available for public comment in 2004.

No other enforcement activities, removal actions, or remediation activities have been initiated at Site 45.

2.3 Community Participation

A Restoration Advisory Board (RAB) made up of community members and Navy, Federal, and State officials meets several times each year. The RAB is designed as a forum for the exchange of information between NDWIH and the local community regarding IR activities.

The *Final Remedial Investigation Report for Sites 6, 39, and 45, Naval District Washington, Indian Head, Indian Head, Maryland* (herein referred to as the RI Report) (HydroGeoLogic, Inc., 2004) and Proposed Plan for Site 45 were made available to the public. The RI Report was made available in April 2004, and the Proposed Plan was made available on October 19, 2004. These documents, which are included in the Administrative Record file, can be found in the Information Repository located in the NDWIH General Library, Building 620 (The Crossroads). The notice of the availability of the Proposed Plan was published in the Maryland Independent Newspaper on October 19, 2004. A public comment period on the Proposed Plan was held from October 19, 2004, to November 17, 2004. In addition, a public

meeting was held on October 21, 2004, to present the Proposed Plan to a broader community audience than those that had already been involved at the site.

At this meeting, representatives of the Navy, EPA, and MDE answered questions about the site and the decision that no further action is required to protect human health and the environment. No significant verbal comments were received during the public comment period. This is documented in the *Responsiveness Summary*, which is a part of this ROD.

2.4 Scope and Role of Response Action

Site 45 is included in the NDWIH IR Program. No response action is necessary at this site to protect human health and the environment. Separate investigations and assessments are being conducted for other IR sites at NDWIH in accordance with CERCLA. Separate RODs and other CERCLA decision documents will be prepared for those other IR sites.

2.5 Site Characteristics

The site characteristics, nature and extent of contamination, and the baseline risk assessment are presented in greater detail in the RI Report.

2.5.1 Physical Setting

Site 45 is a small clearing approximately 60 feet in diameter located in a mixed hardwood and pine forest (Figure 2-2). This wooded area is surrounded by several clusters of industrial complexes. The site elevation is approximately 40 feet above mean sea level and the terrain slopes very gradually to the south. Southwest of the site is an emergent wetland which receives overland flow from the vicinity of Site 45 and areas to the west of Site 45.

The soil at Site 45 is extremely heterogeneous. In general, the site is underlain by a brown or orange silty sand, silt, or clay overlying sand with gravels or cobble. Beneath the sand/gravel/cobble layer appears to be a less-coarse sand layer. The groundwater beneath Site 45 is shallow, ranging in depth during the RI field work from 3.39 ft below the ground surface (bgs) to 5.57 ft bgs. The groundwater is recharged by precipitation that falls on the site and infiltrates the ground surface. Due to the gradual slope of the terrain and the vegetation, it is unlikely that much precipitation leaves the site as surface water runoff. Any surface water runoff present would flow south into the area of the emergent wetland. Based on the surrounding topography, the emergent wetland can also receive surface water runoff from areas to the west and southwest. Based on the topography, the shallow groundwater may discharge into the adjacent emergent wetland. As stated in Section 2.2.2, however, the analytical data demonstrated that the emergent wetland is not impacted by the soil or groundwater from Site 45.

Site 45 is undeveloped land not currently used for any facility activities. The land surrounding Site 45 is used for industrial activities.

There are no known areas of archeological or historical importance at Site 45.

2.5.2 Conceptual Site Model

Figure 2-3 presents the Conceptual Site Model (CSM) for human receptors at Site 45. The CSM integrates information regarding the physical characteristics of the site, potentially exposed populations, sources of contamination, and contaminant mobility (fate and transport) to identify exposure routes and receptors evaluated in the risk assessment. A well-defined CSM allows for a better understanding of the risks at a site and aids in the identification of the potential need for remediation. The historical potential for the former contents of the abandoned drums to leak onto the surface soil is the source of contamination for the site.

Human receptors under the current land use scenario include adolescent and adult trespassers/visitors and industrial workers. Human receptors under the future land use scenario include the adult and child residents, adult and adolescent trespassers/visitors, industrial workers, and construction workers. Hypothetical future residential use of the site was evaluated to confirm that no land use controls would be needed at the site. Residential development of the site, however, is not a likely future land use.

2.5.3 Sampling Strategy

The RI included the collection and analysis of five surface soil samples, five subsurface soil samples, and four shallow groundwater samples. Of these samples, one surface soil sample and one subsurface soil sample were collected from a location upslope from Site 45 (i.e., an area considered to be unaffected by any release at Site 45) in order to obtain site-specific background information. Facility-wide background data for surface soil, subsurface soil, and groundwater were obtained from the Background Soil Investigation Report (Tetra Tech NUS, Inc. (TtNUS), 2002). The Site 45 samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), explosives, and Target Analyte List (TAL) metals. With regard to metals, the groundwater samples were analyzed for total metals (unfiltered) and dissolved metals (filtered). Figure 2-2 shows the locations of the soil and shallow groundwater sampling points.

2.5.4 Nature and Extent of Contamination

Summary. The nature and extent of contamination at Site 45 can be summarized as follows:

- Four VOCs and five SVOCs were detected in the soil samples but at concentrations less than one-thousandth of the corresponding U.S. EPA Region III RBC screening level, indicating that these chemicals do not pose a threat to human health.
- One explosive, nitrocellulose, was detected in the soil samples. A RBC value for nitrocellulose is not available. Based on the available toxicity information, nitrocellulose appears to be relatively non-toxic. At the detected concentrations the nitrocellulose does not pose an explosion hazard. It was determined that the nitrocellulose detected at Site 45 does not pose a threat to human health.
- Metals were detected in the surface soil and subsurface soil samples. A number of metals were present in the surface soil samples at concentrations greater than background conditions. For example, iron concentrations in the surface soil where the drums had been previously abandoned were substantially higher than the background concentration, indicating that iron from the steel drums had leached into the soil.

Although the previously abandoned drums caused some metals contamination of the surface soil, the data indicate that this contamination tended to remain in the vicinity of the former drum location. The subsurface soil data indicate that the metals deposited on the surface soil by the rusted drums have not leached into the subsurface soil. It was determined that the metals in the site soils do not pose a threat to human health.

- No explosives and no VOCs were detected in the shallow groundwater. One SVOC, diethylphthalate, was detected at concentrations less than one-thousandth of the U.S. EPA Region III RBC for drinking water, indicating that this chemical posed no threat to human health. Metals were detected in the filtered and unfiltered samples. The metal concentrations indicate that the drums previously abandoned at Site 45 have not adversely affected the quality of the underlying groundwater.

