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EMAIL AND COMMENTS FROM VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY
REGARDING DRAFT PROPOSED PLAN FOR SITE 28 BUILDING 28 X-RAY FACILITY AND
DRAIN FIELD NWS YORKTOWN VA

11/03/2009

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Sawyer, Stephanie/VBO

From: Friedmann, William/VBO
Sent: Tuesday, November 03, 2009 12:15 PM
To: Sawyer, Stephanie/VBO
Cc: Forshey, Adam/VBO
Subject: FW: NWSY: Site 28 Draft Proposed Plan - DEQ Comments
Attachments: Site 28 Draft Proposed Plan 10-8-09(DEQ).doc

Follow Up Flag: Follow up
Flag Status: Completed

Stephanie,
Attached is VDEQs comments on the draft Site 28 PP. No major changes, simply editorial.
Thanks,
Bill

From: Smith,Wade [<mailto:Wade.Smith@deq.virginia.gov>]
Sent: Tuesday, November 03, 2009 11:47 AM
To: tom.kowalski@navy.mil
Cc: Friedmann, William/VBO; Forshey, Adam/VBO; Thomson.Bob@epamail.epa.gov
Subject: NWSY: Site 28 Draft Proposed Plan - DEQ Comments

Thank you for giving the DEQ the opportunity to comment on the October 9, 2009 *Draft Proposed Plan* for NWSY Site 28.

The Draft Proposed Plan was received by the DEQ on October 14, 2009.

The DEQ's comments are attached (track changes via Word).

Upon receipt of the requested revisions, the DEQ will issue an official letter for your files.

Please let me know if you have any questions.

Sincerely,

Wade M. Smith
Remediation Project Manager
Virginia Department of Environmental Quality
Office of Remediation Programs
Phone: (804) 698-4125
Fax: (804) 698-4234
wade.smith@deq.virginia.gov



Draft Proposed Plan

Site 28: Building 28 X-Ray Facility and Drain Field Naval Weapons Station Yorktown Yorktown, Virginia

October 2009

Comment [WMS1]: The SMP identifies Site 28 as Building 28 X-Ray Facility Tank Drain Field.

1 Introduction

This **Proposed Plan** describes the preferred alternative for **Environmental Restoration Program (ERP)** Site 28, the Building 28 X-Ray Facility and Drain Field, at Naval Weapons Station (WPNSTA) Yorktown, Yorktown, Virginia (the "Site"). The preferred alternative for remedial action at the Site is No Action for soil, groundwater, sediment, and surface water. This alternative was selected following completion of a Remedial Investigation (RI) and Step 7 of the Ecological Risk Assessment (ERA) process that demonstrated that all site media poses no unacceptable risk to human health and ecological receptors. Because there are no unacceptable risks at the site from exposure to soil, groundwater, sediment, and surface water, evaluation of other remedial action alternatives is not necessary.

This Proposed Plan is issued jointly by the United States Navy (Navy), the lead agency for environmental restoration activities at WPNSTA Yorktown and the **United States Environmental Protection Agency (USEPA)** Region 3, the lead regulatory agency. The plan has been coordinated with the Commonwealth of Virginia Department of Environmental Quality (VDEQ), the support regulatory

agency.

This Proposed Plan will be available for public review and comment at the Virgil I. Grissom Public Library (366 DeShazor Drive, Newport News, Virginia 23608, (757) 369-3190) during a 30-day **public comment period** that includes a public meeting and fulfills public participation responsibilities as required under Section 117(a) of the **Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)** as amended, and Section 300.430(f)(2) of the **National Oil and Hazardous Substances Pollution Contingency Plan (NCP)**. The Navy and USEPA Region 3, in consultation with VDEQ, will make the final decision on this plan for Site 28 for all media after reviewing and considering all information submitted during the 30-day public comment period.

