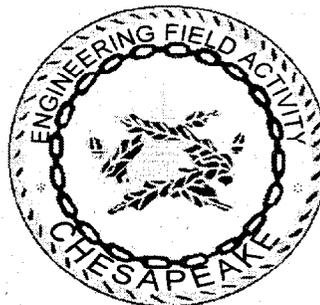


Proposed Plan for **Site 41 - Scrap Yard**

Indian Head Division
Naval Surface Warfare Center
Indian Head, Maryland



Engineering Field Activity Chesapeake
Naval Facilities Engineering Command
Contract Number N62472-90-D-1298
Contract Task Order 0245

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PROPOSED PLAN
SITE 41 – SCRAP YARD
INDIAN HEAD DIVISION NAVAL SURFACE WARFARE CENTER
INDIAN HEAD, MARYLAND
FEBRUARY 2001

1.0 INTRODUCTION

This Proposed Plan identifies the preferred alternative for a remedial action for the contaminated soil and shallow groundwater at Site 41 (Scrap Yard) at the Indian Head Division Naval Surface Warfare Center (IHDIV-NSWC), Indian Head, Maryland. The Plan also provides the rationale for this preference. In addition, this Plan includes summaries of other clean-up alternatives that were evaluated for this site. This document is issued by the Department of the Navy (Navy), the lead agency for site activities, and the U.S. Environmental Protection Agency (EPA) and the Maryland Department of the Environment (MDE), the support agencies. The Navy, in consultation with EPA and MDE, will select a final remedy for the site after reviewing and considering all information submitted during the 30-day comment period. The Navy, in consultation with EPA and MDE, may modify the preferred alternative or select another response action presented in this Plan based on new information or public comments. Therefore, the public is encouraged to review and comment on all the alternatives presented in this Proposed Plan.

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), also known as the Superfund Law. This Proposed Plan summarizes information that can be found in detail in the Remedial Investigation (RI) Report, Feasibility Study (FS) Report, and other documents contained in the Administrative Record file for this site. The Administrative Record file is located at the Charles County Public Library – La Plata Branch and the IHDIV-NSWC General Library. Addresses, telephone numbers, and hours of operation for these locations can be found on page 12 of this document. The Navy, EPA, and MDE encourage the public to review these documents to gain a more comprehensive understanding of the site and Superfund activities that have been conducted for the site.

A glossary of some of the technical terms used in this Proposed Plan is provided in Table 1.

2.0 SITE BACKGROUND

Site 41 is a fenced scrap yard located in the southeastern portion of the IHDIV-NSWC (see Figure 1). The site is approximately 750 feet long and 75 to 100 feet wide and is located adjacent to Mattawoman Creek (see Figure 2). A concrete slab is present within most of the fenced area; however, the slab is buried under soil in some places. It was reported that electrical transformers were stored at the northwestern end of Site 41 from the 1960s until 1988. Following an inspection in 1981, 17 transformers were identified as either containing or contaminated with polychlorinated biphenyls (PCBs). These transformers were believed to have leaked and contaminated the soil in this portion of the site. In addition, lead-acid batteries were stored in the scrap yard and may have released lead to the surface soil. Runoff from Site 41 flows southwestward into Mattawoman Creek.

IHDIV-NSWC was placed on the Superfund National Priorities List (NPL) in September 1995. Sites on the NPL are subject to the requirements of CERCLA and the NCP.

The Navy conducted several investigations at the site. The results are described in Section 3.0, Site Characteristics. Previous public participation efforts are discussed in Section 10.0, Community Participation.

3.0 SITE CHARACTERISTICS

Site 41 was investigated during a Site Inspection (SI) in 1992 and 1993 to determine whether solvents, PCBs, or lead had contaminated surface soil, creek sediment, or shallow groundwater. Polynuclear aromatic hydrocarbons (PAHs), pesticides, and metals were detected in soil samples. Pesticides and metals were detected in sediment samples. The solvent trichloroethene (TCE) and metals were detected in shallow groundwater, along with low concentrations of pesticides.

An RI was performed at the site in 1997 that included soil, shallow groundwater, surface water, and sediment sampling. The RI and the previous SI identified the types, quantities, and locations of contamination. The following summarizes the nature and extent of contamination:

- Analytical data for surface water samples suggest that historic activities at Site 41 have had minimal impact on surface water quality. The concentration of trichloroethene (TCE) in shallow groundwater was higher than the Safe Drinking Water Act Maximum Contaminant Level (MCL), and concentrations of arsenic, barium, and cobalt were higher than EPA Region 3 human health risk-based screening concentrations for groundwater used as tap water.