The analytical results for the site soil and shallow groundwater are presented in Tables 2-1, 2-2, and 2-3. The nature and extent of contamination is described in detail in the RI Report (HydroGeoLogic, Inc., 2004).

2.6 Current and Potential Future Land and Resource Uses

Site 45 is an undeveloped forested area within an industrial facility with no other current or projected future land uses. Shallow groundwater beneath the site is not used for any purpose. The Navy has no plans to develop this resource in the future.

It is unlikely that Site 45 would be developed for residential use. However, hypothetical future residential use of the site was evaluated in the risk assessment to assess the need for institutional controls.

2.7 Summary of Site Risks

A detailed discussion of the human health and ecological risks at Site 45 and the baseline risk assessment process is presented in the RI Report.

2.7.1 Human Health Risk Assessment

A baseline human health risk assessment (HHRA) was performed for surface and subsurface soil at Site 45, to determine the current and future effects of contaminants on human health. As described in Section 2.5.4 , it was determined that the historical activities at Site 45 had not adversely affected the quality of the underlying shallow groundwater. Therefore, the HHRA did not evaluate the groundwater pathway. The receptors evaluated in the risk assessment for both current and future uses included:

- For current uses - adolescent and adult trespassers/visitors, adult industrial workers.
- For future uses - adult and child residents, adult and adolescent trespassers/visitors, adult industrial workers, and adult construction workers.

The Navy evaluated the residential exposure scenario to confirm that no institutional controls would be necessary at the site. A detailed discussion of the HHRA is provided in Sections 4.4.1 and 7.6 in the RI Report.

2.7.1.1 Identification of Chemicals of Potential Concern

Chemicals of potential concern (COPCs) are those chemicals that are identified as a potential threat to human health and are evaluated further in the baseline risk assessment.

The COPCs for the soil under current land use scenario (surface soil) consisted of aluminum, arsenic, cadmium, iron, and manganese. Under the future land use scenario (surface and subsurface soil), the COPCs were identified to be aluminum, arsenic, cadmium, iron, manganese, and thallium. COPCs for the soil under the future land use scenario were determined by pooling the analytical results for the surface soil and subsurface soil samples. This pooling is based on the assumption that the future exposed soil is a mixture of the current surface soil and the current subsurface soil. Section 7.6.3 in the RI Report presents the identification of COPCs.

2.7.1.2 Exposure Assessment

The exposure assessment defines and evaluates the type and magnitude of human exposure to the chemicals present at or migrating from a site. The exposure assessment is designed to depict the physical setting of the site, identify potentially exposed populations, and estimate chemical intakes under the identified exposure scenarios. Actual or potential exposures are based on the most likely pathways of contaminant release and transport, as well as human activity patterns. A complete exposure pathway has three components: a source of chemicals that can be released into the environment, a route of contaminant transport through an environmental medium, and an exposure or contact point for a human receptor.

Onsite exposure points include surface soil. It is assumed that current trespassers/visitors and industrial workers could be exposed to surface soil through dermal absorption and incidental ingestion. All future receptors could be exposed to future exposed soils (a mixture of surface soil and subsurface soil) through dermal absorption and incidental ingestion. Inhalation of fugitive emissions from both current surface soil and future exposed soil was not evaluated quantitatively because no COPCs were identified for these pathways.

2.7.1.3 Toxicity Assessment

Toxicity assessment weighs the available evidence regarding the potential for a particular chemical to cause adverse effects in exposed individuals and provides a numerical estimate of the relationship between the extent of exposure and possible severity of adverse effects. Toxicity assessment consists of two steps: hazard identification and dose-response assessment. Hazard identification is the process of determining the potential adverse effects from exposure to a chemical. Dose-response assessment is the process of quantitatively evaluating the toxicity information and characterizing the relationship between the dose of the contaminant administered or received and the incidence of adverse health effects in the exposed population. From this quantitative dose-response relationship, toxicity values (e.g., reference doses [RfDs] and cancer slope factors [CSFs]) are derived. These toxicity values are used in conjunction with the exposure assessment to estimate non-cancer hazards and cancer risks associated with exposure to the site media.

EPA has assessed the toxicity of many chemicals and has published the resulting toxicity information and toxicity values in the Integrated Risk Information System and Health

Effects Assessment Summary Tables databases. Additionally, toxicity information is available from EPA's National Center for Environmental Assessment.

Health effects are divided into two broad groups: non-cancer hazards and cancer effects. This division is based on the different mechanisms of action currently associated with each category. Chemicals causing non-cancer health effects were evaluated independently from those having carcinogenic effects. Some chemicals may produce both non-cancer and carcinogenic effects, and were evaluated in both groups. Non-cancer health affects are evaluated using the RfDs. Cancer risks are evaluated using CSFs.

2.7.1.4 Risk Characterization

Methodology. The risk characterization summarizes and combines outputs of the exposure and toxicity assessments to characterize baseline risks, both in quantitative expressions and in qualitative statements. For carcinogens, risk is generally expressed as the incremental probability of an individual developing cancer over a lifetime of exposure to the carcinogen. Excess lifetime cancer risk is calculated from the following equation:

$$ELCR = CDI \times CSF$$

where:

ELCR = excess lifetime cancer risk, a unitless probability (e.g. one in one million) of an individual developing cancer that is in addition to the incidence of cancer in the general population unaffected by these releases

CDI = chronic daily intake averaged over 70 years (mg/kg-day)

CSF = cancer slope factor, (cancer potency factor), expressed as $(mg/kg\text{-}day)^{-1}$.

These risks are probabilities that usually are expressed in scientific notation. An excess lifetime cancer risk of 1E-06 indicates that an individual experiencing the reasonable maximum exposure estimate has a one in 1,000,000 chance of developing cancer as a result of site-related exposure. This is referred to as an "excess lifetime cancer risk" (ELCR) because exposure to site conditions results in an incremental risk in addition to the risks of cancer from other causes, such as smoking. The chance of an individual developing cancer from all other causes has been estimated to be as high as one in three (33 percent or 3E-1) for women and one in two (50 percent or 5E-1) for men. The EPA generally acceptable ELCR range for site-related exposure is 1E-04 to 1E-06 (i.e., 1 in 10,000 to 1 in 1,000,000).

