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LETTER AND U S NAVY RESPONSE TO U S EPA REGION III COMMENTS TO DRAFT SITE  
INSPECTION REPORT SITE 7 OLD DUPONT DISPOSAL AREA FISC WILLIAMSBURG VA  
11/11/2012  
CH2M HILL

## Monica Marrow

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**From:** Stephanie.Sawyer@CH2M.com  
**Sent:** Wednesday, January 11, 2012 2:18 PM  
**To:** Burchette.John@epamail.epa.gov; Wade.Smith@deq.virginia.gov; krista.parra@navy.mil  
**Cc:** Marlene.Ivester@CH2M.com; Stephanie.Sawyer@CH2M.com  
**Subject:** Response to EPA Comments on the Draft Site 7 SI Report; Sent 1/11/12  
**Attachments:** image001.jpg; Response to EPA Comments on draft CAX Site 7 SI 1\_11\_12.pdf

To All:

Attached are the Navy's responses to the EPA's comments on the Draft Site 7 SI Report. The USEPA comments were received via email on November 2, 2011. As indicated by VDEQ in their letter dated November 10, 2011, VDEQ had no comments regarding the Draft SI Report. Once we have resolved these comments, we will submit the draft final Site 7 SI Report (red-lined for easy review) for review.

We will be discussing these RTCs on January 19, 2011, during our Partnering Meeting, however if you have any questions prior to the meeting please let Krista and I know.

Thanks,  
Stephanie



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# Response to Comments

## Draft Site Inspection Report

### Site 7

Naval Weapons Station Yorktown Cheatham Annex  
Williamsburg, VA  
January 11, 2012

#### EPA RPM Comments:

EPA RPM Comment 1: *15-20' of shoreline eroded in to the river. See BTAG Comments.*

Response: No response required.

EPA RPM Comment 2: *Step 2b. It is hard to make some of these more realistic assumptions with the limited amount of data at the SI Stage (comparatively to the RI). COPC identified during the PA/SI risk screening (vs RSL and 95% UTL/UCLs) should be carried through and sampled for during the RI. Risk management decisions can then be made on the larger dataset of the RI.*

Response: Although the data collected from Site 7 were presented in an SI Report, it is the Navy's position that the amount of data collected is sufficient to perform the semi-quantitative risk evaluations using more realistic assumptions, as illustrated in Section 1.1.1. The sample collection approach, including the media to be sampled and the number and location of samples, and the data evaluation approach and procedures that were conducted for the SI were all included in the Site 7 SI UFP-SAP which was approved by the EPA and VADEQ in advance of the execution of the SI.

To address this comment, it is proposed that Section 1.1.1 of the SI Report will be revised to clarify the objectives of the SI. Please note that the more realistic risk evaluation presented in the SI was conducted to determine if those constituents exceeding conservative screening values likely pose a potential risk to human health and the environment and to provide an indication of data gaps that need to be filled by further investigation activities. The SI report does not state that any constituents should not be analyzed in future sampling events. Since the recommended path forward for Site 7 is an Expanded SI, the entire SI and pre-SI data set would be carried forward for use in future quantitative risk assessment activities that are deemed necessary by the team. Proposed sampling locations, media to be sampled, and analytes for implementation of the Expanded SI will be submitted under separate cover in a forthcoming UFP-SAP.

EPA RPM Comment 3: *Page 2-1. It is strange to use a supplemental background dataset when we have an approved background dataset. It also makes it somewhat unclear which background dataset was used for screening. In this case, I don't believe the "site specific" background has undergone the proper statistical analysis to be used as a background dataset.*

Response: The site-specific background dataset was used as an additional point of comparison in conjunction with the approved background dataset for the base. At the time the UFP-SAP was drafted, the CAX Partnering Team had not yet approved the background 95% UTLs; therefore, in order to prevent delays with completing the Site 7 SI Report, the installation of two site-specific background monitoring wells was included as part of the SI. As stated in the UFP-SAP, groundwater samples from these wells

were collected to provide a background dataset for comparison against site groundwater samples (Page 37 of the final UFP-SAP).