In addition to presenting a preferred alternative for Site 28 media, this Proposed Plan summarizes previous Superfund investigations that have been conducted at the Site. Information documenting environmental investigations at Site 28 is available to the public in the **Administrative Record (AR)** file for WPNSTA Yorktown. Details regarding the dates of the public comment period, the date and time of the public meeting,

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Please Mark Your Calendar

Public Comment Period

Month d – Month d, 2009

The Navy will accept written comments on this Proposed Plan during the public comment period. To submit comments or obtain further information, please refer to the insert page.

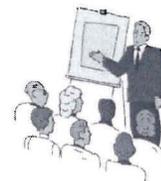
Attend the Public Meeting

Day, Month dd, 2009 at X:00pm

Place - York County Public Library – Yorktown
8500 George Washington Memorial Highway
Yorktown, Virginia 23690-23692

The Navy will hold a public meeting to explain the Proposed Plan. Verbal and written comments will be accepted at this meeting.

Location of Administrative Record File:
NAVFAC Atlantic
6506 Hampton Boulevard, Norfolk, VA 23508
Phone: 757.322.4785



and the location of the AR are included in the text box below entitled "Please Mark Your Calendar." In addition, a glossary of key terms is provided at the end of this Proposed Plan; glossary terms are identified in bold print the first time they appear.

2 Site Background

Site 28, the Building 28 X-Ray Facility and Drain Field (formerly Site Screening Area [SSA] 10) encompasses an area of approximately 5.8-acres in the south-central portion of WPNSTA Yorktown adjacent to Building 28 and an unnamed **tributary** that drains into the southern branch of Felgates Creek (Figure 1).

Site 28 consists of a septic tank drain field that received sanitary wastewater from the X-Ray Facility at Building 28 beginning in the late 1960s until 1998, when wastewater was diverted to the sanitary sewer and ultimately to the Hampton Roads Sanitation District wastewater treatment facility.

Previous Investigations and Actions

Site 28 was characterized as part of several investigations and studies since 1984. Detailed information from previous investigation conducted at Site 28 is available in the

Administrative Record for WPNSTA Yorktown. The investigations conducted at Site 28 are summarized below (Table 1).

Final Initial Assessment Study (NEESA, 1984)

Building 28 was first identified as a source of industrial wastewater discharge to the environment in the 1984 Initial Assessment Study. The building and surrounding area were identified as SSA 10 and recommended as an area for further investigation.

Relative Risk Ranking System, Data Collection Investigation (Baker, 1995)

Surface/subsurface soil and groundwater samples were collected from the Site and analyzed for target analyte list **inorganics** to gather contaminant, pathway, and receptor information to be used in the Navy's **Relative Risk Ranking (RRR)** System. Thirteen inorganics and cyanide were detected in subsurface soil samples and eleven inorganics and cyanide were detected in the unfiltered groundwater samples. The results of the RRR indicated that there were evident exposure pathways to on-site receptors and additional study of the Site was warranted.

