

*FINAL*

**PROPOSED PLAN**  
**IMPREGNITE KIT AREA**  
**Former Nansmond Ordnance Depot**

**Suffolk, Virginia**

Prepared By:



**U.S. Army Corps of Engineers**  
**Baltimore District**

**June 2014**

**TABLE OF CONTENTS**

<b><u>Section</u></b>	<b><u>Page</u></b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 SITE BACKGROUND .....</b>	<b>1</b>
2.1 History.....	1
2.2 Physical Description .....	1
2.3 Groundwater Characterization .....	2
<b>3.0 SITE CHARACTERISTICS.....</b>	<b>2</b>
<b>4.0 SCOPE AND ROLE .....</b>	<b>4</b>
<b>5.0 SUMMARY OF SITE RISKS.....</b>	<b>4</b>
<b>6.0 PROPOSED DECISION .....</b>	<b>6</b>
<b>7.0 COMMUNITY PARTICIPATION.....</b>	<b>6</b>
7.1 How to Submit Comments.....	7
7.2 Community Acceptance.....	7
7.3 Record of Decision .....	7
<b>GLOSSARY OF TERMS.....</b>	<b>8</b>
<b>LIST OF ACRONYMS .....</b>	<b>10</b>
<b>REFERENCES.....</b>	<b>11</b>

**LIST OF FIGURES**

<b><u>Title</u></b>	<b><u>Page</u></b>
Figure 1: Site Map.....	1
Figure 2: Public Participation Process.....	1
Figure 3: Site Layout.....	2
Figure 4: Monitoring Well Locations and Groundwater Flow Direction.....	3

## 1.0 INTRODUCTION

The **Proposed Plan** identifies the proposed decision—no action under the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**—for groundwater beneath the Impregnite Kit Area at the Former Nansmond Ordnance Depot (FNOD). *Note: Terms in **bold** are included in the Glossary.*

Because waste burial activities were known to have occurred at the Impregnite Kit Area in the past, several investigations were conducted to characterize the Impregnite Kit Area. A significant Removal Action was completed at the Impregnite Kit Area in 1999, in which 857 tons of impregnite kit material and associated soils were removed from the Impregnite Kit Area. The remaining soil was sampled to determine whether the Impregnite Kit Area soil posed a potential threat to human health and/or the environment.

Based on the post-removal soil sampling, No Further Action (NFA) was recommended for the Impregnite Kit Area soils. United States Environmental Protection Agency (USEPA) Region 3 published a Notice of Intent for Partial Deletion in March 2003. The Impregnite Kit Area soils were subsequently deleted from the National Priorities List (NPL) (Partial Deletion Docket, March 2003). However, the groundwater underlying the Impregnite Kit Area was not deleted from the NPL. As a result, USEPA indicated that because of the potential for carbon tetrachloride and zinc to be present in groundwater, a **Groundwater Characterization Report** should be prepared prior to proceeding with the delisting of the Impregnite Kit Area groundwater. **Figure 1** shows the location of the Impregnite Kit Area.

The final decision for the Impregnite Kit Area 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.

This 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).

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 CERCLA Section 117(a).

The Proposed Plan summarizes information that can be found in greater detail in the *Revised Final Groundwater Characterization Report* (USACE, 2013). This report and other site-related documents are available in the **Administrative Record** at the North Suffolk Library in Suffolk, Virginia. The public is encouraged to review the Proposed Plan to gain a more comprehensive understanding of activities that have been conducted at the Impregnite Kit Area. The purposes of the Proposed Plan are to:

- Summarize the Impregnite Kit Area history and the results of past investigations.
- Summarize the risk screening.
- Identify conclusions and recommendations of past investigations.

The Proposed Plan proposes no further action for Impregnite Kit Area groundwater. Action is not necessary because the ecological and human health risks associated with hazardous substances, pollutants and contaminants in groundwater associated with former DoD activities at the Impregnite Kit Area are at acceptable levels.