- Volatile organic compounds (VOCs) were detected infrequently in soil, shallow groundwater, surface water, and sediment.
- Several semivolatile organic compounds (SVOCs), primarily PAHs, were detected in more than 50 percent of the surface soil samples. SVOCs were only detected in 10 percent of the subsurface soil samples, and the concentrations were five to 20 times less than in surface soil. PAHs in sediment samples were generally detected less often and at lower concentrations than in surface soil samples.
- Pesticides were sporadically detected in surface and subsurface soil samples. Several pesticides were also detected in sediment samples.
- Widespread PCB contamination was evident in the surface soil; however, PCBs were not detected in subsurface soil or sediment samples.
- Several metals (e.g., arsenic, cadmium, lead, mercury, and silver) were detected at concentrations higher than base background. Arsenic, cadmium, and lead were detected most often in surface soil samples. The maximum concentrations of most metals in subsurface soil and sediment samples were less than in surface soil samples.

Additional investigations were performed in September 1999 to fill data gaps. Surface soil samples were collected from 40 locations, and subsurface soil samples were collected from 30 locations. The detected chemicals were similar to those detected in previous investigations, and the results were used to refine the extent of contamination.

Most of the surface and subsurface soil within the fenced scrap yard is contaminated with PAHs, PCBs, arsenic, cadmium, and/or lead. Contamination generally extends up to a depth of 2 feet, with an average depth of 6 inches. There are also isolated soil "hot spots" outside the fenced area that are contaminated with the same contaminants.

The site has been a scrap yard from at least the 1960s to the present time. It is not used for any other purpose.

4.0 SCOPE AND ROLE OF RESPONSE ACTION

This Proposed Plan addresses the remedial actions to be taken regarding contamination at Site 41. The remedial action objectives for Site 41 are to prevent current and future exposure to contaminated soil and shallow groundwater. The purpose of this Proposed Plan is to present alternatives from which the Navy, with regulatory agency concurrence and public input, will select a remedy to prevent unacceptable

exposure to soil and shallow groundwater contaminants and reduce movement of contaminants into the environment.

Potential ecological risks are also present from chemicals in surface water and sediment in Mattawoman Creek adjacent to Site 41. However, surface water and sediment are not addressed in this Proposed Plan because the Navy is planning a more complete ecological risk assessment of Mattawoman Creek as a separate study.

5.0 SUMMARY OF SITE RISKS

As part of the RI/FS, the Navy conducted a baseline risk assessment to determine the current and future effects of contaminants on human health and the environment. It is the Navy's current judgment that the Preferred Alternative identified in this Proposed Plan is necessary to protect public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment at Site 41.

Human Health Risks

The human health risk assessment considered the following receptors and exposure pathways:

- Current and future maintenance workers, current and future full-time employees, and current and future adolescent trespassers exposed to surface soil.
- Future construction workers exposed to surface and subsurface soil, shallow groundwater, and sediment.
- Current and future adult recreational users exposed to sediment.
- Hypothetical future residents exposed to surface and subsurface soil, shallow groundwater, and sediment.

Surface soil is soil at a depth of zero to 6 inches. Subsurface soil is soil deeper than 6 inches.

Receptor	Cancer Risk	Hazard Quotient
Maintenance worker	7.7E-5	0.29
Full-time employee	6.4E-4	2.4
Adolescent trespasser	2.4E-5	0.23
Construction worker	8.1E-5	14
Adult Recreational user	8.2E-7	0.05
Child resident	1.6E-3	31
Adult resident	1.8E-3	8.9

A risk level is determined for potential cancer-causing chemicals based on how much of the chemical is present and its strength as a cancer-causing agent. The acceptable risk range EPA has set for protection of human health is represented as 1E-4 to 1E-6. This range would increase the risk that a male will get cancer from 50 percent (lifetime average cancer risk for a male) to a maximum of 50.01 percent. In addition, the risk that a female will get cancer would increase from 33 percent (lifetime average cancer risk for a female) to a maximum of 33.01 percent. Chemicals producing other harmful effects were compared with reference concentrations (highest levels not causing harmful effects) to calculate a Hazard Quotient (HQ). An HQ above 1.0 indicates cleanup may be needed to reduce potential exposures to a safe level. For example, if the chemical concentration results in a daily intake of 25 parts per million (ppm) per day and the reference concentration is 10 ppm per day, the HQ would be 2.5.

The risk assessment calculated unacceptable risks for the full-time employee, construction worker, and hypothetical future resident. Chemicals of concern (COCs) that account for most of the risk from exposure to soil include arsenic, lead, and PCBs. Lesser risk is associated with exposure to the PAHs benzo(a)pyrene and dibenzo(a,h)anthracene. The chemical of concern that accounts for most of the risk from exposure to groundwater is arsenic.

The Navy's statistical analysis of soil sampling data indicates that probable exposure concentrations of arsenic are 144 ppm for surface soil and 328 ppm for subsurface soil. These concentrations are associated with HQs of 1.15 (full-time employee), 6.43 (construction worker), 18.1 (hypothetical future child resident), and 4.02 (hypothetical future adult resident). These concentrations are also associated with excess lifetime cancer risks of 1.85E-4 (full-time employee), 6.98E-4 (hypothetical future child resident), and 6.21E-4 (hypothetical future adult resident). There are no unacceptable cancer risks for the construction worker from exposure to arsenic in soil.