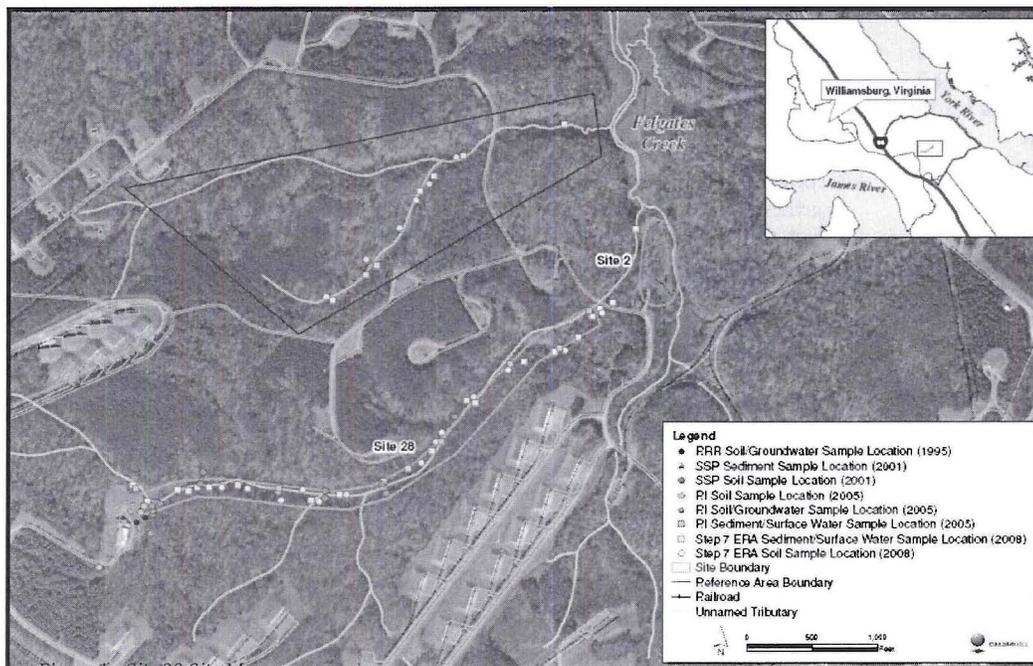


Figure 1 Site 28 Site Map

Table 1 – Previous Investigations at Site 28

Document Title /Milestone	Author/Date	AR Document Number
Initial Assessment Study	NEESA, 1984	00247
Relative Risk Ranking System, Data Collection Investigation	Baker, 1995	00675
Site Screening Process Report for Site Screening Areas 3, 4, 5, 9, 10, 20, 21, 22, 23, and 24	Baker, 2001	01350 (Volume I) 01351 (Volume II) 01352 (Volume III)
Round One Remedial Investigation for Sites 27, 28, 29 and 30	Baker, 2005	2079
Ecological Risk Assessment – Step 7	CH2M HILL, 2008	2276

Site Screening Process Report for SSA 3, 4, 5, 9, 10, 20, 21, 22, 23, and 24 (Baker, 2001)

In order to determine if potential unacceptable risk to potential receptors existed, a **Site Screening Process (SSP)** Report was completed. Co-located surface water and sediment (surface and subsurface) samples were collected from the unnamed tributary upgradient of the Site 28 influence (one location) and downgradient of the three culverts draining into the tributary (seven locations). In addition, thirteen surface soil samples were collected from the tributary banks to the left and right of each downgradient surface water/sediment sampling location.

Surface soil data was used to conduct a preliminary **Human Health Risk Screening (HHRS)**, which identified potential unacceptable human health risks to future child residents due to combined exposure to several inorganics. However, because no individual contaminant was found to pose unacceptable risk, it was concluded that it was unlikely that exposure to surface soil would cause adverse human health effects.

Surface water and sediment data was used to conduct a **Screening-Level Ecological Risk Assessment (SLERA)**, which identified potential unacceptable risks due to exposures to inorganics (primarily silver). Based upon these results, a **Remedial Investigation (RI)** was recommended and SSA 10 was renamed as Site 28.

Round One Remedial Investigation Report, Sites 27 through 30 (Baker, 2005)

In 2000, an RI was conducted to close remaining data gaps and aid in the completion of a **Human Health Risk Assessment (HHRA)** and a Step 3a

Baseline Ecological Risk Assessment (BERA). Subsurface soil, groundwater, sediment, and surface water samples were collected during this investigation.

The HHRA, performed during the Round One RI (Baker, 2005), expanded upon the surface soil data collected in the SSP (Baker, 2001) and included subsurface soil and groundwater samples in the analysis. The HHRA identified potential unacceptable human health risks to future child residents from exposure to arsenic, iron, and vanadium in surface and subsurface soil and from exposure to chromium and iron in groundwater. Based on the fact that no single contaminant exceeded **unity** and the concentrations of all contaminants detected in soil and groundwater were below WPNSTA **Yorktown** background concentrations, no additional evaluation or action was recommended.