### « MARK YOUR CALENDAR »

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

USACE will accept written or oral comments on the Proposed Plan during a 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 Impregnite Kit Area. The meeting will be held at the Hilton Garden Inn, 5921 Harbour View Boulevard, Suffolk, Virginia, 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 Impregnite Kit Area, see the Administrative Record at the following location:**

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

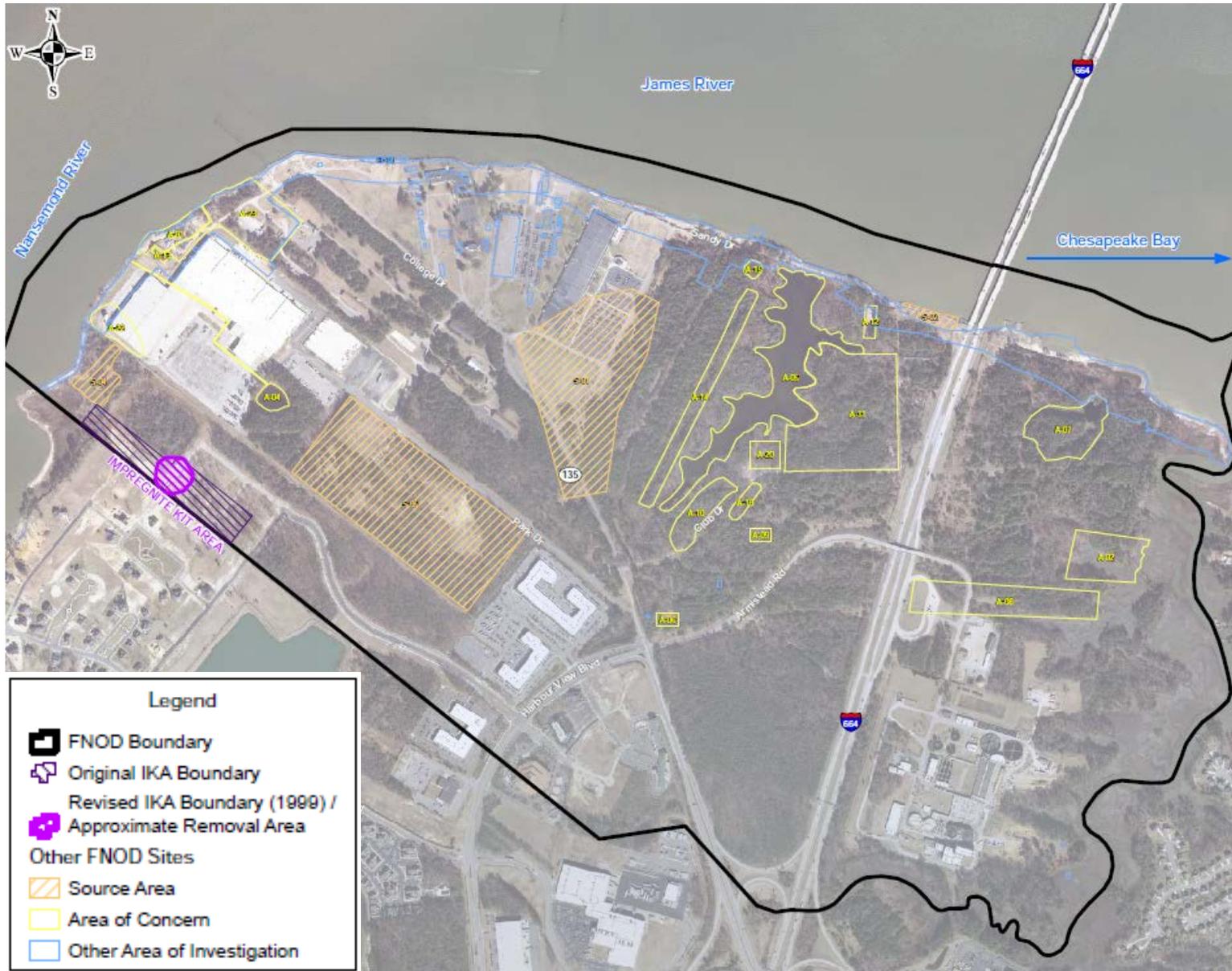
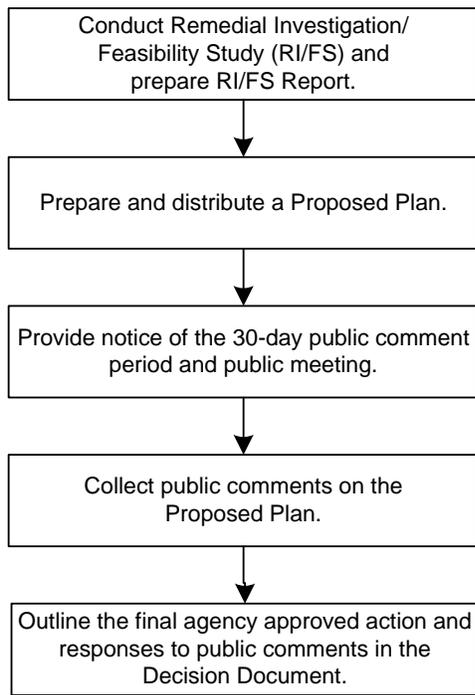


Figure 1: Site Location Map

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



**Figure 2: Public Participation Process**

Based on the findings of the groundwater characterization that there was no unacceptable risk, a **feasibility study** (FS) was not warranted. Responses to public comments on the FNOD Impregnite Kit Area Proposed Plan will be presented 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 Impregnite Kit Area was declared excess on 13 June 1960.

