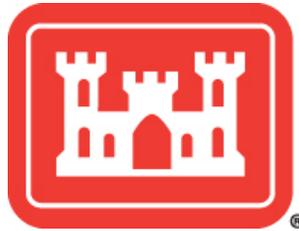


FINAL

PROPOSED PLAN
AREA OF CONCERN 22
Former Nansmond Ordnance Depot
Suffolk, Virginia

Prepared by:



U.S. Army Corps of Engineers
Baltimore District

June 2014

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1.0 INTRODUCTION

The **Proposed Plan** identifies the proposed decision of no action under the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** for Area of Concern 22 (AOC 22) (the Site) at the Former Nansmond Ordnance Depot (FNOD), and discusses the reasons for this proposed decision.

The final decision for the Site will be made after reviewing and considering all information submitted during the 30-day public comment period. The proposed decision presented in the Proposed Plan may be modified based on new information or public comments. The public is encouraged to review and comment on the Proposed Plan.

The Proposed Plan was prepared using guidance provided in the *Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents* (USEPA, 1999).

Figure 1 shows the location of the Site.



Figure 1: Site Location Map

The Proposed Plan is being issued by the USACE 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 fulfills the public participation requirements of the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)** Section 117(a).

The final decision for AOC 22 will be made after reviewing and considering all information submitted during the 30-day public comment period. The proposed decision presented in the Proposed Plan may be modified based on new information or public comments.

The Proposed Plan summarizes information that can be found in greater detail in the *Supplemental Site Characterization and Geochemical Evaluation Report* (Versar, 2008) and *No Action Technical Memorandum* (Versar, 2012). These documents are available in the **Administrative Record** at the North Suffolk Library in Suffolk, VA. The public is encouraged to review the Proposed Plan to gain a more comprehensive understanding of activities that have been conducted at the Site. The purpose of the Proposed Plan is to:

- Summarize the Site history and the results of past Site investigations.
- Identify conclusions and recommendations of past investigations.

This Plan proposes that no action is required for the Site. Action is not necessary at the Site because there are no identified releases of hazardous substances associated with former Department of Defense (DoD) activities at AOC 22.

Figure 2 summarizes the process flow and public participation steps in achieving remedy selection (USEPA, 1999).

« MARK YOUR CALENDAR »

**PUBLIC COMMENT PERIOD:
30 June – 30 July 2014**

USACE will accept written or oral comments on the Proposed Plan during the 30-day public comment period. Oral comments can be submitted during the public meeting. Written comments should be addressed to:

Mr. Sher Zaman, Project Manager
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715
email: sher.zaman@usace.army.mil

PUBLIC MEETING: 10 July 2014

A public meeting will be held to discuss the Proposed Plan for the FNOD AOC 22. The meeting will be held at the Hilton Garden Inn, 5921 Harbour View Boulevard, Suffolk, VA, from 6 p.m. to 8 p.m. Copies of the Proposed Plan and the presentation will be available at the meeting.

For more information on the Site, see the Administrative Record at the following location:

North Suffolk Library
2000 Bennetts Creek Park Road
Suffolk, VA 23435
757-514-7150