Since the background dataset was approved by the Yorktown/CAX Partnering Teams before the submittal of this SI Report, the Site 7 groundwater results were first compared to the background 95% UTLs in the approved background data set and then to the site-specific background dataset. The text will be revised to make this more clear; however, no changes regarding the use of the site-specific background data set are proposed.

EPA RPM Comment 4: Page 3-2. *Is it correct to say no MEC were discovered at the site? Also, the details of the removal are not clear. Was it only surficial dumping of munitions? Was there any sort of GPR done to determine if MEC was BGS?*

Response: During the 2004 beach clean-up along the Site 7 shoreline, an item suspected to be ordnance-related was found and labeled as “an unfused, unfired 3-inch projectile.” It is unclear if it actually had originated from Site 7 or had washed up onto the beach. Nonetheless, all work conducted at Site 7 from that point forward included MEC/unexploded ordnance (UXO) avoidance support to be most conservative and safe. During the 2006 Geotube installation on the beach (large, sand-filled fabric “bags” used to protect the shoreline from wave erosion), all excavated materials were screened and sifted for MEC. The construction close-out report noted approximately 86 pounds of munitions debris (MD) consisting mainly of lifting lugs and fuse adapters were recovered. Although these items were identified as MEC, they can be used for non-ordnance-related applications. No munitions or UXO items were found during the Geotube installation. During the 2008 soil and debris removal action, a UXO technician was on-site as a conservative safety measure. Each test pit and removal area was inspected by a UXO technician using a magnetic gradiometer to screen for the presence of iron- or steel-bearing objects near and below the surface. No MEC or UXO items were encountered during the 2008 soil and debris removal action. Therefore, it is likely that the items recovered during the Geotube installation were metal debris and not MEC. (Details of the beach clean-up and Geotube installation are included in the 2007 Bhate Project Completion Report.)

There is no record of surficial or subsurface disposal of munitions at the site and none have been discovered during subsurface magnetic gradiometer screening and excavation activities. The SI Report will be revised to clarify that no MEC or UXO were encountered during the 2008 soil and debris removal action.

EPA RPM Comment 5: Page 3-2. *2,3,7,8 TCDD? Was this a specific congener analysis? Or was this a full dioxin analysis where a TEQ was calculated?*

Response: For the 2008 soil and debris removal action, 2,3,7,8-TCDD was the only dioxin congener analyzed since it is the most toxic congener. (Full dioxin congener analysis did occur for the ash sample collected in 2004)

EPA RPM Comment 6: Page 3-4. *Chromium. Chromium should be carried through as a COPC. Risk management decisions can be made as part of the RI.*

Response: The SI report does not state that chromium should not be evaluated in the recommended Expanded SI or that the existing chromium data should not be carried forward for further quantitative risk analysis. This subsection of the SI report documents the risk evaluation that was performed in accordance with the Site 7 SI UFP-SAP and presents the results and conclusions of that evaluation. Moreover, the referenced page discusses potential human health risks associated with soil collected in 2004, prior to the completion of the TCRA. As a result of the 2008 soil and debris removal action, the soil

associated with these potential chromium risks has been removed from the site (i.e., the results of the risk screening conducted on the post-removal confirmation soil samples [Section 3.4.3] indicate no potential risk to human health as a result of chromium concentrations). No changes to the SI Report are proposed to address this comment.

*EPA RPM Comment 7: Page 3-5. Section 3.2.4. Ecological Risk Screening. I generally don't agree with the idea of assuming it has been diluted as the reason for not sampling. Decisions made at the site should be scientifically defensible. See BTAG Comments.*

Response: As discussed in the last bullet of this section, Site 7 borders a portion of the York River that is documented to be continually eroding based on the results of a scientific study (CCRM & VIMS, 2010). Any fine-grained material that was transported into the York River by the extensive storm surge during the 2003 hurricane (or other storms that have occurred since that time), would likely be widely dispersed and buried relative to pre-hurricane contaminant concentrations in the landfill area. There is uncertainty that contaminated material from the former landfill area remains in place today in the river adjacent to the site and at concentrations posing environmental risk.