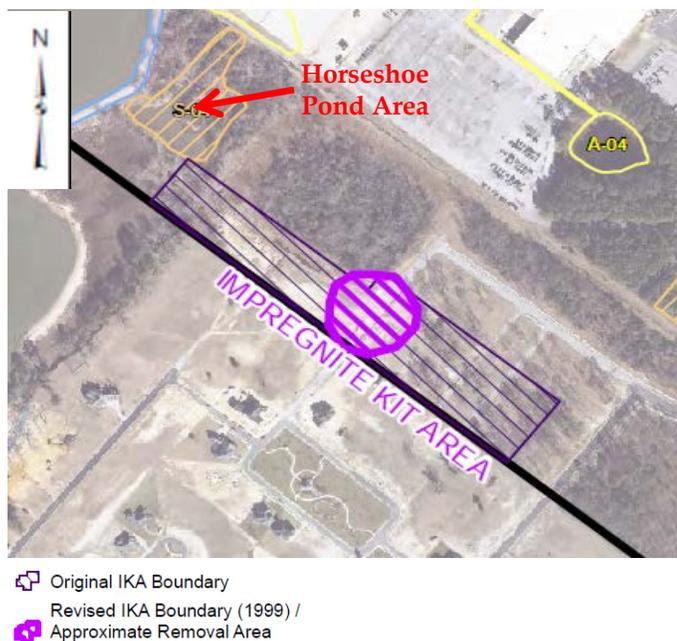
FNOD was deactivated in 1960 and conveyed to the Beasley Foundation, which operated a boys’ military school at the installation until 1968. The foundation bequeathed most of the property to the Commonwealth of Virginia (Virginia Department of Community Colleges). Tidewater Community College Real Estate 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 installation is also occupied by Interstate 664.

On 19 January 1999, USEPA proposed to add FNOD to the 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. The Impregnite Kit Area has been designated Source Area 3 (S-3).

### 2.2 Physical Description

The Impregnite Kit Area, which is approximately 0.25 acre in size, is located in the western portion of FNOD on

Bridgeway Limited Partnership property south of the Ashley Capital-owned (former GE) facility and southeast of the Horseshoe Pond Area (S-4 Area) as noted on **Figure 3**.



**Figure 3: Site Layout**

The Impregnite Kit Area was used for land-based disposal of World War II impregnite kits and other debris. Impregnite powder, also known as XXCC3, was a component of a two-part kit used to “impregnate” clothing as a protective barrier against chemical warfare weapons. XXCC3 is comprised of zinc oxide (8 to 10%) and octachlor carbonilide (90 to 92%).

As of 1948, the U.S. Army’s recommended methods for disposal of surplus XXCC3 included scattering on the ground, burial, and incineration. Aerial photographs of FNOD indicate that activities such as excavating and grading took place at the location of the Impregnite Kit Area in the 1950s.

### 2.3 Groundwater Characterization

In February 2013, USACE completed the *Revised Final Groundwater Characterization Report* for the Impregnite Kit Area. A summary of the groundwater characterization and groundwater risk screening, and the conclusions and recommendations is presented in other sections of the Proposed Plan.

## 3.0 SITE CHARACTERISTICS

The approximately 0.25-acre Impregnite Kit Area is located on a wooded tract of land at the western edge of FNOD on property currently owned by Bridgeway

Limited Partnership. Multiple groundwater investigations have been conducted at the Impregnite Kit Area and in the vicinity of the Impregnite Kit Area. A description of groundwater characterization activities is presented below.