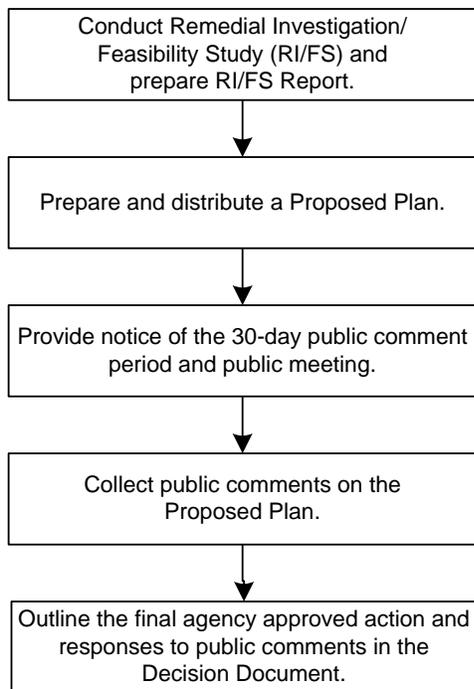


Figure 2: Public Participation Process

Based on the findings presented in the No Action Technical Memorandum, the arsenic concentrations in Site groundwater are the result of naturally occurring **geochemical** processes in the groundwater as no obvious sources of arsenic in soils was evident and arsenic concentrations in soils were well within FNOD background levels in the vicinity of AOC 22; therefore, completion of a **feasibility study** (FS) was not warranted. Responses to public comments on the FNOD AOC 22 Proposed Plan will appear in the responsiveness summary section of the **Record of Decision** (ROD).

2.0 SITE BACKGROUND

2.1 History

FNOD is located in Suffolk, VA, at the confluence of the Nansemond and James Rivers. FNOD historically consisted of approximately 975 acres and was acquired by the Department of the Army between 1917 and 1928 by various deeds, easements, permits, and Declarations of Takings. FNOD was used primarily as an Army ammunition depot. FNOD was constructed and commissioned the Pig Point Ordnance Depot between November 1917 and December 1918 to store munitions and ship them overseas. Principal operations included the preparation of ammunition and components for permanent storage, painting and marking shells and containers, segregation of certain lots of ammunition, transference of powder charges from fiber to metal containers, salvaging munitions parts, and the inspection

and disposal of unserviceable ammunition by defusing or burning.

On 9 August 1929, Pig Point Ordnance Depot was renamed Nansemond Ordnance Depot. During World War II, while under the jurisdiction of the Ordnance Department, FNOD was instrumental in supporting operations at the Hampton Roads Port of Embarkation. This support included temporary storage and transshipment of ammunition overseas. Toward the end of the war, the purpose of FNOD was modified to function as an intermediate and distribution depot, in addition to its role in the reconditioning of ammunition. On 9 April 1945, FNOD was to be incorporated into the demobilization planning by the Ordnance Department. FNOD was transferred to the Department of the Navy on 15 November 1950, at which time it became known as the Marine Corps Supply Forwarding Annex. The Site was declared excess on 13 June 1960.

FNOD was deactivated in 1960 and conveyed to the Beasley Foundation, which operated a boys’ military school at the Site until 1968. The foundation bequeathed most of the property to the Commonwealth of Virginia (Virginia Department of Community Colleges). Tidewater Community College Real Estate Foundation now occupies approximately 389 acres. Other occupants of FNOD include Ashley Bridgeway LLC, Bridgeway Limited Partnership, Continental Lakeview Associates, Continental-Harbour View Associates, Continental Bridgeway Associates, Suffolk Towers LLC, the City of Suffolk Economic Development Agency, Continental Tech Associates LLC, LMC Properties, Inc. (Lockheed Martin), River Stone Chop House LLC, Apple Eight Hospitality Ownership, the General Electric Company (GE), the Hampton Road Sanitation District, the Virginia Department of Transportation, and Dominion Land Management. A portion of the Site is also occupied by Interstate 664.

On 19 January 1999, USEPA proposed to add FNOD to the National Priorities List (NPL) (64 Federal Register No. 27, 2950). On 22 July 1999, USEPA placed FNOD on the NPL for private sites (64 Federal Register No. 140, 39878). In the final determination, FNOD was listed as a Non-Federal Facility Superfund Site because the Federal Government does not currently own or operate any property at FNOD. The NPL listing included several “source areas” requiring investigation at FNOD.

2.2 Physical Description

AOC 22, shown on **Figure 3**, covers a portion of the southwest corner of the Capital Alliance property (the former GE Facility) and extends south/southwest towards Dominion Land Management property. AOC 22 is

bordered by the small manmade Horseshoe Pond and the former GE Facility. Just north of AOC 22, a railroad spur is believed to have been present along the west-southwest edge of the former GE Facility warehouse. The railroad spur was removed prior to 1958 and is not present on a 1958 aerial photograph (USATEC, 1997).