Additionally, there are potential non-site-related and non-Navy sources of contamination to the York River similar to the soil contamination found at Site 7 that would make it extremely difficult to determine if any identified York River sediment contamination originated at Site 7. The Navy plans to complete a Watershed Contaminated Source Document (WCSD) to help identify other potential sources of contamination in the York River and which could assist with future risk management decisions. No changes to the SI Report are proposed to address this comment.

*EPA RPM Comment 8: Page 3-6. Section 3.3 Site Specific Background. I was not able to find any data from wells MW-1 and 2. Please include this data on table 3-4 or indicate why it was not included.*

Response: The site-specific background data are included in Table 3-2. However, since these data are being used in part to determine if COPCs are site-related contaminants, Table 3-4 will be revised to include a column with the maximum site-specific background value.

*EPA RPM Comment 9: Page 3-8. Section 3.4.2. I generally don't agree that COCs exceeding risk screening levels and 95% UTL/UCL of background should be screened out at the SI stage.*

Response: Comment noted. As discussed by the CAX Partnering Team on November 7, 2011, the team agreed to eliminate the use of the maximum background concentrations identified in the 2011 Background Study Report in the SI phase. The SI Report will be revised to remove all references to these maximum background concentrations.

*EPA RPM Comment 10: Page 3-9. It is highly unlikely that the dioxin detected is attributable to forest fires and more likely attributable to the ash layer at the site.*

Response: In accordance with EPA guidance and the UFP-SAP, a CERCLA-related release is characterized by site dioxin concentrations in exceedance of site-specific background levels (Page 45 of the Final UFP-SAP). Since select dioxin congeners were detected at similar concentrations in the upgradient (as depicted in Figure 3-4) site-specific background monitoring wells, which have not been impacted by the on-site ash layer, it is more likely that these concentrations are naturally occurring or the result of a non-site-related anthropogenic source (e.g., atmospheric deposition) and not related to the on-site ash layer. It is proposed that the end of the last sentence on page 3-9 be revised to read: "...the detected octachlorodibenzo-p-dioxin concentrations are likely not attributable to a release from the site and may

be naturally occurring (e.g., forest fire) or from a non-site-related anthropogenic source (e.g., atmospheric deposition).”

EPA RPM Comment 11: *Page 3-10. RDX should be looked at further upgradient from the Site 7 background well.*

Response: The Navy agrees that the source of RDX should be identified; however, due to the fact that it was detected in the upgradient, background monitoring wells, the RDX detections are not likely related to historical activities at Site 7. The Navy recommends the CAX Partnering Team discuss creating a new area of concern in order to determine the upgradient source of the RDX detections. No changes to the SI Report are proposed to address this comment.

EPA RPM Comment 12: *Page 3-10. Chloroform should be considered site related since other CVOCs are present at the site (TCE).*

Response: It is the Navy’s position that the trace detections of chloroform in groundwater (the maximum detected concentration was estimated at 0.757J µg/L) are naturally occurring. However, since other clearly site-related VOCs were detected at concentrations that pose potential risk to receptors, the Navy has no objection to future groundwater samples (collected as part of the recommended Expanded SI) being analyzed for the full suite of VOCs, which includes chloroform. The details regarding implementation of the Expanded SI will be submitted under separate cover in an Expanded SI UFP-SAP. No changes to the SI Report are proposed to address this comment.

EPA RPM Comment 13: *Page 3-10. Pesticides. Was the background detection in the sites specific background wells or in the actual background study?*

Response: A background 95% UTL was not calculated for the detected base-wide pesticide concentrations; therefore, the site-specific background wells were used for comparison. The text of the SI Report will be revised to clarify that the site-specific background wells were used for comparison.

EPA RPM Comment 14: *Was the backfill certified clean fill or was it from an onsite source?*

Response: The backfill was brought to the site from an outside source and was certified clean. The removal action contractor, Shaw, verified the acceptability of the backfill through laboratory analytical testing; these results are provided in Appendix C of the Final CCR. No changes to the SI Report are proposed to address this comment.

