



Proposed Remedial Action Plan

SWMU 7a: Small Boats Sandblast Yard

Naval Amphibious Base Little Creek
Virginia Beach, Virginia

March 2005

1 Introduction

This **Proposed Plan** identifies the preferred alternative for addressing potential releases from past activities at Solid Waste Management Unit (SWMU) 7a Small Boats Sandblast Yard at Naval Amphibious Base (NAB) Little Creek, Virginia Beach, Virginia. This Plan proposes no further action (NFA) and provides the rationale for this preference, based on all the actions conducted at the site to date.

This Proposed Plan is issued jointly by the by the U.S. Department of the Navy (Navy), the lead agency for site activities, and by the **U.S. Environmental Protection Agency (USEPA)** Region III, in consultation with the **Virginia Department of Environmental Quality (VDEQ)**, which is the support agency. The Navy and the USEPA, in consultation with the VDEQ, will make the final decision on the remedial approach for SWMU 7a after reviewing and considering all information submitted during the 30-day **public comment period**. The Navy and USEPA, along with VDEQ, may modify the preferred alternative or select another remedial action based on new information or **public comments**. Therefore, public comment on the Preferred Alternative is invited and encouraged. Information on how to participate in this decisionmaking process is presented in Section 7.

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** and Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**. This Proposed Plan summarizes information that can be found in greater detail in the **Final Remedial Investigation/Human Health Risk Assessment/Ecological Risk Assessment (RI/HHRA/ERA)** Report (December 2004), and other documents contained in the Administrative Record file and Public Repositories for NAB Little Creek (see Section 7). Glossary terms are identified in **bold** print the first time they appear in the text.

2 Site Background

2.1 Site Description and Background

NAB Little Creek was commissioned July 30, 1945; the Base's mission was training landing craft personnel for operational assignments. During the last 60 years, NAB Little Creek has expanded in both area and the complexity of its mission. NAB Little Creek personnel provide logistic facilities and support services to 27 homeported ships and more than 80 tenant commands.

Mark Your Calendar for the Public Comment Period

Public Comment Period

Feb. 25 - March 25, 2005

Submit Written Comments

The Navy will accept written comments on the Proposed Plan during the public comment period.



Attend the Public Meeting

March 9, 2005

Time - 7:00 pm

Place - Shelton Park Elementary School
1700 Shelton Road
Virginia Beach, VA 23455

The U.S. Navy will hold a public meeting to explain the Proposed Plan and remedial actions conducted at the Site to date. Verbal and written comments will also be accepted at this meeting.



Location of Information Repository

For more information about SWMU 7a, see the Administrative Record Public Repository at the following location:

Virginia Beach Central Library
4100 Virginia Beach Boulevard
Virginia Beach, VA, 23452
Phone: 757.431.3001

NAB Little Creek is located in the northwestern corner of Virginia Beach, Virginia, along the Chesapeake Bay's southern shore. The base's western border abuts the City of Norfolk, Virginia. The area surrounding this 2,147 acre base is low-lying and relatively flat. The base is bounded on the north by the Chesapeake Bay; on the west by residential communities and several marinas; on the south by Shore Drive, Lake Whitehurst, Little Creek Reservoir/ Lake Smith, Norfolk International Airport Industrial Park, and residential development; and on the east by Lake Bradford. In May 1999, NAB Little Creek was placed on USEPA's **National Priorities List (NPL)**.

SWMU 7, Small Boats Sandblast Yard, is located in the north central portion of NAB Little Creek (Figure 1) along Desert Cove Piers 44-55 and includes Building CB-125. As a result of all previous investigations conducted at the site, the Navy, in partnership with USEPA and VDEQ, agreed to separate the terrestrial and aquatic portion of SWMU 7 into SWMUs 7a and 7b, respectively. SWMU 7a addresses groundwater and soil, and SWMU 7b addresses Desert Cove surface water and sediment (Figure 2).

This PRAP is prepared for SWMU 7a terrestrial **media**. The operational history of the site is based on information provided in the **Initial Assessment Study (IAS)** conducted in 1984, the **Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA)** conducted in 1989, and a review of historical aerial photographs.

The site was utilized for sandblasting and ship painting before 1996. Since then, sandblasting activities have been conducted in an indoor facility (Building CB-125). The area was also used to temporarily store spent Abrasive Blast Material (ABM) pending testing for proper disposal. Approximately 4,000 cubic yards (yd³) of ABM, generated from 1960 to 1982, were temporarily stored in open piles in the small boats sandblasting area.

The ground surface at SWMU 7a consists of concrete, asphalt, and hard-packed gravel. Adjacent to SWMU 7a, and west of building CB-125, is a large parcel of trees and grass-covered ground. Desert Cove (SWMU 7b) and the connector channel are adjacent to SWMU 7a, which receive direct runoff and discharge from outfalls located around the cove. The cove and connector channel are inland to Little Creek Channel, which leads northward toward the Chesapeake Bay. These water bodies are tidally influenced and regularly receive influxes of surface water.