Figure 3: Site Layout

2.3 Supplemental Site Characterization and Geochemical Evaluation Report

In 2008, a Supplemental Site Characterization and Geochemical Evaluation Report for the Site was completed by Versar. A summary of the soil and groundwater characterization and geochemical evaluation and associated conclusions and recommendations is presented in other sections of the Proposed Plan.

3.0 SITE CHARACTERISTICS

The **topography** of FNOD was modified in the areas of AOC 22, the former GE Facility warehouse, Horseshoe Pond, and the railroad spur for site-specific activities. Due to this modification, the topography at AOC 22 is relatively flat in some areas and uneven in others

The surface and subsurface soils consist of sands, silts, and clays. The silty sands make up the highest percentage of these materials. As presented on **Figure 4**, groundwater flow is generally to the north-northwest toward the Nansmond River.

From 2006 to 2007, Versar conducted a Supplemental Site Characterization and geochemical evaluation at AOC 22 to further investigate the arsenic concentrations at AOC 22 (Versar, 2008).

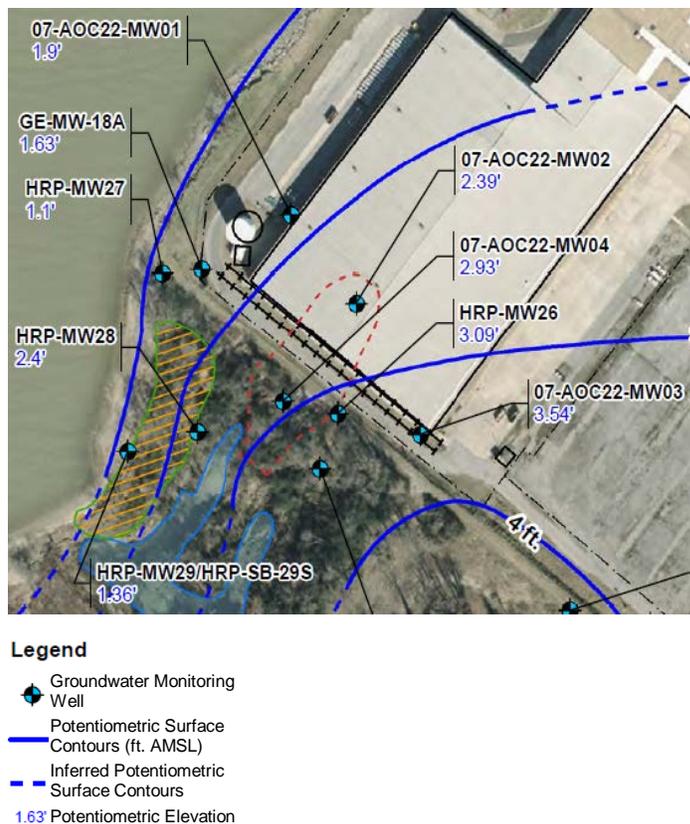
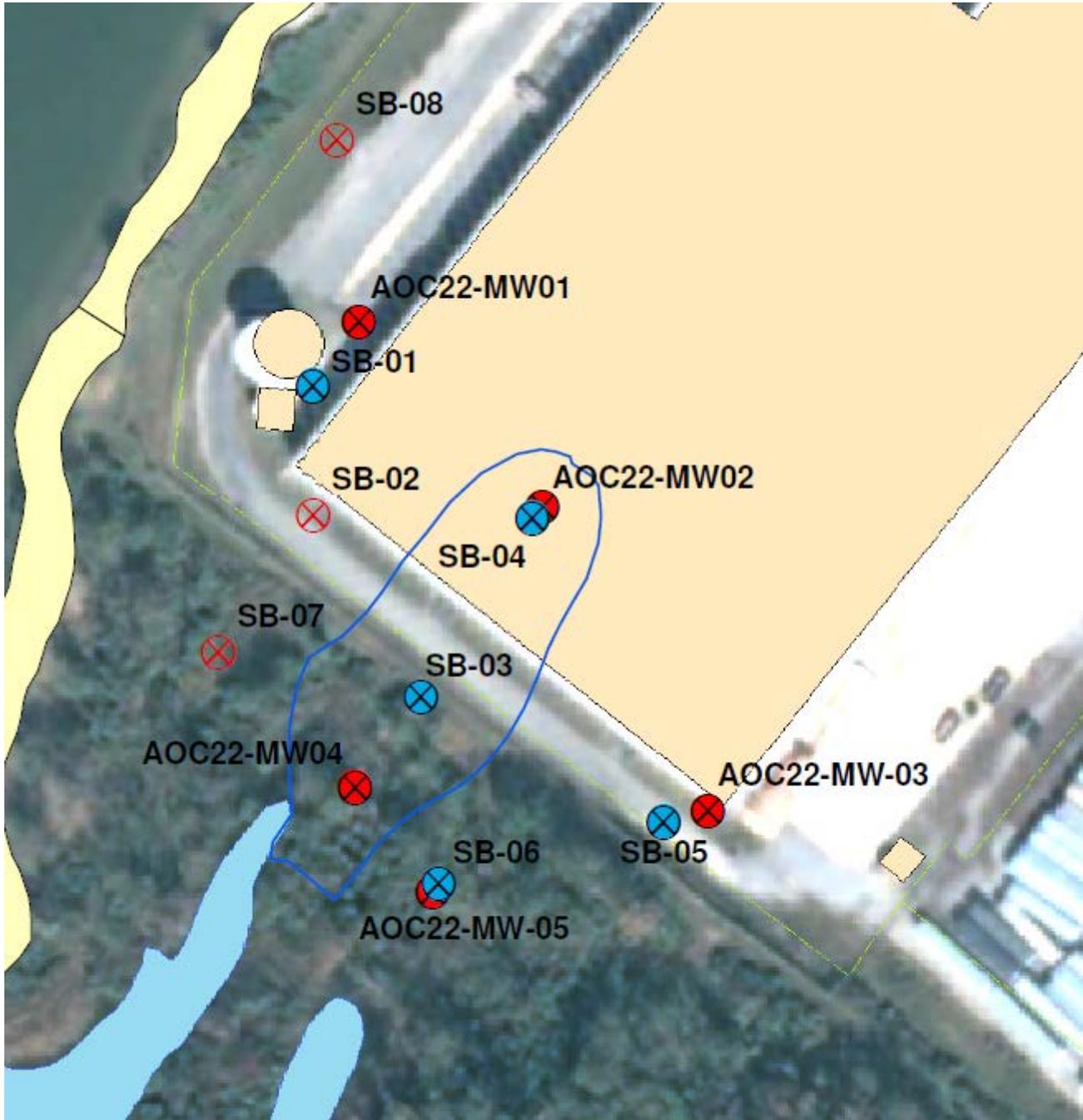


Figure 4: AOC 22 Groundwater Flow Direction

The objectives of the investigation were to determine the source of the arsenic detected in the groundwater as well as the arsenic concentration patterns at the Site. Because the source of the elevated levels of arsenic in groundwater at AOC 22 was unknown, an assessment of arsenic concentrations in various media at AOC 22 and adjacent areas (Horseshoe Pond and former GE facility) was conducted. The assessment focused on soil, groundwater, sediment and surface water samples collected from these areas. Elevated levels of arsenic were not present in the samples from the adjacent areas, indicating that these adjacent areas were not the source of arsenic in AOC 22 groundwater. The Site Characterization then focused on the data collected from AOC 22.

The conclusions presented in the 2008 Supplemental Site Characterization and Geotechnical Evaluation Report were that the 1) iron and manganese were present in groundwater along with arsenic and 2) the presence of these metals in groundwater was the result of localized, naturally occurring geochemical processes that allowed metals to transfer from soils to groundwater at AOC 22. **Figure 5** presents the locations of the soil borings and monitoring wells sampled.