EPA RPM Comment 15: *Page 3-13. Please see BTAG Comments on using mean HQs.*

Response: Please see the responses to EPA RPM Comment 2 (above) and BTAG Comment 3 (below).

EPA RPM Comment 16: *Page 3-14 and 3-15. Please see BTAG Comments on using the mean.*

Response: Please see the responses to EPA RPM Comment 2 (above) and BTAG Comment 3 (below).

EPA RPM Comment 17: *Page 3-16. Naturally occurring chloroform. See EPA RPM Comment 12.*

Response: Please see the response to EPA RPM Comment 12.

#### **EPA Toxicologist Comments:**

EPA Toxicologist Comment 1: **Section 2.2:** *It would be helpful to note that the 2011 soil sampling effort focused only on pH measurements (rather than chemical analyses) because extensive confirmatory*

*sampling (TCL/TAL/dioxin) had been performed in 2008 (as reported in Table 2-1 of the report), and was considered for this SI.*

Response: Agreed. Section 2.2 of the SI Report will be revised to note that the 2011 soil sampling focused on the collection of pH data because extensive soil sampling was completed in 2008 and was considered in the SI.

EPA Toxicologist Comment 2: **Appendix A:** *For chemicals like arsenic, where non-cancer endpoints dominate as the upper end of the cancer risk range is approached, a non-cancer evaluation of risk should also be performed.*

Response: The Navy's risk screening/risk ratio guidance (Overview of Screening, Risk Ratio, and Toxicological Evolution for Northern Division Human Health Risk Assessments, May 2000) was followed to conduct the evaluation. This guidance states "for chemicals that have both cancer and noncancer effects, in general, the RBC is based on cancer risk, and therefore only the cancer risk associated with that COPC is included in the risk ratio sum." In terms of arsenic, it is true that arsenic would be a COPC based on the noncancer endpoint (and an RSL derived based on noncancer risk). However, this would not change the conclusions of our human health risk screening assessment, which is that further evaluation is recommended for soil. No changes are proposed to the SI Report to address this comment.

#### **EPA BTAG Comments:**

EPA BTAG General Comment: *One of the recurring issues noted in the review is the use of mean concentrations when assessing risk. It must be noted that EPA ecological risk assessment guidance clearly states that "For the screening-level risk assessment, the highest contaminant concentrations measured on the site should be documented for each medium." It also clearly states that "Risk is estimated by comparing maximum documented exposure concentrations..." Region 3 BTAG uses mean concentrations to better understand the nature of contamination and potential exposure at a site; other uses are generally not appropriate or accepted.*

Response: The initial, screening-level risk evaluation did use and document maximum detected concentrations. Mean concentrations were only used in the subsequent refined analysis, which is comparable to ERA Step 3A (the first step of a baseline ERA).

EPA BTAG Comment 1: *Section 3.2.4 provided a screening evaluation of soil concentrations to sediment screening levels to assess the potential risk from soil that had eroded into the York River as a result of Hurricane Isabel in 2003. The evaluation concluded that unacceptable ecological risks in the York River from potential historical soil transport from the site are very unlikely. It is unclear why this approach was taken. It would be more appropriate to sample sediment in the York River as a more direct measure of what eroded from the bluff into the river. The screening evaluation is not sufficient to eliminate potential contamination in the York River from further consideration. It is not clear from the soil samples collected that the highest concentrations were detected as sampling was very limited. The volume of contaminated soil would also be an important factor in concentrations that would result in the river. This approach also does not consider historical soil or contaminants that may have been transported into the river. BTAG recommends that sediment samples be collected in the York River to better assess this migration pathway.*