The potential for non-cancer effects is evaluated by comparing an exposure level over a specified time period with an RfD derived for a similar exposure period. An RfD represents a level to which an individual may be exposed without experiencing any deleterious effects. The ratio of exposure to toxicity is called a hazard quotient (HQ). An HQ less than one indicates that a receptor's dose of a single contaminant is less than the RfD and that toxic non-cancer effects from that chemical are unlikely. To address the potential effect from exposure to multiple chemicals, the HQs for exposure to all COPCs across all exposure routes are summed to obtain the hazard index (HI). If the HI exceeds one, then a target organ analysis is used. The chemicals are classified according to target organ (e.g., liver) or toxic mechanism. Then the HQs for the chemicals which affect the same target organ or

have the same mechanism are summed to result in a target organ HI. A target organ HI less than one indicates that toxic non-cancer effects from exposure to the site chemicals are unlikely. A target organ HI greater than one indicates that site-related exposures may present an unacceptable risk to human health.

The HQ is calculated as follows:

HQ = CDI/RfD

Where: CDI = chronic daily intake

RfD = reference dose

CDI and RfD are expressed in the same units and represent the same exposure period (i.e., chronic, subchronic, or short term). The CDI for HQ calculations may not be the same as that used in the ELCR calculations.

Cancer Risks. Cancer risks for all evaluated receptors were within or below the EPA acceptable ELCR range (1E-04 to 1E-06).

Non-cancer Hazards. On a target organ basis, the HIs for all evaluated receptors were below the target value of one. No non-cancer health effects are expected from exposure to the site. In summary, the HHRA did not identify any COCs for Site 45. A detailed discussion of the risk characterization is provided in Section 4.4.1.5 and Section 7.6.5 in the RI Report. Sections 4.4.1.6 and 7.6.6 in the RI Report present the uncertainty analysis for the HHRA and Section 7.8.1.2 presents the conclusions of the HHRA. In general, assumptions were made to err on the side of conservatism in the analysis.

2.7.2 Ecological Risk Assessment

A screening-level ecological risk assessment (SERA) was conducted for Site 45 to estimate the potential for risk to ecological receptors if no action were taken. The SERA provides a conservative assessment of potential ecological risk. The SERA for Site 45 was performed as three steps: Step 1, Step 2, and Step 3A. According to Superfund guidance (EPA, 1997), Step 3 initiates the problem formulation phase of the baseline ecological risk assessment (BERA). Under Navy guidance (Chief of Naval Operations, 1999), the BERA is defined as Tier 2, and the first activity under Tier 2 is Step 3A. The general approach and site-specific approach for the Site 45 ecological risk assessment are provided in Section 4.4.2 and Section 7.7, respectively, in the RI Report.

In Step 1, the conceptual site model was developed and the potential ecological receptors (e.g., earthworms, carnivores, etc.) were identified. In Step 2, a conservative, initial screening is performed to identify ecological COPCs. In Step 3A, the conservative assumptions employed in Tier 1 were refined to better represent actual site conditions and risk estimates were recalculated using the same conceptual site model for the site.

2.7.2.1 Step 1 – Identification of Exposure Routes and Receptors

In Step 1, the potential exposure route and representative receptors were identified. At Site 45, ecological receptors may contact chemicals in the surface soil. Although the shallow groundwater at Site 45 may discharge to the nearby wetland, this pathway was not

evaluated because the analytical data indicated that the shallow groundwater at Site 45 has not impacted the wetland.

The ecological receptors identified for evaluation consisted of soil invertebrates, terrestrial plants, insect-eating birds (e.g., American robin), carnivorous birds (e.g., red-tailed hawk), insect-eating mammals (e.g., short-tailed shrew), and carnivorous mammals (e.g., red fox). Section 7.7.1 of the RI Report presents the Step 1 analysis for Site 45.

2.7.2.2 Ecological Effects Assessment

The purpose of the effects evaluation is to establish chemical exposure levels (screening values) that represent conservative thresholds for adverse ecological effects. Direct contact screening values were used to assess potential risks to the soil invertebrate and terrestrial plant communities. Ingestion screening values for dietary exposures were derived for each avian and mammalian receptor species and chemical evaluated in the assessment. Section 4.4.2.3 in the RI Report provides a detailed description of the screening values used in the ecological risk assessment.

2.7.2.3 Step 2 – Identification of Ecological COPCs

In this step, the maximum concentration of each detected chemical or the maximum reporting limit of each non-detected chemical was compared to a screening value selected in the ecological effects assessment in order to identify those chemicals which have the potential to adversely affect ecological receptors. This initial screening is very conservative. Because of the conservatism of the screening, a chemical identified as an ecological COPC may not actually represent a threat to an ecological receptor.

The approach used for the Step 2 screening is described in Sections 4.4.2.3 and 4.4.2.4, and the results of the initial screening for Site 45 are presented in Section 7.7.3 of the RI Report.

2.7.2.4 Step 3A - Refinement of Exposure Assumptions

In Step 3A, ecological COCs were selected from the list of ecological COPCs developed in Step 2. The selection process involves consideration of the results of the refined exposure assumptions, patterns in detection, consideration of likely risk from chemicals without screening values, consideration of background concentrations, and consideration of the basis of the direct contact and ingestion-based screening values compared to site conditions. The general approach used to perform the Step 3A analysis is described in Section 4.4.2.5 of the RI Report.

One major difference between Step 2 and Step 3A is the replacement of the maximum concentration (Step 2) with the average concentration (Step 3A). For upper trophic level receptors (i.e., carnivorous animals), average chemical concentrations provide a more representative estimate of the likely level of chemical exposure because the local population (and in many cases individual organisms for highly mobile species with large home ranges relative to the size of the site) would be expected to range throughout the site (where suitable habitat is present) and, in many cases, off the site. Mean concentrations (or some other estimate of central tendency) may also be appropriate for evaluating potential risks to populations of lower trophic level terrestrial receptors because the members of the population are expected to be found throughout the site (where suitable habitat is present), rather than concentrated in one particular area.

While effects on individual organisms might be important for some receptors, such as rare and endangered species, population- and community-level effects are typically more relevant to ecosystems. In many cases, the average concentration is a conservative representation of the true site average because samples are typically biased toward areas of known or suspected contamination.

If the Step 3A analysis results in the identification of ecological COCs, the risk assessment process continues to Step 3B (revised problem formulation) and Step 4 (BERA work plan). As described in Section 2.7.2.5 below, the Step 3A analysis for Site 45 did not identify any COCs (Section 7.7.4 of the RI Report).

2.7.2.5 Ecological Risk Characterization

The concentrations of aluminum, chromium, iron, and vanadium exceeded soil screening values. The data indicated that aluminum, chromium, and vanadium were present at concentrations consistent with naturally-occurring background conditions at the NDWIH facility. The potential effects from these metals would be similar to the potential effects from the naturally-occurring site conditions. Because the elevated iron concentrations were due to the rusted steel drums, the iron detected in the site surface soil was likely in the form of iron oxides. Iron oxides are substantially less bioavailable than the form of iron (iron chloride) on which the screening level is based (Efroymson, *et al.*, 1997). Therefore, it was determined that the iron posed minimal risk to ecological receptors.