2.2 Summary of Previous Investigations

Previous basewide investigations include the IAS, the RFA, and a Relative Risk Ranking System (RRRS) Data Collection Report (1996). Additionally, a Site Investigation (SI), Engineering Evaluation Cost Analysis (EE/CA), an Interim Removal Action (IRA), and RI/HHRA/ERA were completed at SWMU 7 (SWMU 7a and b) from 2000 to 2004. The following briefly summarize the purpose and scope of the previous investigations completed to date at

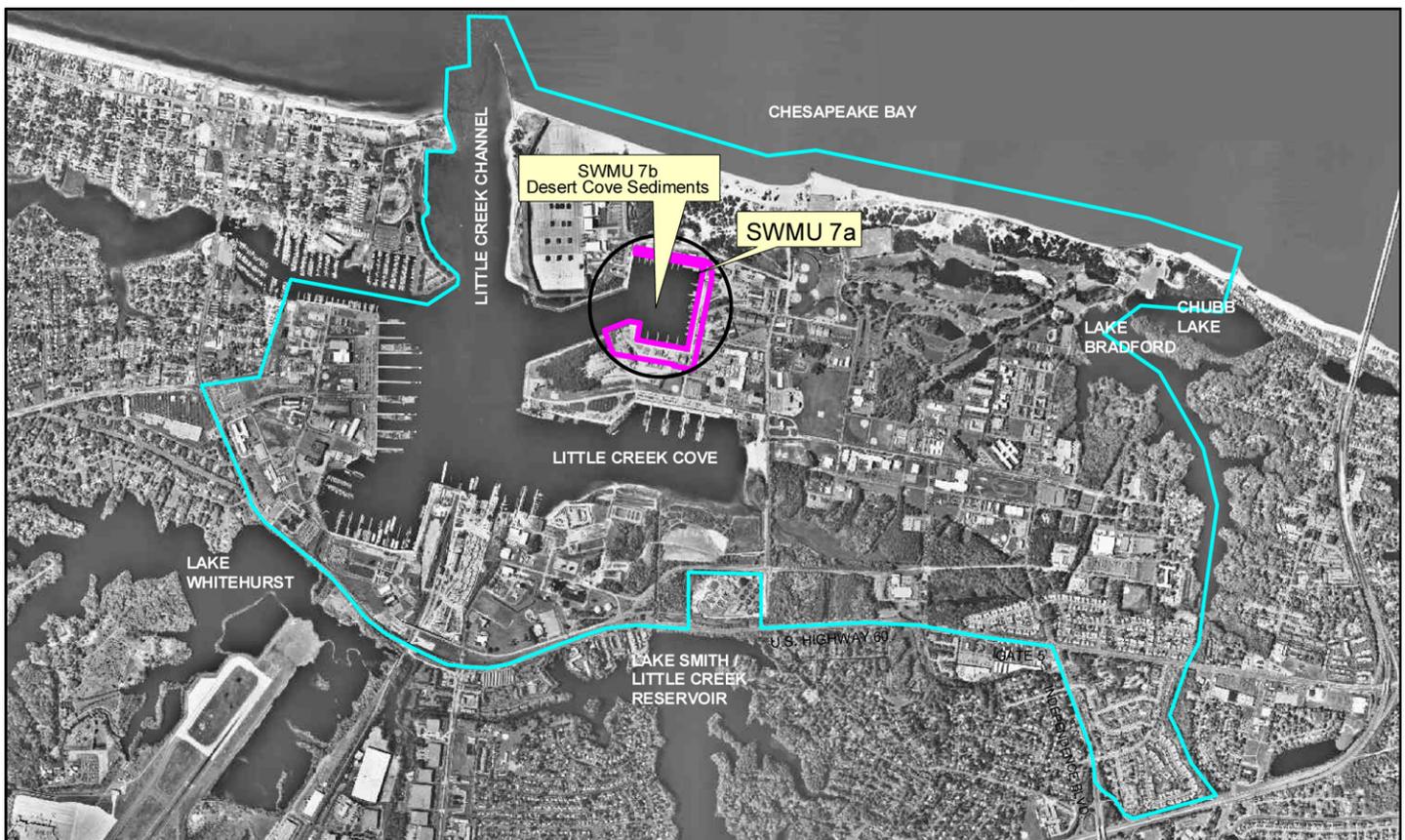


Figure 1 - Base Location Map

SWMU 7. Further detailed information is contained in the Administrative Record for NAB Little Creek. A complete list of the documents included in the Administrative Record files for NAB Little Creek can be obtained from the NAB Little Creek Installation Restoration web site: <http://public.lantops-ir.org/sites/public/nabc/Site%20Files/AdminRecords.aspx>.