Legend

-  Temporary Wells
-  Soil Boring
-  Monitoring Wells
-  FormerPond Extension

Figure 5: AOC 22 Soil Boring and Monitoring Well Locations

The following sections describe arsenic results in soil borings and monitoring wells at AOC 22.

Soil Borings

- Arsenic was detected in most of the soil samples collected from depths ranging from the surface down to 8.5 feet below ground surface (bgs) with concentrations ranging from non-detect to 4.9 milligrams per kilogram (mg/kg).
- All arsenic detects exceeded the USEPA residential soil **regional screening level** (RSL) of 0.39 mg/kg; however, none of the samples collected from soil borings at AOC 22 exceeded the 15 mg/kg FNOD background limit. As such, the arsenic results did not point to a potential source of arsenic in soils that would contribute to arsenic in groundwater.

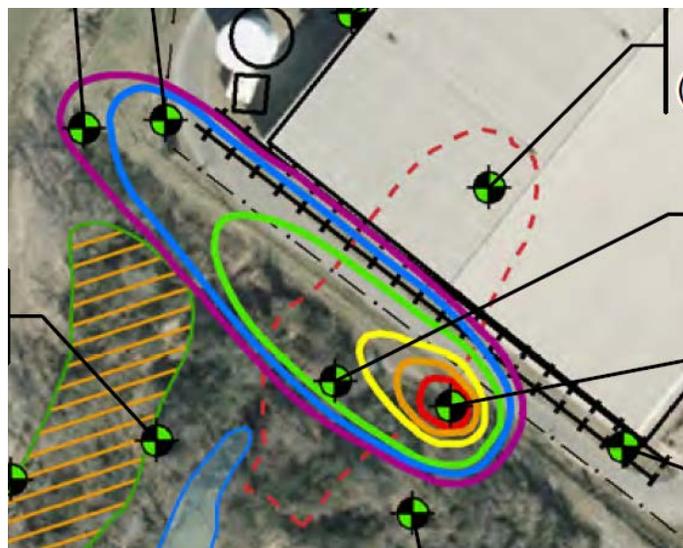
Monitoring Wells

- Arsenic was reported above the USEPA maximum contaminant level of 0.010 milligrams per liter (mg/L) in three monitoring wells with total concentrations ranging from 0.0105 to 0.0566 mg/L and dissolved concentrations ranging from 0.0103 to 0.0611 mg/L.
- Arsenic was also reported in four other wells at concentrations below the USEPA maximum contaminant level but above the USEPA Tapwater RSL. Total arsenic concentrations in groundwater are presented on **Figure 6**.
- The **total and dissolved phase** arsenic concentrations were generally the same. This means that the arsenic concentrations in Site groundwater are essentially in the dissolved phase similar to how sugar dissolves in tea.

Analysis

Based on an analysis of the AOC 22 soil and groundwater data presented above, it was concluded in the 2008 Supplemental Site Characterization and Geotechnical Evaluation Report that the presence of arsenic in AOC 22 groundwater is the result of localized, naturally occurring geochemical processes. These geochemical processes transform the naturally-occurring immobile arsenic in AOC 22 soils to a more mobile form into a dissolved phase of the groundwater. The source of the conditions that assist this transfer of arsenic is the organic-rich clay that is present in the subsurface. This transfer lowers arsenic concentrations in AOC 22 soils and increases dissolved arsenic concentrations in AOC 22 groundwater.

The cause, then, of the arsenic in groundwater is from naturally-occurring conditions at AOC 22, and not from a manmade physical source of arsenic that is leaching into the groundwater.