Multiple SVOCs were analyzed for but not detected in the surface soil samples. For each non-detected SVOC, a proxy concentration equal to the average of one-half the quantitation limit for each sample was calculated. The quantitation limit is the lowest concentration that can be reliably quantified. The proxy concentrations of 19 SVOCs exceeded the screening values developed by the Region III Biological Technical Advisory Group (BTAG). The purpose of the screening values is to ensure protection of lower trophic level receptors, such as earthworms. The literature was reviewed in order to obtain additional toxicological information on the 19 SVOCs. Based on information in the literature, it was determined that the detection limits were less than the NOAEL for the earthworm (Neuhauser, *et al.*, 1985). In addition, because these chemicals were not detected, their presence at the site is questionable. For these reasons, it was determined that these 19 SVOCs posed minimal risk to ecological receptors.

Benzaldehyde, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate were detected in the Site 45 soils but soil screening values were not available. To evaluate the potential effects of butylbenzylphthalate and bis(2-ethylhexyl)phthalate, their combined concentrations were compared to a screening value for total phthalates obtained from the Dutch Ministry of Housing, Spatial Planning, and Environment (MHSPE) (MHSPE, 1994). The maximum combined concentration of 80 µg/kg was substantially less than the total organic carbon-adjusted screening value of 4,207 µg/kg. Therefore, butylbenylphthalate and bis(2-ethylhexyl)phthalate were determined to pose minimal risk to lower trophic level receptors. The only benzaldehyde detection, 790 µg/kg, was compared to toxicological information obtained from the literature. Based on this comparison, it was determined that benzaldehyde posed minimal risk to lower trophic level receptors.

Nitrocellulose, the only explosive detected in the surface soil, has no screening value. The maximum detected concentration was 3.4 mg/kg. Nitrocellulose is readily biodegraded in the soil (U.S. Army Environmental Center, 2001). In addition, studies have shown relatively high concentrations of nitrocellulose (540 mg/kg in sediment, 1,000 mg/L in water) to have no effect on several invertebrate, fish and algal species (Bentley, *et al.*, 1976; Sullivan, *et al.*, 1978). Because the Site 45 soil concentrations were two orders of magnitude lower than the no effect concentration for sediment invertebrates, it was determined that the nitrocellulose poses minimal risk to soil invertebrates and plants at Site 45.

The results of the risk assessment indicate that chemicals in the soil at Site 45 pose minimal risk to ecological receptors. Therefore, no COCs were identified for this site. Section 7.7.4 and Section 7.8.1.3 in the RI Report present the uncertainty and conclusions, respectively, of the ecological risk assessment.

2.7.3 Conclusions

There were no unacceptable risks to human health or ecological receptors from exposure to the chemicals detected at Site 45. Sections 7.8.1.2 and 7.8.1.3 in the RI Report present the conclusions of the HHRA and SERA, respectively.

2.8 Selected Remedy

The Navy and the EPA, with the concurrence of the MDE, have selected no further action as the preferred alternative for Site 45. Based on the results of investigations conducted at Site 45, the Navy, EPA, and MDE have determined that the site does not pose an unacceptable risk to human health or the environment. Therefore, no alternative other than the no further action alternative was evaluated. Under this alternative, no response action will be performed at the site; therefore, no institutional controls, remedy schedule, capital cost estimation, or annual operation and maintenance are necessary.

2.9 Documentation of Significant Changes

The Proposed Plan for Site 45, Abandoned Drums, at NDWIH, Indian Head, Maryland was released for public comment on October 19, 2004. The Proposed Plan identified that no action is necessary for protection of human health and the environment. No significant verbal comments were received during the public comment period. It was determined that no significant changes to this decision, as originally identified in the Proposed Plan, were necessary or appropriate.

TABLES

Table 2-1
Chemicals Detected in Site 45 Surface Soil Samples
Site 45 Record of Decision
NDWIH, Indian Head, Maryland

Sample ID **Sample Date**	Frequency of Detection*	IS45SS010001 4/2/2001	IS45SS020001 4/2/2001	IS45SS030001 4/2/2001	IS45SS040001 4/2/2001	IS45SS050001* 4/2/2001 *Site-Specific Background Sample
Chemicals Name						
VOCs (µg/kg)						
Methylene Chloride	2/4		9.4 J		8.2 J	7.7 J
Tetrachloroethene	1/4		3.7 J			3.6 J
SVOCs (µg/kg)						
Benzaldehyde	1/4		790 J			120 J
Butylbenzylphthalate	1/4	41 J				
Di-n-butylphthalate	1/4				85 J	81 J
Diethylphthalate	1/4	91 J				
bis(2-Ethylhexyl)phthalate	1/4				39 J	
Explosives (mg/kg)						
Nitrocellulose	4/4	3.4	3.1	2.9	2.9	7.7
Total Metals (mg/kg)						
Aluminum	4/4	12,800	4,850	6,300	8,060	3,100
Antimony	4/4	1.4 J	2.1 J	1.3 J	1.1 J	1.8 J
Arsenic	4/4	7.6	8.2	4.1	4.4	4
Barium	4/4	55.8	40.3 J	66	23.8 J	53.5 J
Beryllium	4/4	0.67 J	0.55 J	0.51 J	0.54 J	0.58 J
Cadmium	1/4		6.5 J			
Calcium	4/4	442 J	393 J	189 J	208 J	2,420
Chromium	4/4	20.6 J	22.5 J	11.8 J	12.6 J	14.1 J
Cobalt	4/4	7.2 J	8.3 J	6.1 J	6.5 J	8.2 J
Copper	4/4	9.9 J	14.1 J	4.2 J	5 J	8.1 J
Iron	4/4	30,900 J	54,900 J	14,200 J	17,500 J	12,500 J
Lead	4/4	7.7	21.1	5.1	5.7	18.1
Magnesium	4/4	897 J	342 J	467 J	555 J	467 J
Manganese	4/4	118 J	756 J	187 J	105 J	579 J
Nickel	4/4	4.3 J	3.5 J	3 J	2.9 J	5.8 J
Potassium	4/4	661 J	301 J	303 J	401 J	271 J
Selenium	3/4	1.6	1.3		1.6	
Silver	1/4		2.6			
Vanadium	4/4	39.5	21.5	18.2	21.1	24.1
Zinc	4/4	26.7	31.4	19.3	21.1	24.9

Metal and explosive concentrations in milligrams per kilogram. VOC and SVOC concentrations in micrograms per kilogram.
* Does not include site-specific background sample IS45SS050001
J = Reported value is estimated