Initial Assessment Study (1984)

The Navy conducted the IAS as part of the Naval Assessment and Control of Installation Pollutants (NACIP) Program. The purpose was to qualitatively identify and assess sites that posed a potential threat to human health or the environment as a result of contamination from past handling of and operations involving hazardous materials. ABM from sandblasting activities accumulated on the site between the 1960s and 1982. Based on results of leachability testing, the ABM was classified as nonhazardous. The IAS recommended that no confirmation studies or remedial actions be undertaken at SWMU 7.

RCRA Facility Assessment (1989)

A RCRA Facility Assessment was conducted at NAB Little Creek where 147 SWMUs and several areas of concern (AOCs) were identified. The RFA recommended that soil sampling for analysis of metals be conducted at SWMU 7 to determine the extent of ABM contamination. The RFA also recommended that a cover be placed over all residue to preclude future wind dispersal of the wastes.

SWMU Installation Restoration (IR) Summary (2000)

In June 2000, the Navy summarized all available information on 147 SWMUs, eight AOCs, and 17 IR Sites at NAB Little Creek. The report included information obtained from the RRRS study, the goal of which was to gather data in order to rank and prioritize the sites based on level of risk.

Site Investigation (2001)

A SI was completed at SWMU 7 in August 2001, and included the collection and analysis of groundwater, soil, and sediment samples. Results of the SI confirmed that ABM is present in the surface soils, making up 5 percent or less of the soil samples. Most ABM was observed near Building CB-125, which currently serves as an indoor sandblasting facility.

Metals (aluminum, arsenic, chromium, iron, and manganese) in surface soils were elevated above background in localized areas along the site's western boundary currently used for heavy equipment and container storage. Based on population statistical comparisons, arsenic and manganese are not statistically different from background. Polycyclic aromatic hydrocarbons (PAHs) were detected in soil samples northwest of Building CB-125, and metals and PAHs were found in the sediment in Desert Cove. Similar concentrations of constituents were detected in groundwater upgradient of SWMU 7, indicating SWMU 7 is not contributing contamination to groundwater.