### Monitoring Well Installations

Monitoring wells (MW) were installed during several investigations in the vicinity of the Impregnite Kit Area, including wells at the Arsenic Study Area (Area of Concern 22 [AOC-22]) and the Horseshoe Pond. Five shallow wells (MW-20S, MW-22S, MW-23S, MW-24, and MW-25) were installed in the surficial aquifer in 1998. Three deep wells (MW-20D, MW-22D, and MW-23D) were installed in a sandy silt later associated with the Yorktown confining unit adjacent to the five initial shallow wells in 2004. Four **downgradient** shallow wells (07-AOC22-MW03, 07-AOC22-MW04, and 07-AOC22-MW05) located in AOC-22 and in Horseshoe Pond (HRP-MW30) were installed in 2011.

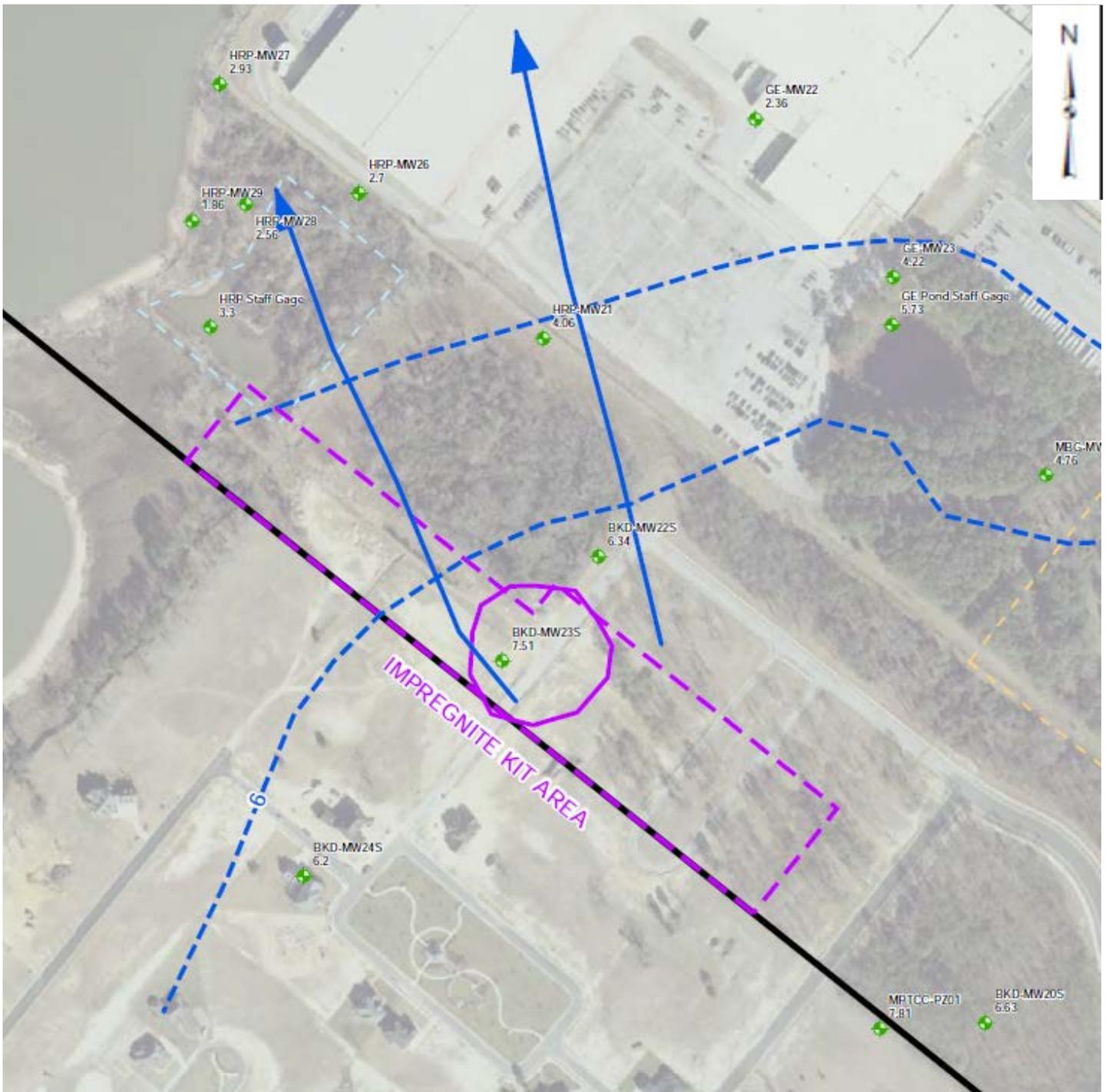
The locations of these wells are presented on **Figure 4**. In general, the wells are located in areas that provide a reasonable representation and coverage (horizontally and vertically) of groundwater quality in and around the Impregnite Kit Area. The groundwater flow directions for the Impregnite Kit Area and surrounding areas were estimated based on water level data collected in November 2004 and are presented on **Figure 4**.