Legend

Total Arsenic	
—	>0.0075 mg/L
—	>0.01 mg/L
—	>0.02 mg/L
—	>0.03 mg/L
—	>0.04 mg/L
—	>0.05 mg/L

Figure 6: Total Arsenic Concentrations in Groundwater

4.0 SCOPE AND ROLE

FNOD was placed on the National Priorities List in July 1999. To manage cleanup efficiently, the work has been broken up into a number of different source areas and areas of concern. Currently, there are five source areas being investigated at FNOD. A sixth source area was deleted from the National Priorities List in March 2003. There are also 23 identified areas of concern that are also undergoing evaluation at the FNOD. Details of these investigations are presented in the Site Management Plan for FNOD, which is available in the Administrative Record file.

This Proposed Plan addresses only AOC 22. The proposed decision of no action is intended to be the final decision for the Site, and it does not impact any other source areas or areas of concern at FNOD.

5.0 STATUTORY AUTHORITY FINDING

CERCLA Section 104(a)(3) states action should not be taken in response to a release or threat of release of a naturally occurring substance in its naturally occurring and unaltered form or a naturally occurring substance that has been altered solely through naturally occurring processes or phenomena, from a location where it is naturally found. Therefore, USACE does have authority under CERCLA to address the arsenic concentrations in AOC 22 groundwater above its MCL because the presence of arsenic at these concentrations is due to naturally occurring geochemical processes.

6.0 PROPOSED DECISION

Because there is no identified release of hazardous substances associated with former DoD activities at AOC 22, the proposed decision is No Action under CERCLA.

7.0 COMMUNITY PARTICIPATION

Public input is important to the decision-making process. Nearby residents and other interested parties are encouraged to use the comment period for questions and concerns about the proposed decision for the Site. USACE will summarize and respond to public comments in a responsiveness summary, which will become part of the official ROD.

« AVAILABLE INFORMATION »

Final technical documents, including the **Supplemental Site Characterization and Geochemical Evaluation Report** and No Action Technical Memorandum and other relevant technical reports for AOC 22, are available to the public at the following location:

Administrative Record:

North Suffolk Library
2000 Bennetts Creek Park Road
Suffolk, VA 23435
757-514-7150

7.1 How to Submit Comments

The Public Comment Period for the AOC 22 Proposed Plan offers the public an opportunity to provide input to the process of selecting the proposed decision for the Site. The Public Comment Period will begin on 30 June 2014 and end on 30 July 2014. A public meeting will be held on 10 July 2014. The meeting will provide an additional opportunity for the public to submit comments regarding

the Proposed Plan. Comments may be written or submitted orally at the meeting. All interested parties are encouraged to attend the meeting to learn more about the alternatives proposed for the Site.

To submit written comments during the Public Comment Period or to obtain further information, please contact the following representative:

Mr. Sher Zaman
Project Manager
U.S. Army Corps of Engineers, Baltimore District
P.O. Box 1715
Baltimore, MD 21203-1715
email: sher.zaman@usace.army.mil

Written comments on the AOC 22 Proposed Plan must be postmarked no later than 30 July 2014.

7.2 Community Acceptance

Community acceptance of the proposed decision of no action will be evaluated after the public comment period ends.

7.3 Record of Decision

Following the public comment period, a ROD will be issued. The ROD will detail the remedial action selected for the Site. It will also include responses to comments received during the public comment period.

« PUBLIC MEETING NOTICE »

Date: 10 July 2014

Time: 6:00 p.m. to 8:00 p.m.

Place: Hilton Garden Inn
5921 Harbour View Boulevard
Suffolk, VA

GLOSSARY OF TERMS

This glossary defines in non-technical language the more commonly used environmental terms appearing in this Proposed Plan. The definitions do not constitute the USACE's, USEPA's, or VDEQ's official use of terms and phrases for regulatory purposes, and nothing in this glossary should be construed to alter or supplant any other federal or Commonwealth document. Official terminology may be found in the laws and related regulations as published in such sources as the Congressional Record, Federal Register, and elsewhere.