The probable exposure concentrations of lead are 3,540 ppm for surface soil and 942 ppm for subsurface soil. These concentrations exceed EPA soil screening levels of 400 ppm for residential land use and 1,000 ppm for industrial land use. Additional evaluations indicated the potential for unacceptable risks to hypothetical future child residents and pregnant workers from exposure to lead in soil.

The probable exposure concentration of PCBs is 180 ppm for surface soil and subsurface soil. These concentrations are associated with excess lifetime cancer risks of 4.5E-4 (full-time employee), 6.01E-4 (hypothetical future child resident), and 6.76E-4 (hypothetical future adult resident). There are no unacceptable HQs from exposure to PCBs in soil.

The Navy's statistical analysis of groundwater sampling data indicates that the probable exposure concentration of arsenic in shallow groundwater is 38 parts per billion (ppb). This concentration is

associated with HQs of 8.0 and 3.4 for hypothetical future child and adult residents, respectively. This concentration is also associated with excess lifetime cancer risks of $3.1E-4$ and $5.3E-4$ for hypothetical future child and adult residents, respectively. The exposure concentration for TCE is 32 ppb. Although the TCE concentration does not result in unacceptable risks, it is higher than the Safe Drinking Water Act Maximum Contaminant Level of 5 ppb.

These risks and hazard levels indicate that there is significant potential risk to full-time employees and construction workers from direct exposure to soil. There is also significant potential risk to hypothetical future child and adult residents from direct exposure to soil and shallow groundwater. These risk estimates are based on future reasonable maximum exposure scenarios and were developed by taking into account various conservative assumptions about the frequency and duration of an individual's exposure to the soil and shallow groundwater. Assumptions on the toxicity of arsenic, lead, and PCBs were also considered.

Ecological Risks

An ecological risk assessment indicated that there are potential ecological risks from arsenic, cadmium, lead, and PCBs detected in surface soil. It should be noted that uncertainties remain regarding the quality and quantity of terrestrial habitat at Site 41. The Scrap Yard proper is currently used for storage of scrap materials and provides little habitat of value. The impacted area immediately adjacent to the Scrap Yard is relatively narrow and of marginal quality (bare soil and turf grass). Some limited weedy vegetation is present behind the Scrap Yard. This habitat information was taken into consideration when making risk management decisions based on potential ecological risks.

There are no endangered species or critical habitats at Site 41.

6.0 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) provide a general description of what the clean-up will accomplish. These goals typically serve as the design basis for the clean-up alternative. Based on the recommendations of the RI, an evaluation of PCB clean-up regulations, the current use of the site as an active scrap yard, and the anticipated future uses of the site, the media of interest at Site 41 are surface soil and subsurface soil. Although chemical concentrations in shallow groundwater were higher than drinking water standards and pose potential risks to hypothetical future residents, shallow groundwater beneath the site is not a current or potential source of drinking water under the anticipated non-residential land use for this site. However, one of the RAOs is to prevent future residential use and use of contaminated shallow groundwater.

Based on the media of concern, the potential pathways and receptors of concern, and anticipated land use scenarios, one RAO was developed for surface and subsurface soil. The RAO for soil is to reduce or eliminate the direct contact threat associated with contaminated soil. These threats are associated with human receptors exposed to surface and subsurface soil and ecological receptors exposed to surface soil.

This proposed action would reduce the excess cancer risk associated with exposure to contaminated soil to about one in 100,000 (1E-5 risk level). The proposed action would also reduce risks to ecological receptors to the Lowest Observed Adverse Effects Level (LOAEL). This would be achieved by removing contaminated soil having chemical concentrations above the following target levels:

Chemical of Concern	Surface Soil (0 to 6 inches)	Subsurface Soil (>6 inches)
Arsenic	15 ppm	29 ppm
Cadmium	5 ppm	NA
Lead	480 ppm	480 ppm
PCBs	1,000 ppb	10,000 ppb
Benzo(a)pyrene	330 ppb	330 ppb
Dibenzo(a,h)anthracene	330 ppb	330 ppb

Because there are no federal or state clean-up standards for soil contamination, the Navy established these targets, or preliminary remediation goals (PRGs), based on the baseline risk assessment and EPA guidance for PCB contamination. Human health PRGs will be applied to the soil at Site 41, except where the ecological PRGs are lower than those developed for human health. The ecological PRGs, however, will only be used for surface soil in the 0- to 6-inch depth range.

In summary, the RAOs are as follows:

- Prevent future residential use and use of contaminated shallow groundwater.
- Reduce or eliminate the direct contact threat associated with contaminated soil.

7.0 SUMMARY OF REMEDIAL ALTERNATIVES

Remedial alternatives for Site 41 are presented below. Only two alternatives were evaluated in the FS Report: Alternative 1 – No Action and Alternative 2 – Soil Removal. Alternative 2 requires land use controls to limit the use of the site and to prevent the use of shallow groundwater for drinking water purposes. These resource use restrictions would be documented in the Base Master Plan. The Base Master Plan would provide guidance for the Navy to take adequate measures to minimize adverse human and environmental effects at the time of any future land development. The exact type(s) of restrictions and enforceability will need to be determined for the selected remedy in the Record of Decision (ROD).