The Step 3a BERA, conducted for aquatic and terrestrial habitats, identified silver as the primary contaminant in sediment and surface water that posed potential unacceptable risk to terrestrial lower trophic level populations and communities. No unacceptable risks were identified for either aquatic or terrestrial upper trophic level receptors. Based on these results additional sediment and surface water samples from the unnamed tributary were recommended either prior to or as a part of a Step 7 BERA.

Ecological Risk Assessment – Step 7 (CH2M HILL, 2008)

In the Step 3A BERA, silver was identified as a potential ecological risk driver in lower trophic level terrestrial and aquatic communities; therefore Site 28 continued through Step 7 of the

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ERA process. Surface soil, sediment, and surface water samples were collected along the length of the unnamed tributary downgradient of Site 28 and along a nearby **reference reach** for site-specific comparison.

Potential risk to ecological receptors in terrestrial habitats was determined by comparing soil concentrations with risk **screening values**. Soil concentrations were also screened against base-wide background concentrations and reference reach concentrations to assess if exceedances of screening values were the result of naturally occurring conditions. Finally, modeled dietary intake of indicator species was screened with ingestion screening values while soil **toxicity testing** was conducted with earthworms to determine if concentrations present were harmful to terrestrial receptors.

Potential risk to ecological receptors in wetland/aquatic habitats was determined by comparing sediment and surface water concentrations with risk screening values. Sediment and surface water concentrations were also screened against base-wide background concentrations and reference reach concentrations to assess if exceedances of screening values were the result of naturally occurring conditions. Finally, modeled dietary intake of indicator species was screened with ingestion screening values while sediment toxicity testing was conducted with frogs and surface water toxicity testing was conducted with invertebrates and fish to determine if concentrations present were harmful to terrestrial receptors.

The Step 7 BERA identified no unacceptable risks to terrestrial, wetland, or aquatic ecological receptors related to the Site. As a result, no clean-up goals were required and no action was recommended for ecological receptors.

3 Site Characteristics

Site 28 consists of Building 28, the surrounding terrestrial area, and a portion of the unnamed tributary. The **topography** at the Site ranges from approximately 65 to 40 feet above mean sea level (msl) and slopes steeply northeast toward the unnamed tributary. The Site receives surface water runoff from the access road and surrounding wooded area, all of which drain into the tributary.

The unnamed tributary meanders along a defined channel through a flat-bottomed floodplain until it reaches Felgates Creek near Site 2, approximately one mile downgradient of Site 28. The floodplain varies in width from 60 to 100 feet and consists of a **freshwater emergent wetland**. Deciduous forest consisting of dense canopies surrounds the tributary on the upland **ravines** along its length.

Surface soil at the Site ~~are~~ is composed mostly of fine sand and silt/clay. The depth to groundwater (Cornwallis Cave Aquifer) is between 5 and 14 feet below ground surface with flow northeast towards the unnamed tributary. There is no current or expected future use for groundwater at the site. Potable water at WPNSTA Yorktown is supplied by the City of Newport News Waterworks.

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4 Scope and Role of Response Action

WPNSTA Yorktown was placed on the **National Priorities List (NPL)** in October 1992. A Federal Facility Agreement (-FFA), signed in 1994, identified 16 Sites for RI and 19 Site Screening Areas (-SSAs) for the Site Screening Process (SSP). Subsequent to the FFA, 6 additional SSAs were identified for consideration under CERCLA. Site 28 is one of 24 sites at WPNSTA Yorktown currently in various stages of being investigated, addressed and/or closed out in accordance with CERCLA and the NCP. A summary of how the Navy, in partnership with the USEPA Region 3 and VDEQ, is addressing all CERCLA sites at WPNSTA Yorktown is provided in the **Site Management Plan**, which is updated annually and available in the AR file.

5 Summary of Site Risks

An assessment of potential human health and **ecological risks** were evaluated and documented in the Round One RI (Baker, 2005), and the Step 7 BERA (CH2M HILL, 2008). Based on the RI, there are no unacceptable human health risks from exposure to all site media. Following completion of the Step 7 BERA, no unacceptable ecological risks were identified from exposure to all site media.