### Groundwater Analytical Results

Multiple groundwater investigations have been conducted within and around the Impregnite Kit Area. Additionally, several wells associated with the Horseshoe Pond and AOC-22 were sampled to assess the quality of the groundwater downgradient from the Impregnite Kit Area. It should be noted that none of the chemicals detected in the groundwater are the types of chemicals that make up the impregnite material and all the metals detected are also naturally occurring.

#### Organic Compounds

Ten organic compounds, including acetone, delta-hexachlorocyclohexane [delta BHC]), bis(2-ethylhexyl)phthalate (BEHP), carbon disulfide, dieldrin, di-n-butylphthalate, endosulfan sulfate, heptachlor, methylene chloride, and toluene, were detected in the seven wells located in the vicinity of the Impregnite Kit Area. Three compounds (BEHP, heptachlor, and dieldrin) were detected at concentrations that exceeded either the **regional screening level (RSL)** for tap water or the federal Safe Drinking Water Act **maximum contaminant level (MCL)**. No organic compounds were detected in the downgradient AOC-22 monitoring wells or HRP-MW30.



Legend

-  Groundwater Flow Direction
-  Equipotential Line
-  Shallow Monitoring Well
-  Original IKA Boundary
-  Revised IKA Boundary (1999) / Approximate Removal Area

Figure 4: Monitoring Well Locations and Groundwater Flow Direction

- BEHP concentrations exceeded the RSL for tap water of 4.8 micrograms per liter ( $\mu\text{g}/\text{L}$ ) and the MCL of 6  $\mu\text{g}/\text{L}$  in three wells. The maximum concentration of 83  $\mu\text{g}/\text{L}$  was detected in MW-23D. BEHP, which is a type of phthalate, was detected in the upgradient well MW-20D at a concentration of 20  $\mu\text{g}/\text{L}$ . Phthalates are commonly found in latex and surgical gloves, which were used in the field during the sampling event. Based on the detection of BEHP in the equipment rinsate samples for the shallow and deep well sampling events, its presence in groundwater samples is suspect and is not likely site-related.
- Concentrations of dieldrin exceeded the RSL for tap water (0.0015  $\mu\text{g}/\text{L}$ ) in two shallow wells (MW-20S and MW-23S). The highest concentration of 0.01  $\mu\text{g}/\text{L}$  was detected in the upgradient well MW-20S. Because dieldrin was detected in the upgradient shallow well, its presence may not be related to historical Impregnite Kit Area activities. Its presence may be related to former pesticide applications throughout FNOD or on the adjacent former agricultural areas to the south.
- Heptachlor was detected only once in one upgradient shallow well (MW-20S) at a concentration greater than the RSL for tap water (0.0018  $\mu\text{g}/\text{L}$ ). Because heptachlor was detected in a shallow well upgradient of the Impregnite Kit Area, its presence is not likely related to historical Impregnite Kit Area activities. Its presence may be related to former pesticide applications throughout FNOD or on the adjacent former agricultural areas to the south.

### Metals

Metals detected included aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc; however, as discussed below, only the following dissolved phase metals were detected above the RSL and/or MCL, including antimony (one detect), arsenic, chromium, cobalt, manganese, and thallium.

- Antimony was detected in only one well, MW-20D. It was detected in a dissolved concentration of 1.6  $\mu\text{g}/\text{L}$ , which is slightly above the EPA RSL for tap water of 1.5  $\mu\text{g}/\text{L}$ , but below the MCL of 6  $\mu\text{g}/\text{L}$ .
- Total and dissolved arsenic were detected in shallow wells and in the three deep wells above the RSL for tap water (0.045  $\mu\text{g}/\text{L}$ ) but below the MCL (10  $\mu\text{g}/\text{L}$ ). The estimated concentration of total arsenic in the well located in the Impregnite Kit Area (MW-23S) was

the same as the estimated total concentrations in the upgradient well (MW-20S) and in the cross-gradient well (MW-22S).