Consistent with the expectations set out in the Superfund regulations, none of the remedies relies exclusively on institutional controls to achieve protectiveness.

Neither of the alternatives includes active clean-up of shallow groundwater. Shallow groundwater at Site 41 is not currently used and is not expected to be used in the future. Migration of groundwater contaminants is not adversely affecting surface water or sources of potable water. Monitoring the effectiveness of the remedy, including land use controls, is a component of the soil removal alternative but not the no-action alternative.

Alternative 2 is expected to attain the RAOs, and the no-action alternative will not. Therefore, the preferred alternative is Alternative 2 - Soil Removal. Detailed descriptions of these remedial alternatives can be found in the FS Report.

Alternative 1 – No Action

Estimated Capital Cost: \$0

Estimated Annual Operation and Maintenance (O&M) Cost: \$0

Estimated Present Worth Cost: \$0

Estimated Construction Timeframe: None

Regulations governing the Superfund program generally require that the no-action alternative be evaluated to establish a baseline for comparison. Under this alternative, the Navy would take no action at the site to prevent exposure to the soil and shallow groundwater contamination.

Alternative 2 – Soil Removal with Land Use Controls and Monitoring

Estimated Capital Cost: \$750,600

Estimated Annual O&M Cost: \$15,000

Estimated Present Worth Cost: \$1,076,000

Estimated Construction Timeframe: 2 months

Estimated Time to Achieve RAOs: 2 months

The purpose of soil removal would be to remove the source of contamination and the possibility of exposure to human and ecological receptors. Approximately 1,500 cubic yards of contaminated soil would be excavated and transported off site for disposal. The method of soil disposal depends on the PCB concentrations in accordance with EPA regulations (40 CFR 761). The following disposal methods and the associated PCB concentrations are as follows: solid waste landfill (<50 ppm), hazardous waste landfill (50 to 500 ppm), and incinerator (>500 ppm). An average of 6 inches of soil within the fenced area

would be removed, and the underlying concrete slab would be steam cleaned to remove contamination. If residual contamination cannot be removed, a layer of asphalt pavement would be placed over the concrete to eliminate exposure to residual contamination. Six to 18 inches of soil would also be excavated from areas outside the fence line. One area would be excavated to a depth of 8 feet. Following excavation, soil samples would be collected to verify that residual concentrations of chemicals of concern (COCs) are below PRGs. Additional excavation would be performed as necessary. Excavated areas would be backfilled to the original ground surface with clean fill and revegetated.

Land use controls would be put in place to prohibit residential development and shallow groundwater use. Shallow groundwater monitoring would be conducted to confirm that migration of contaminants into the environment has not occurred and to determine the need for future actions. A site review would be performed within 5 years.

8.0 EVALUATION OF ALTERNATIVES

Nine criteria are used to evaluate the different remedial alternatives individually and against each other in order to select a remedy. This section of the Proposed Plan profiles the relative performance of each alternative against the nine criteria, noting how each compares to the other options under consideration. The nine evaluation criteria are discussed below. The evaluation criteria are explained in Table 2. The more detailed analysis of alternatives can be found in the FS Report. A summary of the evaluation of alternatives is provided in Table 3. The rationale for selecting the preferred alternative is discussed in Section 9.0, Summary of the Preferred Alternative.

Threshold Criteria

Overall Protection of Human Health and the Environment

Alternative 2 would be protective of human health and the environment by removing contaminated soil and preventing residential use and shallow groundwater use through land use controls. The alternative would be protective of ecological receptors by removing contaminated surface soil.

Because the no-action alternative (Alternative 1) is not protective of human health and the environment, it is eliminated from consideration under the remaining eight criteria. Therefore, Alternative 1 cannot be selected as the preferred alternative.

Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

Alternative 2 would meet its respective ARARs from federal and state laws including EPA PCB disposal regulations (40 CFR 761).

Primary Balancing Criteria

Long-Term Effectiveness and Permanence

Alternative 2 would reduce the inherent hazards posed by contaminated soil at the site to health- and ecological-based levels based on non-residential exposure. Land use controls would be necessary to ensure the long-term effectiveness and permanence by restricting future site use and shallow groundwater use. Monitoring would be effective in determining whether shallow groundwater contaminants are migrating beyond the site boundary or to surface water at unacceptable levels.

Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment

For Alternative 2, soil contaminated with more than 500 ppm of PCBs would be treated at an off-site incinerator to reduce toxicity.

Short-Term Effectiveness

No risks to the public are anticipated from implementation of Alternative 2. Exposure of workers to the contaminated media could be controlled by the use of appropriate controls and adherence to proper health and safety protocols. Excavation of soil and installation of pavement within the Scrap Yard (if needed) would temporarily impact active operations at the site. Erosion controls would be provided during excavation to prevent off-site migration of contaminated soil.

Implementability

Equipment and services needed to excavate and dispose of contaminated soil under Alternative 2 are available. Site and groundwater use restrictions can be strictly enforced because the site is located at a military facility.