Potential risks from exposure to site media are summarized below. Additional information

regarding human health and ecological risks, as well as how they are calculated, is included in text boxes within these sections.

What is Human Health Risk and How is it Calculated?

A Human Health Risk Assessment (HHRA) estimates the likelihood of health problems occurring if no cleanup action were taken, and consists of 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, comparisons of the concentrations of site chemicals to scientific studies on the effects those chemicals have on people help determine which chemicals pose the greatest threat to human health.

In Step 2, the Navy considers different ways people might be exposed to chemicals, the concentrations, how often, and how long they may be exposed to determine 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 toxicity information to assess potential health risks. The Navy considers two types of risk: (1) cancer risk, and (2) non-cancer hazard. The likelihood of any kind of cancer resulting from a contaminated site is generally expressed as a probability; "1 in 10,000 chance" (for every 10,000 people that could be exposed, one extra cancer may occur as a result of exposure). For non-cancer health effects, the Navy calculates a "hazard index" (HI), that is the ratio between the "reference dose," (the dosage at which no adverse health effects are expected), and the RME (the estimated maximum exposure level). A "threshold level" (HI less than 1) exists below which non-cancer health effects are no longer predicted.

In Step 4, the Navy determines whether site risks are high 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.

WHAT IS ECOLOGICAL RISK AND HOW IS IT CALCULATED? What is Ecological Risk and How is it Calculated?

An Ecological Risk Assessment (ERA) evaluates the potential risks to plants, animals, habitats, and communities, and is conducted using a step-wise process (as outlined in Navy and USEPA ERA policy and/or guidance), that includes decision points where agreement among stakeholders is reached to determine if the process should continue or terminate. The process continues until a final decision has been reached (i.e., remedial action if unacceptable risks are identified, or no further action if risks are acceptable). The process can also be iterative if data needs are identified at any step; the needed data are collected and the process starts again at the point appropriate to the type of data collected. An ERA has three principal components:

1. **Problem Formulation** establishes the goals, scope, and focus of the ERA and includes:
 - Compiling and reviewing existing information on the habitats, plants, and animals that are present on or near the site.
 - Identifying and evaluating area(s) where site-related chemicals may be found (source areas) and at what concentrations.
 - Evaluating potential movement (transport) of chemicals in the environment.
 - Identifying possible exposure media (soil, air, water, sediment).
 - Evaluating if/how the plants and animals may be exposed (exposure pathways).
 - Evaluating routes of exposure (for example, ingestion).
 - Identifying specific receptors (plants and animals) that could be exposed.
 - Specifying how the risk will be measured (assessment and measurement endpoints) for all complete exposure pathways.
2. **Risk Analysis** which includes:
 - **Exposure Estimate** - An estimate of exposures concentrations. This includes direct exposures to lower trophic level receptors (organisms low on the food chain such as plants and insects) and upper trophic level receptors (organisms higher on the food chain such as birds and mammals), and indirect exposures (exposures via the food chain) for upper trophic level receptors.
 - **Effects Assessment** - The concentrations of chemicals at which an adverse effect may occur are determined.
3. **Risk Calculation or Characterization:**
 - The first two steps are used to estimate potential risk to plants and/or animals by comparing the exposure estimates with the effects thresholds.
 - Also included is an evaluation of the uncertainties (potential degree of error) that are associated with the predicted risk estimate and their effects on ERA conclusions.