- Total chromium was detected in three of the four shallow wells above the RSL for chromium VI of 3.1E-02  $\mu\text{g}/\text{L}$ . Dissolved chromium was detected above its RSL only at MW-23D. The MCL for chromium was not exceeded in any of the wells.
- Total cobalt was detected in the side-gradient well MW-24 at 0.61  $\mu\text{g}/\text{L}$ , which is above the RSL for tap water of 0.47  $\mu\text{g}/\text{L}$ .
- Total manganese was detected in the upgradient well MW-20D at concentrations of 64.2 and 71.3  $\mu\text{g}/\text{L}$ . These manganese concentrations are greater than the RSL of 32  $\mu\text{g}/\text{L}$ . Dissolved manganese concentrations in the deep monitoring wells were not above the RSL.
- Total thallium was detected in the upgradient well MW-20S at a concentration of 2.4  $\mu\text{g}/\text{L}$  and in MW-22S at a concentration of 1.8  $\mu\text{g}/\text{L}$ . Dissolved thallium was detected at MW-22S at a concentration of 2.2  $\mu\text{g}/\text{L}$ . These concentrations are greater than the RSL of 0.016  $\mu\text{g}/\text{L}$  and slightly above the 2  $\mu\text{g}/\text{L}$  MCL.

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## 4.0 SCOPE AND ROLE

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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 Impregnite Kit Area groundwater. A previous removal action addressed contamination in soil in the Impregnite Kit Area. Impregnite Kit Area soil was deleted from the NPL in 2003. The proposed decision for groundwater is intended to be the final one for the Impregnite Kit Area and it does not impact any other source areas at FNOD.

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## 5.0 SUMMARY OF SITE RISKS

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The groundwater risk screening estimates the risks at the Impregnite Kit Area if no action is taken. The assessments

provide the basis for taking action. This section of the Proposed Plan summarizes the results of the groundwater risk screening for the Impregnite Kit Area. Because groundwater is the only medium being screened and there is no identified **ecological receptor** that could contact groundwater, an ecological risk screening was not conducted.

**Chemicals of Potential Concern**

Dieldrin, heptachlor, BEHP, antimony, arsenic, chromium, cobalt, manganese, and thallium were initially identified as **chemicals of potential concern (COPCs)** because of their exceedances of either the tap water RSL and/or MCL; however, only BEHP, antimony, and thallium were selected as final COPCs because the other chemicals were detected at concentrations less than FNOD background levels and thereby eliminated from further assessment.

A summary of the final COPC results is presented in the following table:

COPC	Frequency of Detection	Range of Detection (ug/L)	FNOD Background (ug/L)	RSL (ug/L)	MCL (ug/L)
BEHP	10 of 15	1 to 83	12.9	0.071	6
Antimony (dissolved)	1 of 5	1.6	1	0.6	6
Thallium (total)	2 of 15	1.8 to 2.4	None	0.02	2
Thallium (dissolved)	1 of 5	2.2	None	0.02	2

The applicable screening criteria identified for groundwater at the Impregnite Kit Area include the MCLs, the Virginia Groundwater Standards (9 VAC 25-280-10), and the Virginia Department of Health (VDH) Waterworks Regulations (12 VAC 5-590). MCLs are federal drinking water standards and Virginia adopted the federal standards to be a component of their Virginia Groundwater Standards. A comparison of the COPC concentrations against the identified **applicable or relevant and appropriate requirements (ARARs)** is provided as follows:

- BEHP - Detected in 3 of 15 samples above the MCL of 6 µg/L. Exceedances occurred in one shallow well (MW-22S) and two deep wells (MW-20D and MW-23D). No Virginia groundwater standard is available for BEHP.

- Antimony (dissolved) - Detected in 1 of 5 dissolved samples at a concentration of 1.6 µg/L, which is below the MCL of 6 µg/L. No Virginia groundwater standard is available for antimony.
- Thallium (total and dissolved) - Total thallium was detected in only 1 of 15 samples above the MCL of 2 µg/L. This exceedance occurred in one shallow well (MW-20S). Dissolved thallium exceeded the MCL in 1 of 5 samples with a concentration of 2.2 µg/L. This exceedance occurred in one shallow well (MW-22S). No Virginia groundwater standard is available for thallium.

**Sample Contamination by BEHP**

BEHP was detected in 4 of 15 groundwater samples at concentrations greater than the RSL; however, it was also detected in the equipment rinsate sample for several sampling events. Based on the detection of BEHP in the equipment rinsate samples, its presence may not be related to activities conducted at the Impregnite Kit Area. Therefore, any identified risk associated with BEHP is considered questionable. Phthalates (BEHP is a type of phthalate) are common field and laboratory contaminants and have been detected during numerous field investigations at other sites. Phthalates are commonly found in latex and surgical gloves, which were used in the field during groundwater sampling.