Cost

The present-worth cost of Alternative 2 is \$1,076,000.

Modifying Criteria

State Acceptance

State acceptance of the preferred alternative will be evaluated after the public comment period and will be described in the ROD for the site.

Community Acceptance

Community acceptance of the Preferred Alternative will be evaluated after the public comment period ends and will be described in the ROD for the site.

9.0 SUMMARY OF THE PREFERRED ALTERNATIVE

The preferred alternative for cleaning up Site 41 is Alternative 2 (Soil Removal). The preferred alternative is expected to achieve substantial and long-term risk reduction through a combination of removal, land use controls, and monitoring. Only non-residential land use is anticipated at Site 41. All contaminated soil that poses potential risks under non-residential exposure scenarios would be removed from the site. Residential use of the site and use of shallow groundwater would be prohibited. With respect to ecological risk, all contaminated soil that poses potential risks to ecological receptors would be permanently removed from the site. Monitoring would be conducted to confirm that shallow groundwater contaminants are not migrating off site or to surface water.

Based on information currently available, the Navy believes the preferred alternative (Alternative 2 – Soil Removal with Land Use Controls and Monitoring) meets the threshold criteria and provides the best balance of tradeoffs among the other alternatives with respect to primary balancing and modifying criteria. The Navy expects the preferred alternative to satisfy the following statutory requirements of CERCLA Section 121(b): be protective of human health and the environment, comply with ARARs, be cost effective, and utilize permanent solutions and alternative treatment technologies to the maximum extent practicable. If off-site incineration is needed for soil contaminated with more than 500 ppm of PCBs, the remedy would meet the statutory preference for the selection of a remedy that involves treatment as a principal element. The preferred alternative can change in response to public comment or new information.

10.0 COMMUNITY PARTICIPATION

The Navy, EPA, and MDE provide information regarding the clean-up of sites at IHDIV-NSWC, including Site 41, to the public through public meetings, the Administrative Record file for the site, and announcements published in the *Maryland Independent* and *La Plata-Indian Head Ledger*. The Navy, EPA, and MDE encourage the public to gain a more comprehensive understanding of the site and the Superfund activities that have been conducted at the site.

A critical part of the selection of a remedial action is community involvement. The Navy relies on public comments to ensure that the selected alternatives are fully understood and that community concerns

have been considered. The following information is provided to solicit community input into the selection of a remedy for Site 41.

Important Dates to Remember

Public comment period begins February 13, 2001

Public Meeting
Tuesday, February 20, 2001
7 to 8:30 pm
Indian Head Senior Center
100 Cornwallis Square
Indian Head, MD 20640

Public comment period ends April 6, 2001

During the public meeting, representatives of the Navy, EPA, and MDE will be available to answer questions and accept public comments on the Proposed Plan or remedy for Site 41. In addition, an overview of the site characterization will be presented.

A collection of general information, including the Administrative Record file, is available to the community in the information repositories at the following locations:

Charles County Public Library
La Plata Branch
Charles & Garrett Streets
La Plata, MD 20646
(301) 934-9001

Hours of Operation:
Mon. – Thurs.: 9:00 AM – 8:00 PM
Fri.: 12:00 PM – 5:00 PM
Sat.: Summer (closed)
9:00 AM – 5:00 PM (after Labor Day)
Sun.: Closed

IHDIV-NSWC
General Library
Indian Head Division
Naval Surface Warfare Center
Building 620
101 Strauss Avenue
Indian Head, MD 20640-5035
(301) 744-4747

Hours of Operation:
Mon. – Fri.: 9:00 AM – 5:30 PM
Sat. & Sun.: Closed

Minutes of the public meeting will be made available to the public through the information repositories listed above. A responsiveness summary will be prepared at the conclusion of the comment period to summarize significant comments, criticisms, and new relevant information submitted to the Navy during the comment period. In addition, the summary will include the responses to each issue or question raised at the public meeting. The responsiveness summary will also be included in the ROD for Site 41.

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

Ms. Christina Adams
Public Affairs Officer
Indian Head Division
Naval Surface Warfare Center
Code PA, Building 20
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For further information, please contact:

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Table 1 Glossary of Terms

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

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): The federal and state environmental laws that a selected remedy will meet. These requirements may vary among sites and alternatives.

Background Concentrations: Concentrations of chemical compounds 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 an RI to determine the nature and extent of contamination at an NPL site and the risks posed to human health and/or the environment.

Chemicals of Concern (COC): Those chemicals that pose unacceptable risk to human health, ecological receptors, or the environment and need to be addressed by a remedial action.

Clean-up: Actions taken to deal with a release or threatened release of hazardous substances, pollutants, or contaminants that could affect public health or the environment. The noun "clean-up" is often used to describe various response actions or phases of remedial responses, such as an RI/FS.