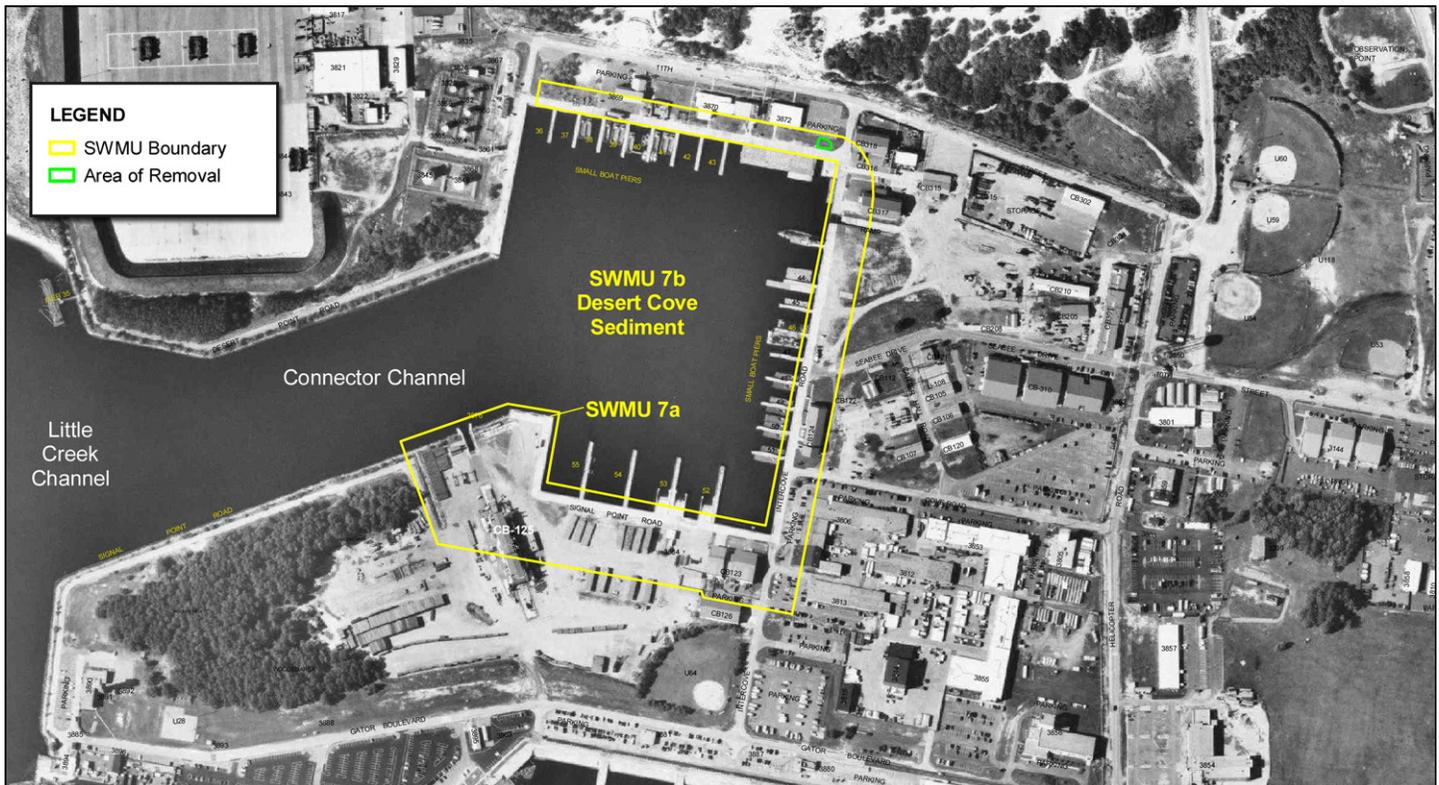


Figure 2 - Site Location Map

Baseline Ecological Risk Assessment (2001)

A baseline ecological risk assessment (BERA) completed for SWMU 7 in January 2001 concluded that some metals (chromium, iron, lead, silver, and zinc) exceeded both surface soil ecological screening values and **background concentrations**, and identified potential risks to lower trophic level receptors (plants and soil invertebrates) that might utilize terrestrial habitats at SWMU 7. The terrestrial habitat quality and, thus, exposure potential to ecological receptors is very limited. Almost all of SWMU 7a is paved, covered by buildings, or composed of hard-packed dirt or gravel parking lots. The nature of the substrate would not be conducive to inhabitation by most types of soil invertebrates. Potential risks to upper trophic level terrestrial receptors (birds and mammals) were minimal because **Hazard Quotients (HQs)** based on lowest observed adverse effects level (LOAELs) (food web exposures) did not exceed one.

Engineering Evaluation Cost Analysis, Interim Removal Action and Construction Completion (2004)

An EE/CA was completed in June 2004 to evaluate alternatives for soil removal in the northeastern portion of SWMU 7a where lead concentrations in surface soil exceeded the USEPA guidance level of 400 mg/kg using the **Integrated Exposure-Uptake Biokinetic Model (IEUBK)**. Previous sampling results indicated elevated lead was not a concern in subsurface soils of SWMU 7a. The alternatives evaluated included no action, an engineered protective cover over impacted soil, and excavation of impacted soil. The EE/CA was placed in the local library for public comment on the proposed removal action. The preferred alternative was excavation of impacted surface soil.

A **Non-time Critical Removal Action (NTCRA)** was completed in September 2004. The surface soil (0-6") was excavated removing a total of forty (40) cubic yards (45 tons) for off-site disposal. Site restoration consisted of a 6-inch layer of clean fill, grading and seeding.

Final Remedial Investigation/Human Health Risk Assessment/ Ecological Risk Assessment (2004)

Following completion of removal of soil containing lead in the northeastern portion of SWMU 7a, the RI/HHRA/ERA was finalized in December 2004. The RI/HHRA/ERA concluded there were no unacceptable human health or ecological risks associated with SWMU 7a soil or groundwater. Documentation of risk evaluations and construction completion for soil removal is included in the RI. Based on the results of all investigations and removal actions at SWMU 7a, no unacceptable risks remain at the site. The Navy, in partnership with the USEPA and VDEQ, agree no further action under CERCLA is warranted for SWMU 7a. Further investigation is recommended for SWMU 7b.

3 Site Characteristics

NAB Little Creek is located around three saltwater bodies: Little Creek Cove, Desert Cove, and Little Creek Channel, the latter of which connects the two coves with the Chesapeake Bay. The bay, harbor, and wetland areas, including two large lakes, several ponds, and a freshwater marsh, provide habitat for a variety of wildlife. NAB Little Creek is primarily an industrial facility. The surrounding areas are used for recreational, commercial, and residential purposes. Although the base is mostly urbanized, small pockets of pine and hardwood forest habitat are present within its boundaries. A broken line of vegetated primary and secondary dunes extend along the entire 2.25 miles of Chesapeake Bay shoreline.

Nearly all of the ground surface at SWMU 7a is paved, covered by buildings, or composed of hard-packed dirt or gravel parking lots. Vegetated areas are very limited. The soil at SWMU 7a is primarily dredge-fill material from the construction of Desert Cove. Depth to groundwater (Columbia Aquifer) at the site ranges seasonally between approximately 7 to 9 feet below ground surface. Shallow groundwater generally flows toward Desert Cove with a relatively low hydraulic gradient (0.003 to 0.006 ft/ft).