**Cumulative Risk Screening**

*Cancer Risk*

For the screening level risk assessment, the maximum detected value for groundwater was used along with the respective RSLs for **carcinogenic** chemicals to estimate **excess cancer risk**. The excess cancer risk for the only carcinogenic COPC, BEHP, was  $1.2 \times 10^{-3}$ , which is greater than the USEPA **risk management range** of  $10^{-4}$  to  $10^{-6}$  (which represents a 1 in 10,000 to 1 in 1,000,000 chance of cancer as a result of exposure to chemicals at a site).

*Noncarcinogenic Effects*

The potential for adverse noncarcinogenic health effects was estimated by calculating a residential **hazard quotient (HQ)** for each COPC. If the HQ is greater than 1, then adverse noncarcinogenic health effects are possible. Although both total and dissolved inorganic concentrations exceeded the tap water RSL, drinking water is almost always filtered; therefore, only the maximum concentrations of dissolved inorganic compounds were used in the risk calculations. The HQ for each COPC is summarized as follows:

- BEHP - 18

- Dissolved Antimony - 0.30
- Dissolved Thallium - 14

### Comparison of Impregnite Kit Area Groundwater Data to Upgradient Data

Because of their location upgradient of the Impregnite Kit Area, monitoring wells MW-20S and MW-20D were used to assess groundwater quality for the groundwater flowing into and beneath the Impregnite Kit Area. Data from Impregnite Kit Area wells (MW-22S, MW-23S, MW-24S, MW-23D, and MW-23D) were compared to the upgradient data from MW-20S and MW-20D. A summary of the data is presented as follows:

- Antimony - None of the antimony detections from the Impregnite Kit Area wells (as defined above) were greater than the upgradient data for antimony. Therefore, even though the concentrations detected for antimony were greater than the screening criteria, antimony was not considered further at the Impregnite Kit Area because the groundwater concentrations of antimony at the Impregnite Kit Area were less than the upgradient concentrations.
- BEHP - BEHP was detected at a concentration of 3 µg/L in the upgradient shallow well MW-20S and 20 µg/L in the upgradient deep well MW-20D. It should be noted that BEHP was detected in equipment blank samples at the Impregnite Kit Area, and its presence at the Impregnite Kit Area is considered suspect.
- Thallium - None of the thallium detections in Impregnite Kit Area wells were greater than the upgradient well concentrations. Therefore, even though the concentrations detected for thallium were greater than the screening criteria, thallium was not considered further at the Impregnite Kit Area because the detections at the Impregnite Kit Area were less than the upgradient concentrations.

### Risk Screening Summary

Three COPCs were identified for the Impregnite Kit Area: BEHP, antimony, and thallium. These were identified as COPCs because concentrations of these chemicals in groundwater were greater than their tap water RSL and/or the MCL as well as FNOD background concentrations. However, there are a number of special circumstances that suggest that any risk associated with the groundwater beneath the Impregnite Kit Area is not due to a release from the Impregnite Kit Area. These special circumstances include the presence of antimony and thallium in the upgradient wells MW-20S and MW-20D at concentrations greater than those within the Impregnite Kit Area and the fact that BEHP was likely

introduced into the groundwater samples during sampling or in the laboratory. In addition to these special circumstances, none of these three COPCs is a component of the impregnite materials that were disposed of and later removed from the Impregnite Kit Area. Taking these factors into account resulted in the identification of no **chemicals of concern** (COCs) for the Impregnite Kit Area.

## 6.0 PROPOSED DECISION

Because there is no unacceptable risk, USACE's proposed decision for the Impregnite Kit Area is No Further Action. In proposing No Further Action, it is noted that the groundwater risk was above the high end of the USEPA risk management range for carcinogens and above the non-cancer threshold of 1.0. However, the groundwater cancer risk was entirely a result of BEHP in groundwater (no cancer risk is identified for antimony or thallium), which is associated with sampling and laboratory contamination of the samples, not with Impregnite Kit Area activities. When BEHP was removed from the risk analysis, the USEPA risk management range was not exceeded. Although the non-cancer hazard quotients for BEHP, thallium, and antimony were greater than the threshold of 1.0, the health effects associated with these three COPCs are not related to Impregnite Kit Area activities as discussed above.

## 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 Impregnite Kit Area. USACE will summarize and respond to public comments in a responsiveness summary, which will become part of the ROD.