Administrative Record	The body of documents that "forms the basis" for the selection of a particular response at a site. Documents that are included are relevant documents that were relied upon in selecting the response action as well as relevant documents that were considered but were ultimately rejected. This file is to be available for public review and a copy maintained near the Site. The AOC 22 Administrative Record file is maintained at the North Suffolk Library.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	A Federal law enacted in 1980 and amended in 1986 by the Superfund Amendments and Reauthorization Act (SARA), which concerns investigation and response actions regarding hazardous substances, pollutants, and contaminants.
Dissolved phase	That portion of chemical that remains dissolved in water after the water has been run through a filter and any solids in the water have been removed.
Downgradient	The direction that groundwater flows; similar to "downstream" for surface water.
Feasibility Study	An evaluation of potential remedial technologies and treatment options that can be used to clean up a site.
Geochemical	The chemistry of the composition and alterations of the solid matter of the earth.
Maximum Contaminant Levels	The legal threshold limits on the amount of a substance that is allowed in public water systems for drinking purposes.
Proposed Plan	Plan that identifies the alternative that best meets the requirements of CERCLA and the National Oil and Hazardous Substances and Pollution Contingency Plan (NCP), and presents that alternative to the public in a proposed plan. The purpose of the proposed plan is to supplement the RI/FS and to provide the public with a reasonable opportunity to comment on the preferred alternative for remedial action, as well as alternative plans under consideration, and to participate in the selection of remedial action at a site.
Record of Decision (ROD)	A public document that describes the remedy selected for a site, the basis for the choice of that remedy, and provides responses to public comments. The ROD is created from information generated during the RI/FS.
Regional Screening Levels (RSL)	Risk-based contaminant concentration levels used to assess potential impacts to human health.
Remedial Action	Those actions consistent with a permanent remedy taken instead of or in addition to removal actions in the event of a release or threatened release of a hazardous substance into the environment, to prevent or minimize the release of hazardous substances so that they do not migrate to cause substantial danger to present or future public health, welfare or the environment.

Remedial Action Objective (RAO)	Objectives established for remedial actions to guide the development of alternatives and to focus the comparison of acceptable remedial action alternatives, if warranted. RAOs also assist in clarifying the goal of minimizing risk and achieving an acceptable level of protection for human health and the environment.
Screening benchmark	Risk-based chemical concentration levels used to assess potential impacts to ecological receptors.
Supplement Site Characterization and Geochemical Evaluation Report	A study conducted to assess the potential impacts to groundwater from former site activities.
Topography	Topography refers to the surface shape and features of the ground surface. Descriptions of topography include flat, hilly, mountainous, etc.
Total phase	That portion of chemical in water that includes both the dissolved phase and any portion of the chemical in water that is attached to any solids in the water. Also refers to an unfiltered sample.
95% UTL	An accepted statistical method for determining a background screening value, which assesses how much of a contaminant is typically present at the site and can provide a defensible point of reference to assess whether or not a spill has occurred.

LIST OF ACRONYMS

AMSL	above mean sea level
AOC	area of concern
bgs	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DoD	United States Department of Defense
FNOD	Former Nansmond Ordnance Depot
FS	feasibility study
Ft	feet
GE	General Electric Company
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MW	monitoring well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
RAO	remedial action objective
RI	remedial investigation
ROD	record of decision
RSL	regional screening level
SARA	Superfund Amendments and Reauthorization Act
USACE	United States Army Corps of Engineers
USATEC	United States Army Topographic Engineering Terrain Analysis Center
USEPA	United States Environmental Protection Agency
UTL	Upper Tolerance Limit
VDEQ	Virginia Department of Environmental Quality

REFERENCES

- Gannett Fleming Inc. 1998. *Former Nansemond Ordnance Depot, Draft Sampling Report and Appendices, J-Area Lake, Tidewater Community College Lake, XXCC3 Impregnation Kit Area, and Horseshoe-Shaped Pond*. June.
- USATEC (U.S. Army Topographic Engineering Terrain Analysis Center). 1997. *Historical Photographic Analysis, Horseshoe Pond, FNOD, Virginia*.
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