Table 2-2
Chemicals Detected in Site 45 Subsurface Soil Samples
Site 45 Record of Decision
NDWIH, Indian Head, Maryland

Sample ID **Sample Date** **Sample Depth (ft)**	Frequency of Detection*	IS45SB010708 04/02/01 7-8	IS45SB021112 04/02/01 11-12	IS45SB030708 04/02/01 7-8	IS45SB040708 04/02/01 7-8	IS45SB051516* 04/02/01 15-16 *Site-Specific Background Sample
Chemical Name						
VOCs (µg/kg)						
Methylene chloride	4/4	4.8 J	4.9 J	6.7 J	6.5 J	3.8 J
Tetrachloroethene	2/4		2.7 J		2.6 J	
Toluene	1/4			1.3 J		
Xylene, total	1/4			1.7 J		
SVOCs (µg/kg)						
Benzaldehyde	1/4	99 J				
Di-n-butylphthalate	3/5	110 J	50 J	140 J		
Explosives (mg/kg)						
Nitrocellulose	4/4	2.7	3.1	2.9	2.9	2.9
Total Metals (mg/kg)						
Aluminum	4/4	2,660	2,280	16,300	8,460	8,110
Antimony	3/4		1.7 J	0.77 J	1.1 J	0.88 J
Arsenic	4/4	1.3 J	4	5.7	1.8 J	2.3
Barium	4/4	9.3 J	15.7 J	62.6	51.4	53.2
Beryllium	1/4			0.54 J		0.48 J
Calcium	4/4	230 J	181 J	400 J	309 J	578 J
Chromium	4/4	6.2 J	5.4 J	21.1 J	12.9 J	10.9 J
Cobalt	4/4	1.5 J	2.7 J	5.7 J	4.4 J	5 J
Copper	4/4	2.9 J	5.6 J	11.9 J	5 J	6.4 J
Iron	4/4	4,380 J	7,360 J	13,500 J	4,990 J	11,200 J
Lead	4/4	1.9	2.1	9.6	8	7.9
Magnesium	4/4	214 J	220 J	1,660	863 J	941 J
Manganese	4/4	12.9 J	36.3 J	40.5 J	16.2 J	129 J
Nickel	4/4	2 J	2.1 J	8.8 J	5.6 J	6.2 J
Potassium	4/4	173 J	315 J	882 J	402 J	579 J
Selenium	1/4		0.85 J			
Thallium	1/4			1.2 J		
Vanadium	4/4	8.1 J	11.9 J	37.4	18.2	21.7
Zinc	4/4	11.8	11.1	37.7	19.3	25.3

Metal and explosive concentrations in milligrams per kilogram. VOC and SVOC concentrations in micrograms per kilogram.

* Does not include site-specific background sample IS45SB050001

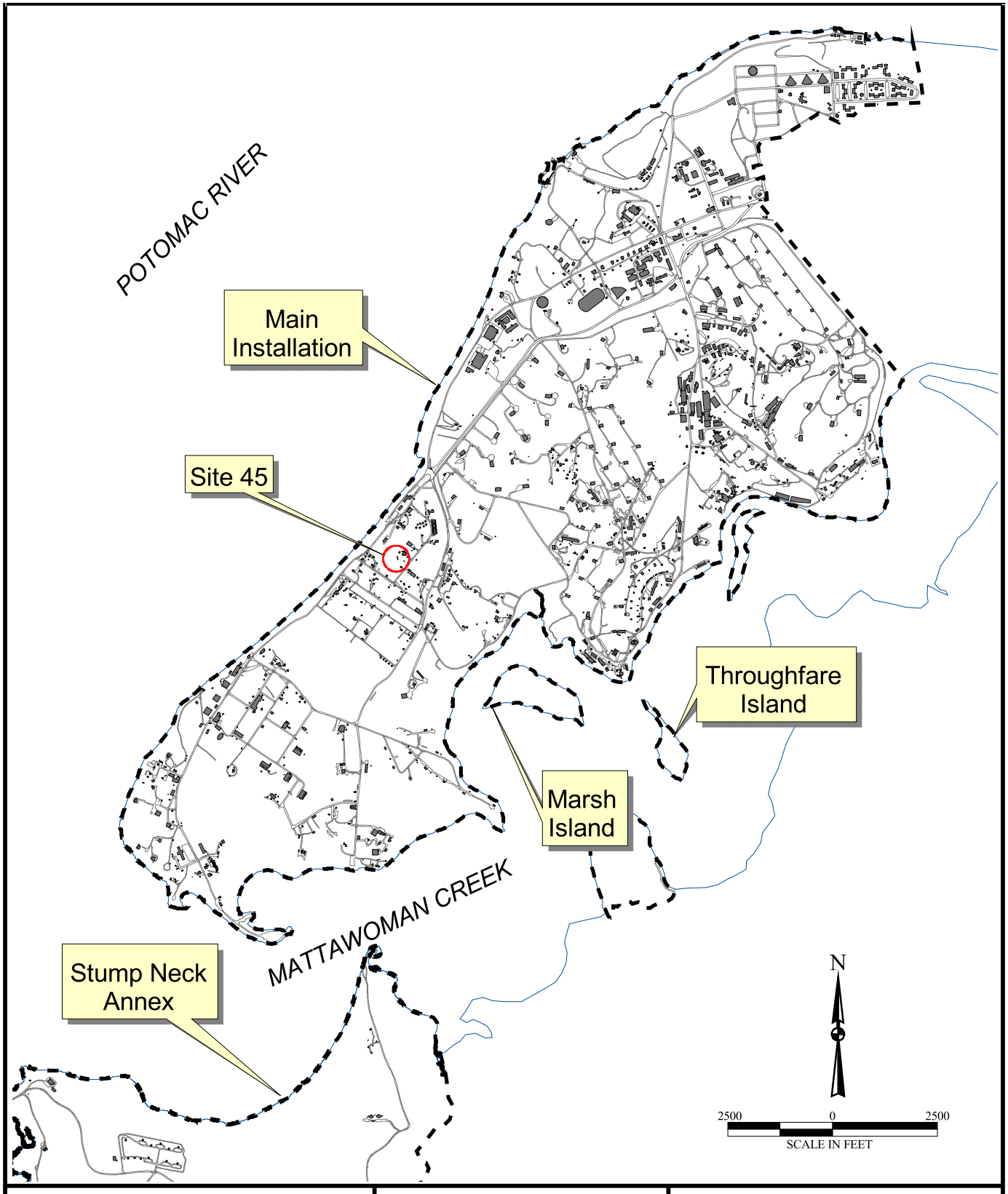
J = Reported value is estimated

Table 2-3
Chemicals Detected in Site 45 Grab Shallow Groundwater Samples
Site 45 Record of Decision
NDWIH, Indian Head, Maryland