3.1 Nature and Extent of Contamination

The nature and extent of contamination at SWMU 7a is based on the analysis of soil and groundwater samples and comparison of site chemical concentrations to background concentrations as determined by the **upper tolerance limits (UTLs)** for background data, and USEPA risk-based screening criteria. Metals (arsenic, aluminum, chromium, copper, iron, lead, manganese, mercury, thallium, vanadium, and zinc) and PAHs (benzo(b)fluoranthene, benzo(a)pyrene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene) were detected in soil. Highest concentrations of detected constituents were primarily near the indoor blasting facility and near Buildings 3884 and 3869. Although several metals and PAHs exceed human health or ecological screening criteria, most concentrations were within background UTLs, and therefore do not reflect a CERCLA release. Similarly, while some metals were detected in groundwater at concentrations above risk screening criteria, most were below background levels. Metals typically associated with potential leaching from ABM were either not detected or reported at low estimated concentrations. Therefore, groundwater does not appear to be impacted by a CERCLA release at SWMU 7a.

3.2 Contaminant Fate and Transport

Primary fate and **contaminant migration pathways** at SWMU 7a were examined during the RI. Pathways considered included infiltration and leaching of precipitation

through the vadose zone from soil to the groundwater system and surface runoff and erosion of soil to Desert Cove. Soil is a potential source of contaminants to shallow groundwater at SWMU 7a and sediment and surface water of Desert Cove. Sediment and surface water are not likely sources of contaminants to groundwater because the transport pathway is for groundwater to discharge to the surface water. Because groundwater has not been impacted by a CERCLA release at SWMU 7a, as noted above, groundwater discharge is not a likely source of contaminants to sediment.

4 Summary Of Site Risks

A summary of the human health and ecological risk assessment is included in the following subsections and in Table 1. The RI provides a more detailed analysis and evaluation of potential site risks.

4.1 Human Health Risk Summary

A baseline HHRA was conducted to evaluate the potential human health risks associated with the presence of potentially site-related constituents in soil and shallow groundwater at SWMU 7a. The HHRA characterizes the current and potential future human health risks at the site if no additional remediation is implemented. Health risks are based on a conservative estimate of the potential **carcinogenic risk** or the potential to cause other health effects not related to cancer (**noncarcinogenic risk**). A conservative estimate of risk was determined for potential exposure scenarios including current/future industrial and construction workers, current/future adult and adolescent trespassers, and future adult, child, and lifetime residents.

There is no unacceptable human health risk associated with exposure to soil at SWMU 7a. The noncarcinogenic **hazard index (HI)** associated with exposure to surface soil (1.4) is slightly above USEPA's target HI of 1.0 for combined surface and subsurface soil exposure for the future child resident scenario. None of the individual constituents in soil contribute hazard quotient (HQ) above 0.5, and there are no target organs with HIs above 1. The potential risks for all other human health scenarios from exposure to surface soil and combined surface and subsurface soil are within USEPA's acceptable risk range.

Media	Human Health Risk	Ecological Risk
Surface Soil	Acceptable	Acceptable
Subsurface Soil	Acceptable	Not Applicable
Groundwater	Acceptable	Acceptable

Table 1 - SWMU 7a Risk Assessment Results

Therefore, the Navy, in partnership with USEPA and VDEQ, agree the soil at SWMU 7a does not present any unacceptable cancer or non-cancer human health risks.

Potential human health risks associated with exposure to groundwater are limited to potable use by future residents from ingestion of arsenic, iron, and manganese, and potential dermal contact of a future construction worker to manganese in groundwater. While there is a slight potential risk (HI=1.7) to the future construction worker from dermal exposure to manganese in groundwater, there is no unacceptable risk (HI=0.4) based on a central tendency exposure scenario. Arsenic, iron, and manganese in groundwater indicate a potential human health risk for potable use. However, these naturally occurring metals are not believed to be related to a CERCLA release associated with sandblasting activities at SWMU 7a based on the following:

- Concentrations of typical ABM related metals such as lead, copper, chromium, and zinc are not elevated in soil or groundwater; these metals would be expected to be elevated if iron and manganese were related to ABM activities as well.
- The highest iron and manganese concentrations are found in the groundwater sample collected adjacent to the rip-rap shoreline of Desert Cove. This area may be tidally influenced as evidenced by elevated conductivity and salinity measurements in this sample. Therefore, concentrations of iron and manganese may be reflective of this tidal influence.
- If iron and manganese in groundwater were the result of leaching from surface ABM, then it would be expected that these metals would also be elevated in the overlying soil. There is no correlation between higher concentrations of iron and manganese in groundwater with concentrations of iron and manganese in soil; therefore, these metals are not considered to be associated with a release from SWMU 7a.
- SWMU 7a monitoring wells are screened within dredge fill material. It is likely that iron and manganese concentrations in groundwater are reflective of the dredge fill components rather than surface ABM activities.