Response: Please see the response to EPA RPM Comment 7. Additionally, according to the results of the Shaw removal action (Shaw, 2009), the boundary of the landfilled debris did not extend along the entire site shoreline, as depicted in the historical CSM (Figure 3-1 in the SI Report). There was likely only a small lobe (east of former Building 169) of potentially landfilled debris, contaminated fill material, and

ash that eroded into the River, but there is no confirmation as to the amount of material within that lobe. This information will be added to the SI Report. EPA BTAG Comment 2: *Section 3.2.4 on page 3-5 discusses the ecological risk screening that was performed at the site. The soil data used in this analysis was from the top two feet of fill material as these samples were collected in 2011 for pH analysis. It is still not clear what the date (pre-hurricane Isabel (2003), 2004, 2008 post removal, 2011) or the depth (backfill, 0 to 24 inches, 0-6 inches) of the soil samples were that determined contaminant concentrations used in this report. Indicate if any confirmation wall and floor samples were collected and analyzed during the removal action at this site. If so, it would be helpful to include these data in this report.*

Response: Section 3.2.4 describes the Pre-Hurricane Isabel Conceptual Site Model and the ecological risk screening conducted using the 2004, pre-TCRA surface soil (0 to 6 inches) and subsurface ash data to conservatively evaluate potential pre-TCRA soil to sediment transport from the site to the York River as a result of Hurricane Isabel. The first sentence of Section 3.2.4 states that the data evaluated in this subsection were collected in 2004 and refers the reader to the Appendix H tables, which also indicate that 2004 data were evaluated for this part of the document. There are no pre-hurricane data and the data used in the analysis in this subsection were not the data collected in 2011 for pH analysis.

Confirmation wall and floor samples were collected and analyzed during the removal action and were included in the SI report; however, these results are not discussed in Section 3.2.4, but rather in Sections 3.4.2 and 3.4.3, which discuss the post-removal action soil screening conducted using all 2008 post-removal samples (bottom and side wall) that were within the 0 to 24-inch depth range relative to the current (backfilled) site elevation. Samples of the backfill material were not included in the evaluation. The first sentence of Section 3.4.2 states that the data evaluated in this subsection were collected in 2008 during the removal action and in 2011. Section 3.4.3 refers the reader to the Appendix B tables, which also indicate that 2008 data were evaluated in this part of the document. Also, Table 3-3 includes the sample dates for the 2008 samples, and Figure 3-5 also indicates the sample dates and which samples were collected from the side wall or the floor. The 2011 soil samples were collected and analyzed only for pH, since pH was not measured in the 2008 samples, and the 2011 data were used to complete the Ecological Risk Evaluation included in Section 3.4.3. No changes are proposed to the SI Report to address this comment.

EPA BTAG Comment 3: *Section 3.2.4 on page 3-5 states that when evaluating ecological risk, "The initial COPCs [contaminants of potential concern] were then evaluated using more realistic assumptions to select refined COPCs." It is premature to refine exposure assumptions to less conservative levels and eliminate chemicals from further consideration at this point in the risk assessment process.*

Response: Please note that the more realistic risk evaluation presented in the SI was conducted to determine if those constituents exceeding conservative screening values likely pose a potential risk to human health and the environment and to provide an indication of data gaps that need to be filled by further investigation activities. Since the recommended path forward for Site 7 is an Expanded SI, the entire SI and pre-SI data set would be carried forward for use in future quantitative risk assessment activities that are deemed necessary by the team. This approach was presented in the Site 7 SI UFP-SAP which was approved by EPA and VADEQ. The Navy feels sufficient data were available to conduct the refined risk analysis, which approximates a Step 3A evaluation. The purpose of the refined analysis was to identify likely risk drivers (if any) to hone in on the significant environmental issues at the site and to aid in identifying any potential data gaps for planning future investigation activities. The methodology used for this evaluation is described in Appendix H.

In addition, the SI report does not conclude that any COPCs should be eliminated from further consideration. It evaluates the data that have been collected to date and recommends further investigation activities to close potential data gaps. All of the data collected to date would be carried forward to the next investigation stage until no further investigation activities are deemed to be warranted. Proposed future sampling locations, analytes, and number and types of samples will be presented in a forthcoming Expanded SI UFP-SAP which will be submitted to EPA and VADEQ for review and approval. No changes are proposed to the SI Report to address this comment.