The three principal components of an ERA are implemented as an 8-step, 3-tiered process as follows:

1. Screening-Level ERA (Steps 1-2; Tier 1) – The SLERA conducts an assessment of ecological risk using the three steps described above and very conservative assumptions (such as using maximum chemical concentrations).
2. Baseline ERA (Steps 3-7; Tier 2) – If potential risks are identified in the SLERA, a BERA is typically conducted. The BERA is a reiteration of the three steps described above but uses more site-specific and realistic exposure assumptions, as well as additional methods not included in the SLERA, such as consideration of **background** concentrations. The BERA may also include the collection of site-specific data (such as measuring the concentrations of chemicals in the tissues of organisms, such as fish) to address key risk issues identified in the SLERA.
3. Risk Management (Step 8; Tier 3) – Step 8 develops recommendations on ways to address any unacceptable ecological risks that are identified in the BERA and may also include other activities such as evaluating remedial alternatives.

5.1 Soils

The HHRA identified potential unacceptable non-cancer hazards (HI > 1.0) for future child residents due to the combined exposure to arsenic, iron, and vanadium in both surface (HI = 1.05) and subsurface (HI = 1.49) soil under reasonable maximum exposure (RME) assumptions. Individual hazard quotients (HQ) can be found in Table 2. Although the total **hazard index (HI)** for these media exceeded unity, no individual **contaminant of concern (COC)** posed unacceptable risk, and risk to each individual target organ was below USEPA's target level. In addition, all contaminant concentrations detected during sampling activities were below WPNSTA Yorktown base-wide background concentration; therefore, no further investigation is warranted and no action

is necessary to address human health risk from soil associated with Site 28.

The site-specific Step 7 BERA (CH2M HILL, 2008) identified no unacceptable risks to terrestrial communities or populations from exposure to site soil. No contaminant concentrations exceeded screening values, background concentrations, and reference concentrations in surface soil. In addition, the results of toxicity testing indicated that surface soil was not chronically toxic to lower terrestrial receptors, represented by earthworms. Visual inspection of the vegetation present along the unnamed tributary displayed community structure and diversity consistent with the reference area and showed no signs of stress (e.g., leaf discoloration, dieback, invasion by non-native or opportunistic species). No unacceptable risk was identified and no adverse impacts to ecological receptors were observed for Site soil. No action is warranted for Site 28 to address ecological risks from site soil.

5.2 Groundwater

The HHRA identified potential unacceptable non-cancer hazards (HI > 1.0) for future child residents due to the combined exposure to chromium and iron due to ingestion of groundwater (HI = 1.34) under RME assumptions. Individual HQs can be found in Table 2. Although the total HI for groundwater exceeded unity, no individual COC posed unacceptable risk, and risk to each individual target organ was below USEPA's target level. In addition, all contaminant concentrations detected during sampling activities were below WPNSTA Yorktown base-wide background concentration; therefore, no further investigation is warranted and no action is necessary to address human health risk from groundwater associated with Site 28.

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Table 2 – Human Health Risk Assessment Summary

	Contaminant	Exposure Point Concentration	Maximum Base-wide Background Concentration	Hazard Quotient
Surface Soil	Arsenic	5.67 mg/kg	63.9 mg/kg	0.13
	Iron	14,462 mg/kg	46,400 mg/kg	0.32
	Vanadium	21.7 mg/kg	64.7 mg/kg	0.32
Subsurface Soil	Arsenic	8.3 mg/kg	42.7 mg/kg	0.19
	Iron	25,800 mg/kg	51,100 mg/kg	0.57
	Vanadium	22 mg/kg	70.3 mg/kg	0.32
Groundwater	Chromium	0.0337 mg/L	49.6 mg/L	0.87
	Iron	2.18 mg/L	48.2 mg/L	0.47

Comment [WMS2]: Define mg/kg and mg/L

The BERA concluded that ecological risk evaluations for groundwater was not necessary since there is no direct ecological exposure to groundwater and potential risk from exposure to surface water and sediment were directly evaluated.

5.3 Sediment

No unacceptable risks to human health from sediment were identified during any round of risk screening conducted. No further action is necessary to address human health risk from sediment at Site 28.