Comment Period: A time for the public to review and comment on various documents and actions taken, either by the Navy, EPA, or MDE. For example, a comment period is provided when EPA proposes to add sites to the NPL. 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.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and modified in 1986 by the Superfund Amendments and Reauthorization Act (SARA). The act created a special tax that goes into a trust fund to investigate and clean up abandoned or uncontrolled hazardous waste sites. Under the program, EPA can do either of the following:

- Pay for site clean-up when parties responsible for the contamination cannot be located or are unwilling or unable to perform the work.
- Take legal action to force parties responsible for site contamination to clean up the site or pay back the federal government of the cost of the clean-up.

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.

Ecological Receptor: A plant or animal that is introduced to a compound in the environment.

Feasibility Study (FS): See Remedial Investigation/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.

Hazard Quotient (HQ): The ratio of the daily intake of a chemical from on-site exposure divided by the reference dose for that chemical. The reference dose represents the daily intake of a chemical that is not expected to cause adverse health effects.

Hazardous Substance: Any material that poses a threat to public health and/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 an NPL site.

Lowest Observed Adverse Effects Level (LOAEL): The lowest concentration of a chemical where adverse effects on ecological receptors are likely.

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

Monitoring: Ongoing collection of information about the environment that helps gauge the effectiveness of a clean-up action. This includes the collection of samples with laboratory analysis for the contaminants of interest.

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

National Priorities List: The EPA list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response.

Net Present Worth: A present-worth analysis is used to evaluate costs that occur over different time periods by discounting all future costs to a common base year. It represents the amount of money that, if invested in the base year and dispersed as needed, would be sufficient to cover all costs associated with the remedial action over its planned life. Net present worth considers both capital (construction) and costs of annual operation and maintenance.

Organic Compounds: These are naturally occurring or man-made chemicals containing carbon. Volatile organics can evaporate more quickly than semivolatile organics. Other organics associated with RI/FS activities include pesticides and polychlorinated biphenyls (PCBs). Some organic compounds may cause cancer; however, their strength as a cancer-causing agent can vary widely. Other compounds may not cause cancer but may be toxic. The concentrations that can cause harmful effects can also vary widely.

Polynuclear Aromatic Hydrocarbons (PAHs): A group of chemicals that are formed during the incomplete burning of coal, oil and gas, garbage, or other organic substances. PAHs can be man-made or occur naturally.

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 in 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 explains which clean-up alternative(s) 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.

Remedial Response: A long-term action that stops or substantially reduces a release or threatened release of hazardous substances that is serious but does not pose an immediate threat to public health or the environment.

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

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

Revegetate: To replace topsoil, seed, and mulch on prepared soil to prevent wind and water erosion.

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

Safe Drinking Water Act Maximum Contaminant Level (SDWA MCL): The maximum permissible level of a contaminant in water that is delivered to any use of a public water system.

Screening Concentration: The lowest concentration of a chemical compound in an environmental medium that may result in current or potential future adverse human health or environmental effects in the event of exposure under certain conditions.

Semivolatile Organic Compounds (SVOCs): Chemical compounds that evaporate more slowly than volatile organic compounds at normal temperatures and pressures.

Superfund: An informal name for CERCLA.

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

Volatile Organic Compounds (VOCs): Chemical compounds that evaporate readily at normal temperatures and pressures.

Table 2 Evaluation Criteria for Superfund Remedial Alternatives

In selecting a preferred clean-up alternative, the Navy uses the following criteria to evaluate each of the alternatives developed in the FS. The first two threshold criteria are essential and must be met before an alternative is considered further. The next five primary balancing criteria are used to further evaluate all alternatives that meet the threshold criteria. The final two modifying criteria are used to further evaluate the Proposed Plan after the public comment period has ended and comments from the community, EPA, and MDE have been received. All nine criteria are explained in more detail here.

THRESHOLD CRITERIA

Overall Protection of Human Health and the Environment determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, removal, or treatment.

Compliance with ARARs evaluates whether the alternative meets federal and state environmental statutes, regulations, and other requirements that pertain to the site or whether a waiver is justified.

PRIMARY BALANCING CRITERIA

Long-Term Effectiveness and Permanence considers the ability of an alternative to maintain protection of human health and the environment over time.

Reduction of Toxicity, Mobility, or Volume through Treatment evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present.

Short-Term Effectiveness considers the length of time needed to implement an alternative and the risks the alternative poses to workers, the community, and the environment during implementation.

Implementability considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.

Cost includes estimated capital and annual operation and maintenance costs, as well as their present-worth cost. *Present-worth cost is the total cost of an alternative over time in terms of today's dollar value.* Cost estimates are expected to be accurate within a range of +50 to -30 percent.

MODIFYING CRITERIA

State Acceptance considers whether the state agrees with the Navy's analyses and recommendations, as described in the RI/FS and Proposed Plan.

Community Acceptance considers whether the local community agrees with the Navy's analysis and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance.