*EPA BTAG Comment 4: Section 3.2.4 on page 3-6 states that “Buried debris has subsequently been removed from the site, and the potential for future contaminant migration via erosion or surface runoff to sediment is no longer a complete pathway.” This statement is not supported by the facts that the site is still adjacent to the York River and is still subject to the effects of hurricanes (Hurricane Isabel in 2003 eroded 15 to 20 feet of shoreline from Site 7). This supports the future possibility of erosion of Site 7 and any associated contaminants onto the beach and into the York River.*

Response: It is true that Site 7 is located next to the York River and is still subject to the effects of hurricanes or other large storm events. However, the buried debris and adjacent soil contaminated above action levels that represented a potential source area for future contaminant migration to the York River have been removed. In addition, erosion protection was added to the Site 7 shoreline via the installation of Geotubes at the toe of the slope and via shoreline sloping activities conducted during the 2008 Removal Action (Shaw, 2009). Given that the evaluation performed as part of the SI concluded that the likelihood of historical impacts to the beach and York River sediments *prior* to the removal action is extremely unlikely, it is the Navy’s position that any residual contamination remaining *after* the removal action does not represent an exposure risk. Although dispersion and burial would naturally accompany any potential contaminant migration from soil to river sediment, the results of the post-removal-action data presented in the SI indicate that none would be necessary to achieve concentrations well below any regulatory screening criteria. No changes are proposed to the SI Report to address this comment.

*EPA BTAG Comment 5: Section 3.2.4 on page 3-6 states that because of the continual erosion (e.g., net loss of sediment from the vicinity of Site 7) documented by the Center for Coastal Resource Management, sediment data collected at present from along the Site 7 shoreline would not be useful in determining whether or not a CERCLA release occurred from Site 7. The location of the erosion in the York River needs to be more specific than in the vicinity of Site 7. The fact that erosion in the York River in the vicinity of Site 7 is continual does not mean that contamination from Site 7 may not be found. Also, the data shown to date does not indicate any sampling of the beach area between the landfill (Site 7) and the York River or of the sediment in the York River. Therefore, assessment of risk to ecological receptors within these habitats is based on assumptions and not site specific data. As stated previously, BTAG recommends that samples be collected from the York River to assess this pathway.*

Response: Please see the response to EPA RPM Comment 7.

*EPA BTAG Comment 6: Section 3.4.2 on pages 3-10 states that hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) detected at the site is less than the concentration detected in the upgradient well and is not likely attributable to a release from buried debris. If the RDX in groundwater did not come from Site 7, a potential source may be present further inland. An investigation of upgradient areas may be warranted to identify other potential sources of RDX to groundwater.*

Response: Please see the response to EPA RPM Comment 11.

*EPA BTAG Comment 7: Section 3.4.3 on page 3-13 states that eight inorganic chemicals and one organic chemical exceeded screening levels based on maximum concentrations. The mean concentrations of six*

*of the inorganic chemicals was less than screening levels, therefore it was concluded that these chemicals were not COPCs. It is not appropriate to eliminate chemicals based on the comparison to means at this phase of the project.*

Response: Please see the response to EPA BTAG Comment 3.

*EPA BTAG Comment 8: Section 3.4.3 on page 3-14 states that the surface water values used to screen groundwater considered the salinity of the receiving water body (York River) to determine whether to apply freshwater or marine values. As such, marine values were used, where available, although freshwater values were extrapolated to the site if marine values were not available. Because the York River is brackish in the vicinity of the site, the lower of the marine and freshwater values should be used to evaluate impacts from discharging groundwater.*

Response: As discussed in Section 1.3.7, salinities in the York River estuary bordering CAX can be characterized as mesohaline (from 15 to 20 parts per thousand [ppt]). This salinity range supports the use of marine values (salinity > 10 ppt). Therefore, marine values are appropriate and were used to evaluate the potential for risks related to this potential transport pathway. Freshwater values were only extrapolated to the site if a marine value was not available. No changes are proposed to the SI Report to address this comment.