The Step 7 BERA detected silver concentrations above risk screening values, background concentrations, and reference reach concentrations in surface sediment. No chemicals exceeding all of these criteria were identified in site subsurface sediment samples. Toxicity tests for silver performed with frogs indicated reduced growth in the tributary downgradient of Site 28; however, these deviations were not statistically significant from the results from the reference reach. Although silver concentrations present in surface sediment exceeded all screening criteria, based on toxicity tests, no unacceptable risk is posed to wetland/aquatic receptors due to silver concentrations. Based upon the weight-of-evidence, no unacceptable risks were identified for sediment and no further action is warranted to address ecological risk from sediment at Site 28.

5.4 Surface Water

No unacceptable risks to human health from surface water were identified during any round of risk screening conducted. No further action is necessary to address human health risk from surface water at Site 28.

The Step 7 BERA detected total silver in exceedance of screening values, background concentrations, and reference reach concentrations in surface water. No chemicals exceeding all of these criteria were identified in dissolved surface water samples, indicating that the concentrations of total silver may be associated with suspended particulates. Toxicity tests for silver performed with invertebrates and fish showed reduced growth in the tributary downgradient of Site 28;

however, these deviations were not statistically significant from the results from the reference reach. Although total silver concentrations present in surface water exceeded all screening criteria, based on toxicity tests, no unacceptable risk is posed to wetland/aquatic receptors due to silver concentrations. Based upon the weight-of-evidence, no unacceptable risks were identified for surface water and no further action is warranted to address ecological risk from surface water at Site 28.

Comment [WMS4]: Reword

6 Preferred Alternative

Because no unacceptable risk to human health and the environment was identified, the preferred final alternative for all media at Site 28 is No Action. No Action is warranted based on a review of all information that demonstrates there are no unacceptable risks to human health and the environment due to soil, groundwater, surface water, and sediment at Site 28. Because there are no unacceptable risks, evaluation of remedial action alternatives is not necessary.

Under the No Action alternative, no response actions will be performed at Site 28 and no restrictions on land use or exposure are necessary. The Navy may reconsider No Action for Site 28, or consider evaluation of other alternatives if public comments or additional data indicate another alternative warrants consideration.

Comment [WMS3]: Reword

6.1 Commonwealth Acceptance

The VDEQ supports the no action alternative; however, the VDEQ's final concurrence with the no action alternative will be provided following the review of all comments received during the public comment period.

6.2 Community Acceptance

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

7 Community Participation

The Navy and USEPA Region 3, in consultation with VDEQ, will make the final decision on this approach for Site 28 after reviewing and considering all information and comments submitted during the 30-day public comment period. The public comment period for this Proposed Plan will extend from day/month to day/month, and a public meeting to discuss the Proposed Plan will be held day/month/time at XXXXX. Details regarding the public comment period and public meeting are included in the text box in Section 1 entitled "Please Mark Your Calendar." The Navy will summarize and respond to all comments submitted during the public comment period in a responsiveness summary that will be included in the final decision document, the ROD that will follow this Proposed Plan. This Proposed Plan and the ROD will become part of the AR file for WPNSTA Yorktown.

Public participation is encouraged since the preferred alternative presented in this Proposed Plan may be modified or another alternative selected based on new information and/or public comments received. The public is encouraged to gain a more comprehensive understanding of Site 28 and the Navy's Environmental Restoration Program by attending this and other public meetings advertised in the Daily Press and Virginia Gazette newspapers and accessing information included in the AR file. Minutes of all public meetings will be included in the file.

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

Mr. Tom Kowalski, P.G.
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Phone: (757) 455-6618
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For further information, please contact:

Mr. Rob Thomson, P.E., R.E.M.
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Richmond, VA 23219
Phone: (804) 698-4125
Fax: (804) 698-4234
Email: wade.smith@deq.virginia.gov

Glossary

Administrative Record (AR): Site information is compiled in an Administrative Record and placed in the general ERP information repository for public review.