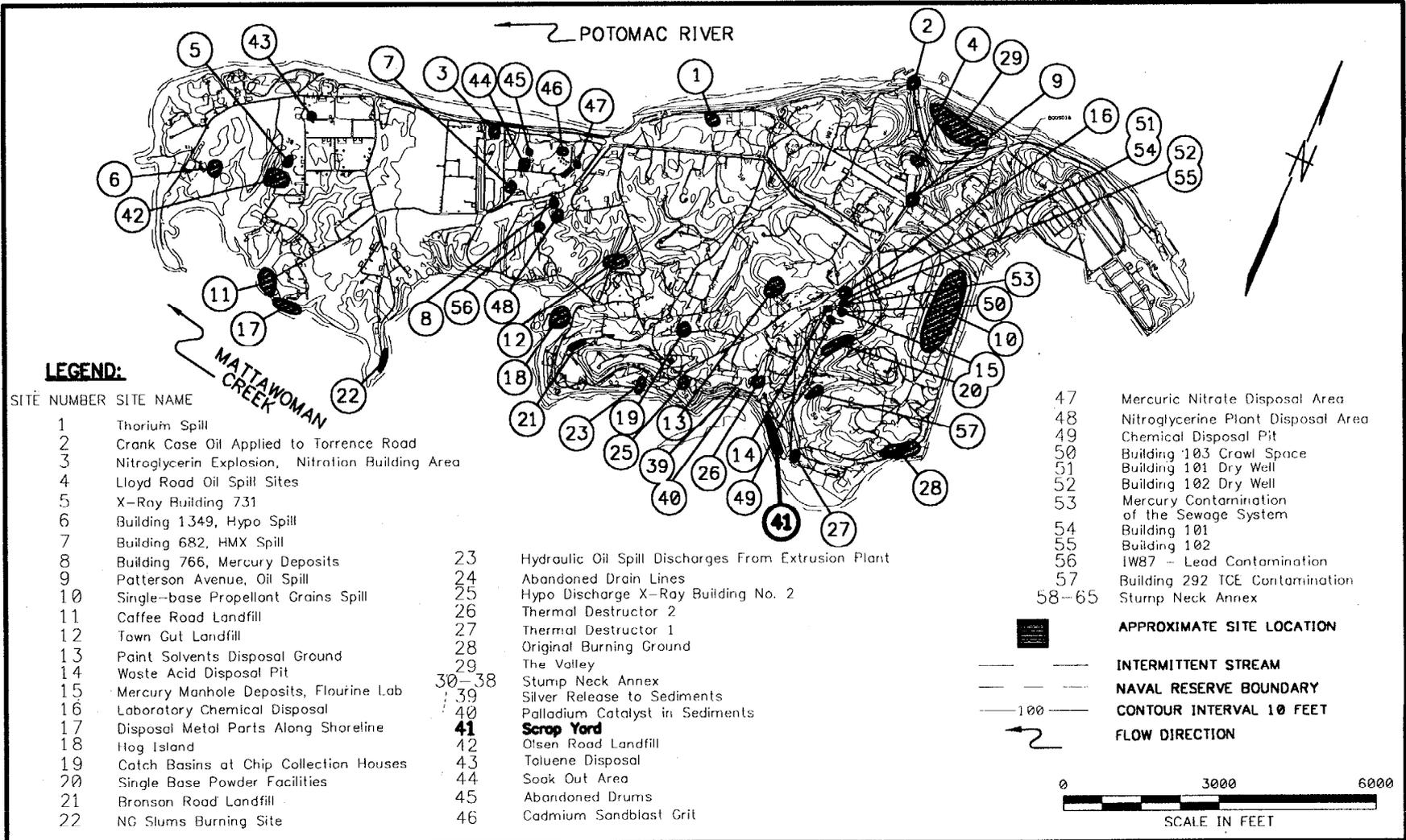
TABLE 3
SUMMARY OF EVALUATION OF ALTERNATIVES
SITE 41 – SCRAP YARD
IHDIV-NSWC, INDIAN HEAD, MARYLAND

Evaluation Criteria	Alternative 1 – No Action	Alternative 2 – Soil Removal with Land Use Controls and Monitoring
Threshold Criteria		
Overall Protection of Human Health and the Environment	No reduction in potential risks.	Soil removal and land use controls would reduce risks to human health and the environment.
Compliance with ARARs		
Chemical-specific	Would not comply.	Would comply.
Location-specific	Not applicable.	Not applicable.
Action-specific	Not applicable.	Would comply.
Primary Balancing Criteria		
Long-term Effectiveness and Permanence	Allows risk to remain uncontrolled.	Soil removal and land use controls would reduce risks to human health and the environment. Monitoring and use restrictions provide adequate and reliable controls.
Reduction of Toxicity, Mobility, or Volume through Treatment	No treatment.	Minimal treatment (incineration) of fraction of soil would reduce toxicity and volume.
Short-term Effectiveness	Not applicable. No short-term impacts or concerns.	No impacts to community. Exposure of workers to contaminated media can be adequately controlled. The alternative could be implemented in 2 months.
Implementability	Nothing to implement. No monitoring to show effectiveness.	Alternative consists of common remediation practices that are readily available and implementable.
Costs		
Capital	\$0	\$750,600
O&M	\$0	\$15,000
NPW	\$0	\$1,076,000
Modifying Criteria		
State Acceptance	To be determined.	To be determined
Community Acceptance	To be determined	To be determined