Sample ID	Facility-wide Background 95% UCL		IS45GW010402		IS45GW020403		IS45GW030403		IS45GW040403	
Sample Type	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
Chemical Name										
Metals (µg/L)										
Aluminum	73,400	268	12,900		347,000	109	70,400	282	15,100	190
Antimony					39.2			5		
Arsenic	19.1				236		19.6		19.4	
Barium	688	52.1	56.1	6	1,550	30.3	260	67.7	99	30.2
Beryllium	11		0.68	0.34	27.4	1.3	4.4	1.4	2.4	1.3
Cadmium	9.8	2.9		0.7		0.42		0.56		
Calcium	40,300	18,800	9,050	9,080	20,500	8,110	9,380	9,960	8,820	8,530
Chromium	191		18.9	1.5	568		136		34	
Cobalt	641	6.47	6.3	2	266	6.9	96.7	56.2	44.0	28.5
Copper	166	3.8	10.3		543		63.3		15.4	
Iron	252,000	14,100	15,000	117	1,160,000	212	74,200	1,780	42,400	813
Lead	51	1.4	8.9		166		38.3		8.5	
Magnesium	14,351	3,850	4,210	3,390	25,300	5,170	11,800	9,380	13,200	12,200
Manganese	2,290	609	93.2	29.4	3,650	267	1,150	941	689	568
Mercury	0.17	0.16			3.5		2.4		0.26	
Nickel	166	7.5	10.6	2.4	204	6.1	94.5	26.5	30.3	16.8
Potassium	8,430	5,910	1,610	359	23,300	1,400	5,000	1,470	1,990	1,260
Selenium	14.1			3.5						
Silver				2.1	5.1					
Sodium	33,000	32,300	1,930	1,820	15,100	19,200	15,900	20,600	31,600	32,200
Vanadium	281		30.1		738		115			
Zinc	483	5.8	57.2	23.4	1,110	29.6	224	62.1	71	29.4

All concentrations in micrograms per liter
Facility-wide background data obtained from TtNUS, 2002.

FIGURES



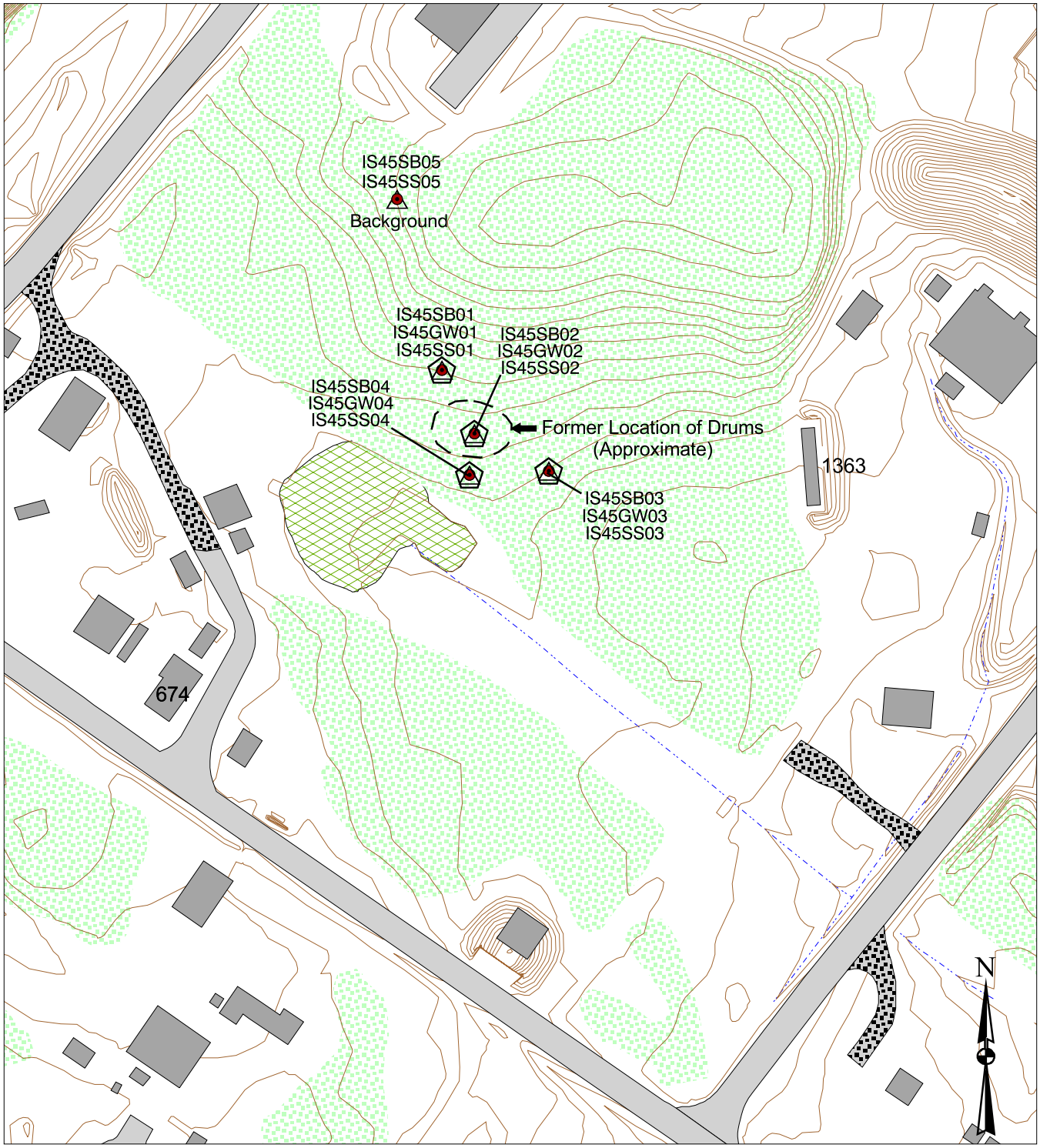
Filename: X:\CHM003\TO_04\ROD\45_site_location.apr
Project: CHM003-004-17
Created: 11/13/00 TH
Revised: 11/21/05 ASC
Source: CH2MHILL, HydroGeoLogic, Inc—GIS Database