### « AVAILABLE INFORMATION »

Final technical documents, including the Groundwater Characterization Report and other relevant technical reports for the Impregnite Kit Area, are available to the public at the following location:

**Administrative Record:**  
 North Suffolk Library  
 2000 Bennetts Creek Park Road  
 Suffolk, Virginia 23435  
 757-514-7150

## 7.1 How to Submit Comments

The Public Comment Period for the Impregnite Kit Area Proposed Plan offers the public an opportunity to provide input to the process of selecting the proposed decision for the Impregnite Kit Area. 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 Impregnite Kit Area.

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 Impregnite Kit Area Proposed Plan must be postmarked no later than 30 July 2014.*

## 7.2 Community Acceptance

Community acceptance of the proposed decision 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 Impregnite Kit Area. 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

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## GLOSSARY OF TERMS

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*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 Impregnite Kit Area. The Impregnite Kit Area Administrative Record file is maintained at the North Suffolk Library.
Applicable or Relevant and Appropriate Requirement (ARARs)	Cleanup standards, standards of control, and other substantive requirements, criteria or limitations promulgated under federal environmental or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance found at a CERCLA site or that address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.
Carcinogenic	Relating to cancer-causing substances.
Chemicals of Concern	Chemicals of potential concern present at the site that pose a potential unacceptable risk to human health and/or the environment as identified after completion of the risk screening and consideration of other site-specific factors. In the case of the IKA, one of these factors is upgradient groundwater concentrations..
Chemicals of Potential Concern	Chemicals that are potentially site-related and comprise the hazardous substances, pollutants, and contaminants that are evaluated in the risk assessment..
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) and in 2002 by the Brownfields Amendments, which concerns investigation and response actions regarding hazardous substances, pollutants, and contaminants.
Downgradient	The direction that groundwater flows; similar to "downstream" for surface water.
Ecological receptors	Specific ecological communities, populations, or individual organisms protected by federal or state laws and/or regulations, or those local populations that provide important natural or economic resources, functions, and values.
Equipment rinseate	A sample of chemical-free water poured over or through decontaminated field sampling equipment prior to the collection of environmental samples.
Excess cancer risk	The additional risk (beyond the normal incidence of cancer for the general population) of developing cancer due to exposure to a toxic substance incurred by an individual over a lifetime.
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 and their impacts on other media including groundwater.
Groundwater Characterization Report	A study conducted to assess the potential impacts to groundwater from former site activities.
Hazard Quotient	The ratio of the concentration of a chemical detected at a site to the concentration of the chemical at which no negative effects are expected. The USEPA hazard index threshold level is 1.0. No noncancer health effects are expected below the threshold level.
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	A notice that identifies the alternative that best meets the requirements of CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and presents that alternative to the public. 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 and the basis for the choice of that remedy, and provides responses to public comments. The ROD is developed based on information generated during the RI/FS and other information.
Regional Screening Levels	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.
Risk Management Range	The range for acceptable exposure to carcinogens established by USEPA regulation at 40 C.F.R. 300.430(e)(2)(i)(A)(2) as being between $1 \times 10^{-4}$ (one in 10,000 chance of cancer as a result of exposure to chemicals at a site) and $1 \times 10^{-6}$ (one in 1,000,000) and representing what are generally considered acceptable levels of risk. This is also the range at which a risk management decision is needed, including evaluating site-specific information to determine whether remedial action is needed.
Upgradient	Of or pertaining to the place(s) from which groundwater originated or traveled through before reaching a given point in an aquifer. Similar to "upstream" for surface water.

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## LIST OF ACRONYMS

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µg/L	micrograms per liter
AOC	area of concern
ARAR	Applicable or Relevant and Appropriate Requirement
BEHP	bis(2-ethylhexyl)phthalate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chemical of concern
COPC	chemical of potential concern
delta BHC	delta-hexachlorocyclohexane
DoD	U.S. Department of Defense
FNOD	Former Nansmond Ordnance Depot
FS	feasibility study
GE	General Electric Company
HQ	hazard quotient
IKA	Impregnite Kit Area
MCL	maximum contaminant level
MW	monitoring well
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NFA	no further action
NPL	National Priorities List
RAO	remedial action objective
ROD	Record of Decision
RSL	regional screening level
SARA	Superfund Amendments and Reauthorization Act
USACE	U.S. Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VDEQ	Virginia Department of Environmental Quality
VDH	Virginia Department of Health

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