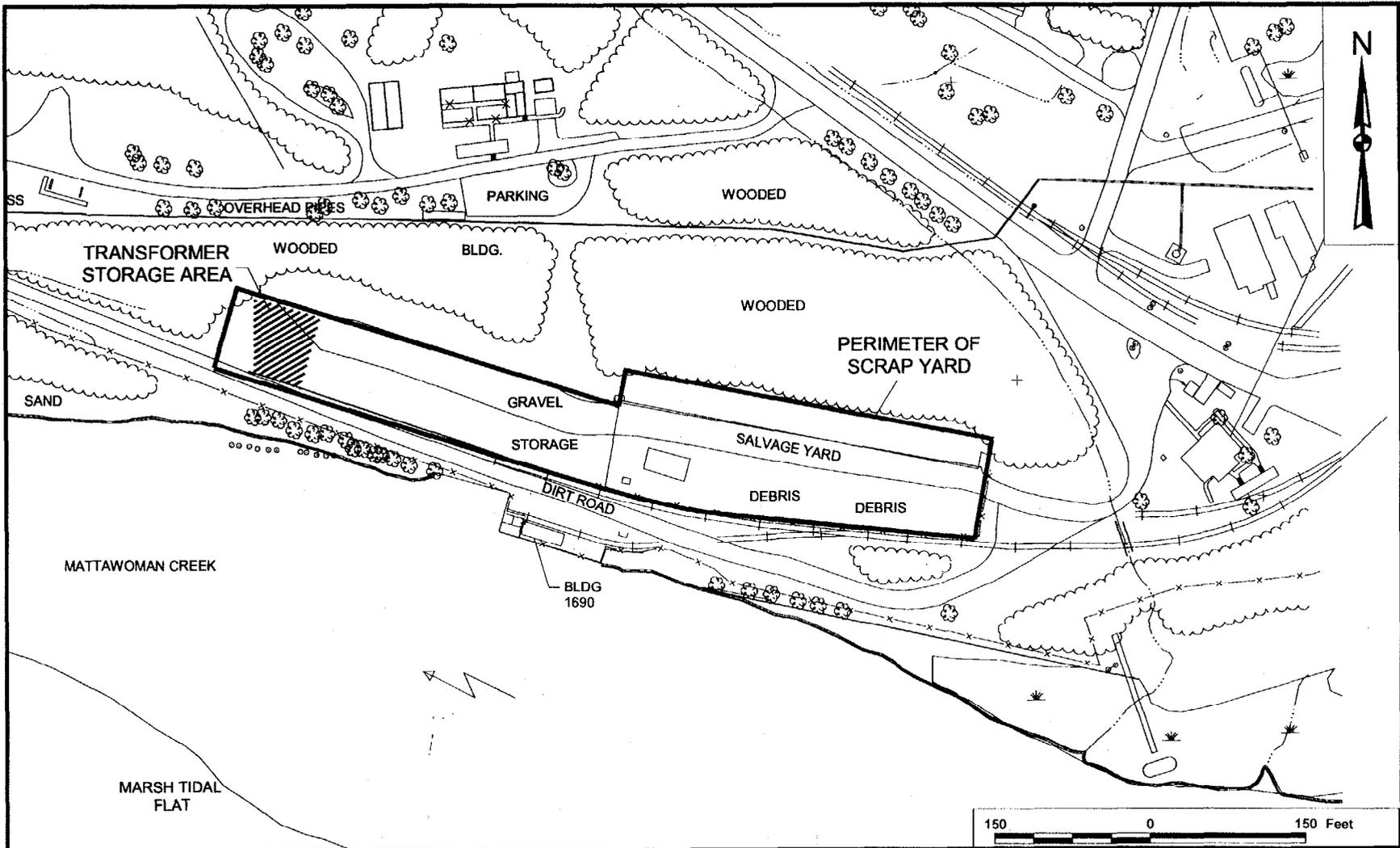
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DRAWN BY HJP	DATE 8/22/00	Tetra Tech NUS, Inc.	CONTRACT NO. 7129	OWNER NO.
CHECKED BY	DATE		APPROVED BY	DATE
COST/SCHED-AREA	SITE LOCATION MAP INDIAN HEAD NSW INDIAN HEAD, MARYLAND		APPROVED BY	DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1	REV. 0



DRAWN BY J. BELLONE CHECKED BY COST/SCHEDULE-AREA SCALE AS NOTED	DATE 7/10/00 DATE DATE	Tetra Tech NUS, Inc. SITE CONDITIONS MAP SITE 41 - SCRAP YARD IHDIV- NSWC, INDIAN HEAD, MARYLAND	CONTRACT NUMBER 7129 OWNER NUMBER APPROVED BY DATE APPROVED BY DATE DRAWING NO. FIGURE 2 REV 0
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MAILING LIST

If you are not on the mailing list and would like to receive future publications pertaining to Site 41 or other sites at IHDIV-NSWC as they become available, please call or complete, detach, and mail a copy of this form to the point of contact listed below:

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