HGL HydroGeoLogic, Inc

Legend

Base Boundary

Figure 2-1
Facility Map
Site 45 Record of Decision
NDWIH, Indian Head, MD



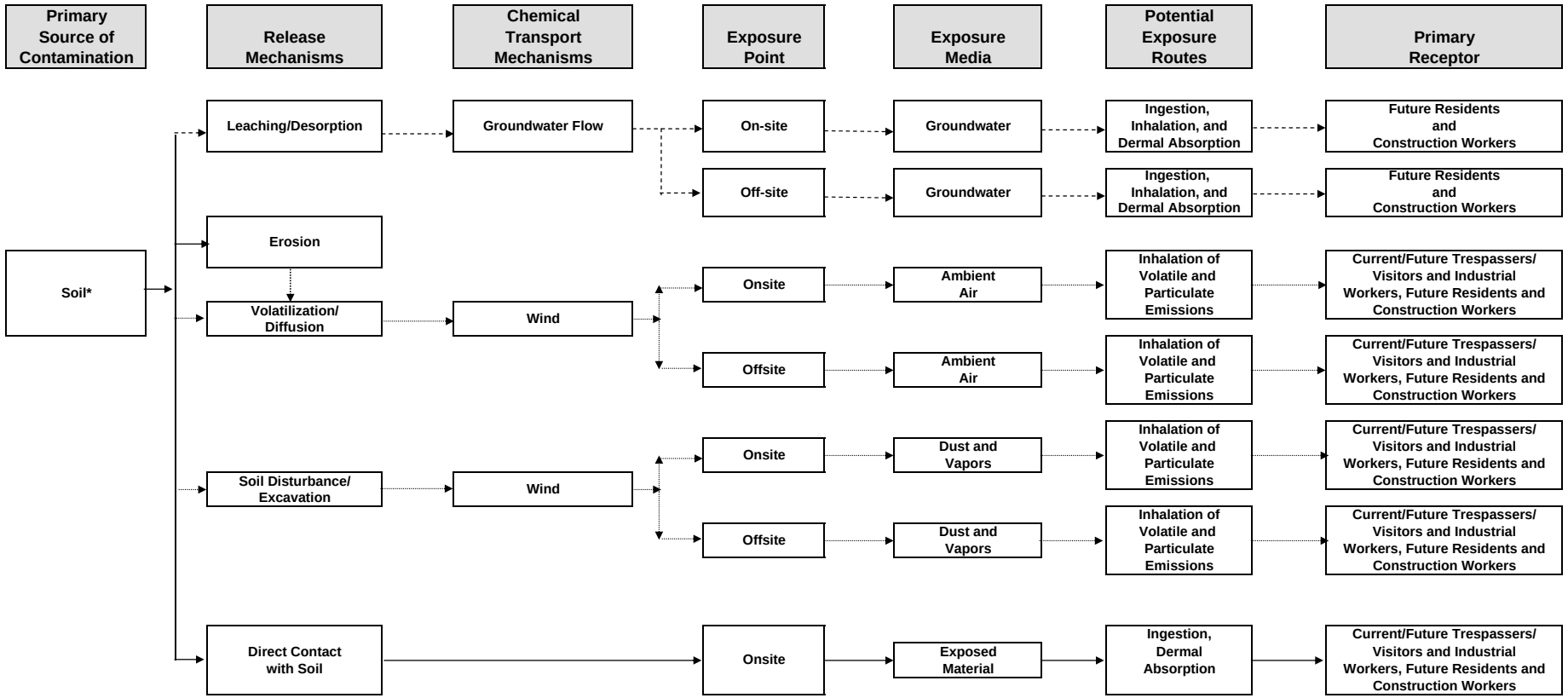
Filename: X:\CHM003\TO_04\ROD\site45.apr
Project: CHM003-004-17
Created: 11/13/00 TH
Revised: 11/21/05 ASC
Source: CH2MHILL, HydroGeoLogic, Inc.—GIS Database

HGL HydroGeoLogic, Inc

Legend

- Building/Structure
- Ground Elevation Contour (1ft.)
- Surface Water Drainage
- Forested Area
- Wetland
- Paved Road
- Gravel Road
- Surface Soil Sample
- Subsurface Soil Sample
- Shallow Groundwater Grab Sample

Figure 2-2
Site 45 Topography and Sampling Locations
Site 45 Record of Decision
NDWIH, Indian Head, MD



* Current scenario is for surface soil and future scenarios are for surface and subsurface soil combined.

Complete Pathway

Pathway not evaluated because data indicated no contamination of the shallow groundwater

Pathway not evaluated because no CPOCs identified

Figure 2-3
Conceptual Exposure Model for Potential Human Exposures-Site 45
Record of Decision
NDWIH, Indian Head, Maryland

SECTION 3

Responsiveness Summary

The Responsiveness Summary is a concise and complete summary of significant comments received from the public and includes responses to these comments. The Responsiveness Summary was prepared after the public comment period which ended on November 17, 2004, in accordance with guidance in "Community Relations in Superfund: A Handbook" (EPA, 1992). The Responsiveness Summary provides the decision maker with information about the views of the community. It also documents how the Navy, EPA, and MDE considered public comments during the decision-making process and provides answers to significant comments.

3.1 Overview

The Proposed Plan, as presented to the public, identified that no remedial action is necessary to protect human health and the environment.

3.2 Background on Community Involvement

The public comment period for the no further action decision for Site 45 began on October 19, 2004, and ended on November 17, 2004. A public meeting was held on October 21, 2004, at the Indian Head Senior Center, 100 Cornwallis Square, Indian Head, Maryland, to accept oral and written comments on this decision.

3.3 Summary of Comments Received During the Public Comment Period and Navy Responses

No significant comments were received during the public comment period.

SECTION 4

References

Bentley, R.E., et al., 1976. *Laboratory Evaluation of the Toxicity of Nitrocellulose to Aquatic Organisms.* U.S. NTIS, Ad. Report AD-A037749. 40 pps.

Chief of Naval Operations, 1999. *Navy Policy for Conducting Ecological Risk Assessments*.

Engineering Field Activity, Chesapeake, 2003. *Site Management Plan for Installation Restoration Program, Indian Division Naval Surface Warfare Center, Indian Head, Maryland.*

Efroymson, R.A., M.E. Will, and G.W. Suter II, 1997. *Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrpohic Process: 1997 Revision.* Environmental Restoration Division, Oak Ridge National Laboratory Environmental Restoration Program. ES/ER/TM-126/R2.

Ensafe/Allen & Hoshall, 1994. *Final Site Inspection Report, Phase II. Indian Head Division Naval Surface Warfare Center, Indian Head, Maryland.*

HydroGeoLogic, Inc. 2004. *Final Remedial Investigation Report for Sites 6, 39, and 45, Naval District Washington, Indian Head, Indian Head, Maryland.*

MHSPE, 1994. *Intervention Values.* Directorate-General for Environmental Protection, Department of Soil Protection, The Hague, Netherlands. 9 May. DBO/07494013.