Arsenic at a concentration of 18.4 ug/L exceeds the **maximum contaminant level (MCL)** of 10 ug/l in one of six samples collected. However, based on a population to population statistical comparison, arsenic concentrations in groundwater are statistically similar to the background concentrations. Additionally, the source of contamination (ABM piles and impacted soils) was removed during base maintenance activities and interim removal actions conducted at the site.

Based on the above discussion, the Navy and USEPA, in partnership with VDEQ, agree there are no unacceptable groundwater human health risks associated with a CERCLA release from SWMU 7a. Therefore, the Navy and USEPA, in partnership with VDEQ, agree that no further CERCLA actions are warranted for soil or groundwater at SWMU 7a.4.2 Ecological Risk Summary

A baseline ERA was conducted to evaluate the potential ecological risks associated with the presence of site-related surface soil and groundwater at SWMU 7a. When evaluating and interpreting the risk results, the ERA com-

pared naturally occurring and anthropogenic inorganic and PAH compound concentrations in site soils to those in background samples and considered the chemical distribution in site soil. The potential site-related ecological risks at SWMU 7a are low and, for PAHs, were restricted to a small area near CB-125. The developed nature of the terrestrial portions of the site and the resulting low quality of the habitat present (gravel or hard-packed dirt with low and sparse herbaceous plants) significantly reduces potential exposures. Based upon LOAELs, there were no exceedances for terrestrial-based food web exposures. Therefore, the Navy, in partnership with USEPA and VDEQ, agree that no further CERCLA actions are warranted for soil or groundwater at SWMU 7a.

What is Human Health Risk and How is it Calculated?

A human health risk assessment estimates the “baseline risk.” This is an estimate of the likelihood of health problems occurring if no cleanup action were taken at a site. To estimate the baseline risk at a site, the Navy performs the following four-step process:

Step 1: Analyze Contamination

Step 2: Estimate Exposure

Step 3: Assess Potential Health Dangers

Step 4: Characterize Site Risk

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

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

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

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

4.3 Current and Potential Future Site and Resource Uses

The Navy anticipates the current land use to continue indefinitely. No socio-economic and community revitalization impacts are anticipated.

5 Scope And Role of Response Action

No enforcement actions have been taken at SWMU 7a. Based on all available data there are no unacceptable human health or ecological risks at SWMU 7a; therefore, the preferred remedial action alternative for SWMU 7a is no further action (NFA). This represents the final action for SWMU 7a and is protective of human health and the environment. Additional investigations for SWMU 7b (Desert Cove surface water and sediment) will be addressed under a separate ROD. SWMU 7a is one of several IR sites being addressed under CERCLA at NAB Little Creek, including the adjacent SWMU 7b area of Desert Cove. The response action does not include or affect any other sites at the facility that fall under the CERCLA process.

6 Preferred Alternative

The Navy and USEPA, in consultation VDEQ, agree that the preferred alternative for SWMU 7a is no further action (NFA). The preferred alternative meets the statutory requirements of CERCLA for protection of human health and the environment. Based on a review of all site information, including human health and ecological risk assessments presented in the RI and results of soil removal actions at SWMU 7a, there are no unacceptable risks associated with site soil or groundwater. Because there are no unacceptable risks at SWMU 7a, no alternative other than the no further action alternative was evaluated. Under this alternative, no response action will be performed at SWMU 7a and no restrictions on land use or exposure are necessary. The Navy may reconsider no action as the preferred alternative or select another alter-

native if public comments or additional data indicate that another alternative warrants consideration.

State Acceptance

The State supports the Preferred Alternative. The State's final concurrence with the alternative will be provided following the review of all comments received during the public comment period.

Community Acceptance

Community acceptance will be evaluated after the public comment period for the Proposed Plan and will be fully evaluated in the **Record of Decision (ROD)**.

7 Community Participation

A community relations program is being conducted through the Installation Restoration process. Public input is a key element in the decision-making process. Nearby residents and other interested parties are strongly encouraged to use the comment period to relay any questions and concerns about SWMU 7a and the preferred alternative. The Navy will summarize and respond to comments in a responsiveness summary, which will become part of the official ROD.

This Proposed Plan fulfills the public participation requirements of CERCLA Section 117(a), which specifies that the lead agency (i.e., the Navy) must publish a plan outlining any remedial alternatives evaluated for the site and identifying the preferred alternative. All documents referenced in this Proposed Plan are available for public review at the information repositories (see Section 7.3 below).

A restoration advisory board (RAB) was formed in 1994. Meetings continue to be held to provide an information exchange among community members, USEPA, VDEQ, and the Navy. These meetings are open to the public and are held about every four to six months.