Background: The concentration of a naturally occurring or manmade contaminant, such as a metal, found in groundwater, soil, sediment, and surface water in areas not affected by spills, releases, or other site-specific activities. Background concentrations of some inorganics and other contaminants 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.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA): A Federal law, commonly referred to as the "Superfund" Program, passed in 1980 and amended by the Superfund Amendments and Reauthorization Act of 1986. CERCLA provides for cleanup and emergency response in connection with existing inactive hazardous waste disposal sites that endanger public health and safety or the environment.

Contaminants of Concern (COC): A chemical that, based upon comparison to regulatory screening criteria, has potential to pose unacceptable risks or hazards to receptors at the site.

Ecological: Refers to plants and animals in the environment.

Ecological Index (EI): Ecological effects are evaluated by dividing the chemical concentrations present at the site with the Ambient Water Quality Criteria set by the Clean Water Act to determine the EI. If the EI is greater than one, then the release is potentially harmful to aquatic life.

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

Environmental Restoration Program (ERP): The Navy, as the lead agency, acts in partnership with USEPA Region 3 and VDEQ to address environmental investigations at the

facility through the ERP. The current ERP is consistent with CERCLA and applicable state environmental laws.

Freshwater Emergent Wetland: A nontidal wetland with salinity of less than 0.5 ppt, water depth less than 2 meters, and is not adjacent to a shoreline.

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

Hazard Index: The sum of hazard quotients for substances that affect the same target organ or organ system.

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

Inorganics: Refers to a variety of inorganics found in soil, sediments, surface water, and groundwater that may or may not be Site-related.

Media: Soil, groundwater, surface water, or sediment at the Site.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): Provides the organizational structure and procedures needed to prepare for and respond to discharges of oil and releases of hazardous substances, pollutants, and contaminants.

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

Proposed Plan: A document that presents and requests public input regarding a 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 the Navy and USEPA, such as a rulemaking, permit, or Superfund-remedy selection.

Ravine: A very small valley, which is often the product of streamcutting erosion.

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

Comment [WMS5]: Define

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

Reference Reach: A nearby, uncontaminated waterbody that is used as a comparison to assess what normal conditions are for an area.

Relative Risk Ranking (RRR): A study that groups sites into High, Medium, or Low categories based on an evaluation of site information using the factors of contamination hazard, migration pathway, and receptors.

Remedial Investigation (RI): A study 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.

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

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

Relative Risk Ranking (RRR): A study that The groups of sites into High, Medium, or Low categories based on an evaluation of site information using the factors of contamination hazard, migration pathway, and receptors.

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

Screening Value: The chemical-specific concentration above which concern is raised about the risk of chemical to human health or the environment

Sediment: Particulate matter that can be transported by fluid flow and which is found submerged underwater.

Site: The area of the facility where a hazardous substance, hazardous waste, hazardous contaminant, pollutant, or contaminant from

the facility has been deposited, stored, disposed of, placed; has migrated; or otherwise come to be located.

Site Management Plan (SMP): An annual report that provides a management tool for NAVFAC, VDEQ, USEPA, and consultants for use in planning, scheduling, and setting priorities for environmental remedial response activities to be conducted at a base. The SMP establishes schedules and conceptual approaches for continued CERCLA activities.

Comment [WMS6]: Define

Site Screening Process (SSP): Process to determine if an area should be considered a Site for further investigation.

Soil: A mixture of organic and inorganic solids, air, water, and biota which exists on the earth surface above bedrock, including materials of anthropogenic sources, such as slag, sludge, etc.

Surface Water: All water naturally open to the atmosphere (rivers, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries, etc.)

Topography: the detailed description of the physical features of an area.

Toxicity Testing: A test where the effects of exposure to a given chemical is tested on an indicator species. Testing measures variables such as survival, growth, and reproduction.

Tributary: A small stream or river, which enters and increases the volume of the receiving river, lake, or reservoir.

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

Unity: The point at which the numerator and denominator in a ratio are equal. For risk management, the ratios are designed so that unity is the point at which risk becomes unacceptable.

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