*EPA BTAG Comment 9: Section B.2 on page B-1 states "Soil screenings were conducted using all 2008 post-removal samples that were within the 0 to 24 inch depth range relative to the current (backfilled) site elevation; samples of the backfill material, however, were not included in the evaluation." This statement is confusing. The data from the 0 to 24 inch depth either represents soil that is no longer present on site or represents backfilled material that is on site. In the former case, the data is no longer relevant to this site. In the latter case, the data is relevant, but soil data below this layer, particularly along the eroding edge of the landfill still needs to be evaluated for potential ecological risk.*

Response: The samples used in the screening were within 24 inches (the depth of potential ecological exposures) of the current ground elevation (following backfilling) and were below the backfill material (i.e., soil in areas where less than 24 inches of backfill were placed). Thus, the use of these data is conservative since the samples are covered by backfill, which likely contains lower chemical concentrations, but less than 24 inches of backfill were present, which means that some ecological exposures to these samples are still possible. This explanation will be clarified in the text. In terms of evaluating erosion, please see the response to EPA BTAG Comment 4.

*EPA BTAG Comment 10: Page B-2, Section B.2 on page B-2 states "...ecological exposures are generally considered to be confined to the top two feet of the soil column." This approach may not be appropriate in areas susceptible to erosion. Since the eastern face of the landfill is eroding into the York River with the top of the landfill approximately 15 feet above the York River, the contamination on the eastern face of the landfill should be evaluated as this material may eventually erode in the river where ecological exposure would occur.*

Response: With the completion of the 2008 removal action, there is no landfilled material remaining to erode into the York River, and the slope has been graded back and seeded to prevent erosion. Please also see the response to EPA BTAG Comment 4.

*EPA BTAG Comment 11: Section B.2 on page B-2 states that background UTLs were used for comparison. The reasons for using UTLs, as opposed to UCLs, need to be provided. The text needs to clearly indicate why UTLs are used here and UCLs are used in Section B.3.2.*

Response: In accordance with the approved Final Site 7 UFP-SAP, data were compared to background 95% UTL values that were calculated as part of the Yorktown/CAX Background Study using facility-specific background data. The 95% UCLs (of the arithmetic mean) used in Section B.3.2 are exposure point concentrations used in the food web model, as discussed in the fifth bullet at the end of Section B.2. No changes are proposed to the SI Report to address this comment.

EPA BTAG Comment 12: *Section B.3.3 on page B-5 states that nitroglycerine (0.23 µg/l) [no screening value available] was not retained as a refined COPC because its concentration was lower than marine based screening values for other explosives. It is not clear that this methodology is reasonable as not all explosives have the same toxicity. Other supporting evidence should be provided to support this decision.*

Response: Marine surface water screening values for all explosives with screening values ranged from 8.00 µg/L to 5,000 µg/L (Table B-2), all of which are well above the maximum detected concentration (0.23 µg/L) of nitroglycerin. Note also in Table B-2 that the freshwater screening value for nitroglycerin is 138 µg/L, several orders of magnitude above the maximum detected concentration of nitroglycerin at the site. Thus, it is reasonable to screen out nitroglycerin on this basis. No changes are proposed to the SI Report to address this comment.

EPA BTAG Comment 13: *Section H-1 on page H-1 states "The ecological risk screening for this potential soil to sediment pathway assumed that the concentrations in the pre-TCRA surface soil (0 to 6 inches) data from samples at the site perimeter adjacent to the river were an appropriate representation of the potential concentrations in the sediment." While this might represent the concentrations in the surface layer, it does not represent the concentrations throughout the vertical depth of the landfill.*

Response: While there is some uncertainty associated with the use of these data, the surface layer is likely to be the best representation of the soil that washed out since it was at the top of the soil column when the 2003 storm event occurred. Also, since the concentrations in the surface strata were generally similar to, or higher than, the corresponding subsurface strata (where multiple depths were sampled) for the sample locations considered, the process used is likely to be a conservative representation of the available 2004 soil data set. This will be added to the text of the evaluation.