7.1 Public Comment Period

The public comment period for the Proposed Plan provides an opportunity for the community to provide input regarding the preferred alternative for SWMU 7a. The public comment period will be from February 25 to March 25, 2005, and a public meeting will be held March 9, 2005, at Shelton Park Elementary School. All interested parties are encouraged to participate in the Navy's CERCLA activities at NAB Little Creek.

Comments must be postmarked no later than March 25, 2005. The back page of this Proposed Plan may be used to provide comments to the Navy. Please cut off the page, fold, and add postage where indicated. Use of this form is not required.

During the comment period, interested parties may submit written comments to the following addresses:

Ms. Lora Fly, Code N455

Commander, Navy Region Mid-Atlantic
Regional Environmental Group
Naval Weapons Station Yorktown
Building 406, Spring Road
Yorktown, VA 23691
Phone (757) 887-4933
Fax (757) 887-4478
flylb@pwcnorva.navy.mil

Ms. Mary Cooke, Code 3HS13

Remedial Project Manager
USEPA Region III
1650 Arch Street
Philadelphia, PA 19103
Phone (215) 814-5129
Fax (215) 814-3051

Mr. Paul Herman

Virginia Dept. of Environmental Quality
Remedial Project Manager
629 Main Street, 4th Floor
Richmond, VA 23219
Phone (804) 698-4464
Fax (804) 698-4234

7.2 Record of Decision

After the public comment period, the Navy, in consultation with USEPA and VDEQ, will determine whether the Proposed Plan should be modified on the basis of comments received. Any required modifications will be made by the Navy and reviewed by USEPA and VDEQ. If the modifications substantially change the proposed remedy, additional public comment may be solicited. If not, then USEPA and the Navy will prepare and sign the ROD. The ROD will detail the remedial actions chosen for the site and will include the Navy's responses to comments received during the public comment period.

7.3 Available Information

The Community Relations Plan, Installation Restoration Program fact sheets, and final technical reports concerning SWMU 7a are available to the public at the following location:

Virginia Beach Central Library
4100 Virginia Beach Boulevard
Virginia Beach, Virginia 23452
(757) 431-3100

The Administrative Record for NAB Little Creek is available for public review at NAVFAC Atlantic at:

**Naval Facilities Engineering Command,
Atlantic Division**

Attn: John Peters
6506 Hampton Boulevard
Norfolk, Virginia 23508-1278
(757) 322-8005

If individuals have any questions about NAB Little Creek SWMU 7a, they may call or write to one of the contacts listed in the table above.

Glossary

Background Concentration: Concentrations of naturally occurring and manmade constituents, such as metals, found in groundwater, soil, sediment, and surface water in areas not impacted by spills, releases, or other site-specific activities. Background concentrations of some metals and other constituents are often at levels that may pose a risk to human health or the environment. These background-related risks should be considered (i.e.: subtracted) when calculating the risk posed by site conditions.

Carcinogenic Risk: Cancer risks are expressed as a number reflecting the increased chance that a person will develop cancer if exposed to chemicals or substances. For example, EPA's acceptable risk range for Superfund sites is 1×10^{-4} to 1×10^{-6} , meaning there is 1 additional chance in 10,000 (1×10^{-4}) to 1 additional chance in 1 million (1×10^{-6}) that a person will develop cancer if exposed to a site that is not remediated.

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act. A Federal law, commonly referred to as the "Superfund" Program, passed in 1980 that provides for cleanup and emergency response in connection with numerous existing inactive hazardous waste disposal sites that endanger public health and safety or the environment.

Contaminant Migration Pathway: The routes that site contaminants may take to get from the source of contamination to a human being, animal, or plant.

ERA: Ecological Risk Assessment. An evaluation of the risk posed to the environment if remedial activities are not performed at the site.

Groundwater: Subsurface water that occurs in soils and geologic formations that are fully saturated.

HHRA: Human Health Risk Assessment. An evaluation of the risk posed to human health should remedial activities not be implemented.

HI: Hazard Index. A number indicative of noncarcinogenic health effects that is the ratio of the existing level of exposure to an acceptable level of exposure. A value equal to or less than one indicates that the human population is not likely to experience adverse effects.

HQ: Hazard Quotient. HQs are used to evaluate noncarcinogenic health effects and ecological risks; below an HQ of 1. A value equal to or less than one indicates that the human or ecological population are not likely to experience adverse effects.

IAS: Initial Assessment Study. A document produced in 1981 as part of the Navy Assessment and Control of Installation Pollutants (NACIP) program to systematically identify, assess, and control contamination from past hazardous materials management operations.

IEUBK: Integrated Exposure Uptake Biokinetic Model for lead in Children predicts blood-lead concentrations for children exposed to lead in their environment. The model allows the user to input relevant absorption parameters as well as intake and exposure rates. Using these inputs, the model calculates a complex set of equations estimating potential concentrations of lead in the blood for a child or children (6 months to 7 years of age).