NEESA, 1992. *Preliminary Assessment, Naval Surface Warfare Center Indian Head Division, Indian Head, Maryland.*

Neuhauser, E.F., R.C. Loehr, D.L. Milligan, and M.R. Malecki, 1985. *Toxicity of Metals to the Earthworm Eisenia fetida.* Biol. Fertil. Soils. 1:149-152.

Sullivan, J.H., Jr., et al., 1978. *A Summary and Evaluation of Aquatic Environmental Data in Relation to Establishing Water Quality Criteria for Munitions Unique Compounds – Nitrocellulose.* Report, Order No. AD-A060767. 22 pps.

TtNUS, 2002. *Background Soil Investigation Report for Indian Head and Stump Neck Annex, Naval Surface Warfare Center, Indian Head, Maryland.*

U.S. Army Environmental Center, 2001. *Composting Nitrocellulose Fines.* U.S. Army Environmental Center website, aec.army.mil/prod/usace/et/restor/nitrolcel.htm. Accessed 31 August 2001.

U.S. Environmental Protection Agency (EPA), 1992. *Community Relations in Superfund: A Handbook*. OSWER Directive 9320.3B, January1992.

U.S. Environmental Protection Agency (EPA). 1997. *Ecological risk assessment guidance for Superfund: process for designing and conducting ecological risk assessments. Interim Final*. EPA/540/R-97/006.

Appendix A
Glossary

APPENDIX A

Glossary

This glossary defines terms used in this ROD describing CERCLA activities. The definitions apply specifically to this ROD and may have other meanings when used in different circumstances.

Administrative Record File: A file that contains all information used by the lead agency to make its decision in selecting a response under CERCLA. This file is to be available for public review, and a copy is to be established at or near the site, usually at one of the information repositories. Also, a duplicate is filed in a central location, such as regional or state office.

Anthropogenic Background Conditions: The concentrations of chemicals or elements that are due to historic, widespread human activity.

Background Concentrations: Concentrations of chemical compounds or elements in environmental media that are representative of naturally occurring conditions or that may be attributable to historic, widespread human activity.

Baseline Risk Assessment: A study conducted as a supplement to a remedial investigation to determine the nature and extent of contamination at a Superfund site and the risks posed to public health and the environment.

Carcinogen: A substance that may cause cancer.

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.

Community Relations: The Navy and NDWIH program to inform and involve the public in the Superfund process and respond to community concerns.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): Comprehensive Environmental Response, Compensation, and Liability Act (1980), also known as the Superfund Law, as amended by the Superfund Amendments and Reauthorization Act of 1986. CERCLA provides the authority and procedures for responding to releases of hazardous substances, pollutants, and contaminants from inactive hazardous waste disposal sites.

Contamination: The presence of a chemical that is due to prior human activity, such as waste disposal or accidental releases. A metal is not considered to be a contaminant unless the site concentrations exceed what would be expected from the background conditions.

Direct Push: A method of drilling in which a steel rod is pushed or driven into the ground. This technology can be used to support a variety of subsurface work, including the collection of soil samples and groundwater samples.

Ecological Receptor: A plant or animal that may be exposed to a contaminant in the environment.

Feasibility Study: See Remedial Investigation and Feasibility Study.

Groundwater: Water beneath the ground surface that fills spaces between materials such as sand, soil, or gravel to the point of saturation. In aquifers, groundwater occurs in quantities sufficient for drinking water, irrigation, and other uses. Groundwater may transport substances that have percolated downward from the ground surface as it flows toward its point of discharge.

Hazardous Substance: Any material that poses a threat to public health or the environment. Typical hazardous substances are materials that are toxic, corrosive, ignitable, explosive, or chemically reactive.

Information Repository: A file containing information, technical reports, and reference documents regarding a Superfund site that is made available to the public. The information repository for NDWIH is at the NDWIH General Library, Indian Head Division, NDWIH, Building 620, 101 Strauss Avenue, Indian Head, Maryland.

Metals: Metals are naturally occurring elements in the earth. Arsenic, cadmium, iron, mercury, and silver are examples of metals. Exposure to some metals, such as arsenic and mercury, can have toxic effects. Other metals, such as iron, are essential to the metabolism of humans and animals.

Monitoring Wells: Wells drilled at specific locations on or near a site where groundwater can be sampled at selected depths and studied to assess the groundwater flow direction and the types and amounts of contaminants present.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): Federal regulations that provide the organizational structure and procedures for preparing for and responding to discharges of oil and release of hazardous substances, pollutants, or contaminants.

National Priorities List (NPL): The EPA list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response. The list is based on the score a site receives in the Hazard Ranking System. EPA is required to update the NPL at least once a year.

Organic Compounds: Naturally occurring or man-made chemicals containing carbon. Volatile organic compounds can evaporate more quickly than semivolatile organic compounds. Some organic compounds may cause cancer; however, their strength as a cancer-causing agent can vary widely. Other organic compounds may not cause cancer but may be toxic. The concentrations that can cause harmful effects can also vary widely.

Parts per Billion (ppb)/Parts per Million (ppm): Units commonly used to express low concentrations of contaminants. For example, one ounce of a chemical in a million ounces of water is 1 ppm. One ounce of a chemical in a billion ounces of water is 1 ppb. If one drop of a chemical is mixed in a competition-size swimming pool, the water will contain about 1ppb of the chemical. Parts per million are equivalent to mg/L and mg/kg. Parts per billion are equivalent to µg/L and µg/kg.

Proposed Plan: A public participation requirement of SARA in which the lead agency summarizes for the public the preferred clean-up strategy and rationale for preference and 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.

Record of Decision (ROD): An official public document that selects the clean-up alternative(s) which will be used at NPL sites. 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 Action: The actual construction or implementation phase that follows the remedial design for the selected clean-up alternative at a site on the NPL.

Remedial Investigation/Feasibility Study (RI/FS): Investigation and analytical studies usually performed at the same time in an interactive process and together referred to as the RI/FS. They are intended to gather data needed to determine the type and extent of contamination, establish criteria for cleaning up the site, identify and screen clean-up alternatives for remedial action, and analyze in detail the technology and costs of the alternatives.

Response Action: As defined by CERCLA Section 101(25), means remove, removal, remedy, or remedial action, including enforcement activities.

Responsiveness Summary: A summary of significant 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.

Superfund: An informal name for CERCLA.

Superfund Amendments and Reauthorization Act (SARA): The public law enacted to reauthorize the funding provisions and amend the authorities and requirements of CERCLA and associated laws. Section 120 of SARA requires that all federal facilities be subject to and comply with this act in the same manner and to the same extent as any non-government entity.