Media (singular, Medium): Soil, groundwater, surface water, or sediments at the site.

MCL: Federal Maximum Contaminant Level. Enforceable standards that apply to public water systems, developed by USEPA. The highest level of a contaminant that is allowed in drinking water.

NCP: National Oil and Hazardous Substances Contingency Plan. Provides the organizational structure and procedures for preparing for and responding to discharges of oil and releases of hazardous substances, pollutants, and contaminants.

Noncarcinogenic Risk: Noncancer Hazards (or risk) are expressed as a quotient that there is a level of exposure (the reference dose) below which it is unlikely for even a sensitive population to experience adverse health effects. For example, USEPA's threshold level for Superfund sites is 1, meaning that if the exposure exceeds the threshold, there may be a concern for potential noncancer effects.

NPL: National Priorities List. A list, developed by USEPA, of uncontrolled hazardous substances release sites in the United States that are considered priorities for long-term remedial evaluation and response.

NTCRA: Non-time Critical Removal Action. A removal action conducted at a Superfund site where a planning period of a least six months is available before an action is required.

Present-Worth Cost: Total cost, in current dollars, of the remedial action. The present worth cost includes capital costs required to implement the remedial action, as well as the cost of long-term operations, maintenance, and monitoring.

Proposed Plan: A document that presents and requests public input regarding the proposed cleanup alternative.

Public Comment Period: The time allowed for the members of an affected community to express views and concerns regarding an action proposed to be taken by USEPA, such as a rulemaking, permit, or Superfund-remedy selection.

RCRA: Resource Conservation and Recovery Act. A Federal law, passed in 1976 that ensures that wastes are managed in a manner that protects human health and the environment, reduce or eliminate the amount of waste generated, and conserve energy and natural resources through waste recycling and recovery.

Receptors: Humans, animals, or plants that may be exposed to risks from contaminants related to a given site.

Remedial Action: Implementation of the selected remedy.

RFA: RCRA Facility Assessment. A document produced as part of the 1984 Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA), that authorizes the USEPA to require corrective action for releases of hazardous waste or hazardous constituents from solid waste management units (SWMUs) and other areas of concern (AOCs) at all operating, closed, or closing RCRA facilities. The RFA includes a Preliminary Review (PR) of all available relevant documents, a Visual Site Inspection (VSI), and, if appropriate, a Sampling Visit (SV).

RI: Remedial Investigation. A study of a facility that supports the selection of a remedy where hazardous substances have been disposed or released. The RI identifies the nature and extent of contamination at the facility.

ROD: Record of Decision. A legal document that describes the cleanup action or remedy selected for a site, the basis for choosing that remedy, and public comment on alternative remedies.

Terrestrial: of or relating to the land as opposed to the water or air.

USEPA: United States Environmental Protection Agency. The Federal agency responsible for administration and enforcement of CERCLA (and other environmental regulations), and with final approval authority for the selected ROD.

UTL (Upper Tolerance Limits): The 95th upper bound on the 95th percentile of the distribution for constituents detected during the background sampling event.

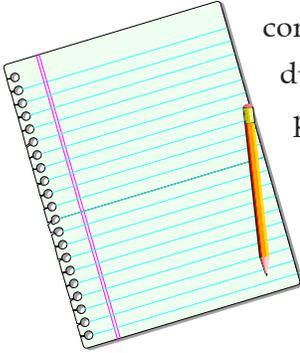
VDEQ: The Virginia Department of Environmental Quality. The commonwealth agency responsible for administration and enforcement of commonwealth environmental regulations.

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Submit Written Comments

The Navy will accept written comments on the Proposed Plan during the public comment period.

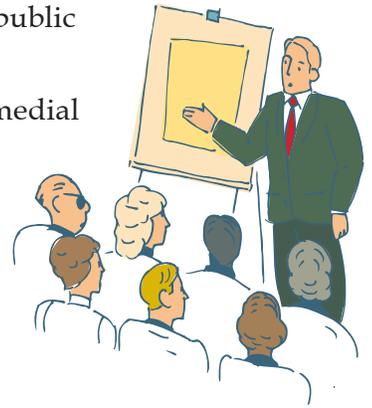


Attend the Public Meeting

**Wednesday March 9, 2005 at
7:00 pm**

**Shelton Park Elementary School
1700 Shelton Road
Virginia Beach, VA 23455**

The Navy will hold a public meeting to explain the Proposed Plan and remedial actions conducted at the Site to date. Verbal and written comments will also be accepted at this meeting.



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Ms. Lora Fly, Code N455
Commander, Navy Region Mid-Atlantic
Regional Environmental Group
Naval Weapons Station Yorktown
Building 406, Spring Road
Yorktown, Virginia 23691