EPA BTAG Comment 14: *Section H.1 on page H-1 states "This historical pathway, which is no longer complete, following the completion of remedial action on the site, is the subject of the evaluation in this appendix." It is not clear if this historical pathway is the pathway in Appendix B or the transport of debris and soil from the site to the York River. In addition, it is not clear that this pathway "...is no longer complete".*

Response: The pathway being referred to is transport of landfilled debris and soil from the site to the York River during Hurricane Isabel. As discussed in the response to EPA BTAG Comment 4, this pathway is no longer complete because the landfilled debris and soil have been removed from the site and erosion protection was added to the Site 7 shoreline via the installation of Geotubes at the toe of the slope and via shoreline sloping activities conducted during the 2008 Removal Action (Shaw, 2009).

EPA BTAG Comment 15: *Section H.2 on page H-2 discusses the use of the ER-L and ER-M to evaluate risk in the river. While using ER-L and ER-M values as guidelines (meaning a 5% to 20% chance of risk if the concentration is below the ER-L or 75% to 100% chance of risk if the concentrations is above the ER-M value) are appropriate, it is not appropriate to use the ER-M value as a "less conservative" measure of risk to ecological receptors as it means there is a 21% to 74% chance of risk if the contaminant concentration is between the ER-L and ER-M values. This percent of risk to ecological receptors is too large to calculate an acceptable HQ (see Table H-3).*

Response: In Section H.2, the only ER-M value used in the assessment was for lead. Based upon the data in Long et al. (1995), the cited reference for this value, concentrations between the ER-L and ER-M represent the “possible effect” range within which effects could occasionally occur. For lead, the incidence of adverse effects within this range is estimated to be 35.8 percent. The Navy feels the evaluation is appropriate and no changes are proposed to the SI report to address this comment.

EPA BTAG Comment 16: *Section H.2 on page H-2 states that mean concentrations were used as a less conservative screen. See previous comments regarding the use of mean concentrations*

Response: Please see the response to the previous comment and to EPA BTAG Comment 3.

EPA BTAG Comment 17: *Section H.3 on page H-3 (first bullet) indicates beryllium would likely be B-flagged if the data were validated. Support for this statement is needed.*

Response: Only half of the beryllium values were B-flagged. The bullet will be changed to read “For beryllium, half of the samples were B-flagged, while the rest were at or below the surface soil UTL (0.59 mg/kg), indicating that they were consistent with background levels. Thus, this constituent was not identified as a refined COPC.”

EPA BTAG Comment 18: *Section H.3 on page H-3 states “Consequently, the ecological risk evaluation determined that unacceptable ecological risks in the York River from potential historical soil transport from the site are very unlikely.” From the comments provided, it is not clear that this statement is supported, since no beach soil/sediment samples were collected and no sediment/pore water/surface water samples were collected and analyzed from the York River. Sampling in the York River is needed to more directly assess this pathway.*

Response: Please see the response to EPA RPM Comment 7.

EPA BTAG Comment 19: *Table H-4 shows exceedances of site soils as sediment. This table has two columns labeled “Marine Sediment Screening Value 1” and Marine Sediment Screening Value 2.” Clarification should be provided on how these values were derived.*

Response: These labels will be changed to read “More Conservative Screening Value” and “Less Conservative Screening Value,” respectively, to be consistent with Table H-3. The derivation of these values is described in Appendix I, Section I.2.

*In January 2011, BTAG provided comments to Susanne Haug of EPA on the responses to comments on the Sampling and Analysis Plan for this site. These issues were later discussed with her. Based on a review of sections of the above document, it is unclear that all of these previous comments have been adequately addressed. Those that appear to have not been addressed are included below.*

EPA BTAG Comment 20: *The Navy seems to be making a distinction between debris and contamination. While contamination may be associated with debris, it is also not necessarily visible and associated with sediment and surface water. The removal of debris from Site 7 and/or the shoreline/York River sediment does not mean that contamination from this site is not in areas adjacent to this landfill/dump.*

Response: Post removal confirmation soil samples were collected from the excavated area during the 2008 debris and soil removal action to ensure that, in addition to the landfilled debris, adjacent contaminated soil above action levels was removed. The excavated area was then backfilled with clean soil. The spatial extent of this removal action was agreed to by the Tier 1 partnering team when it approved the CCR.

EPA BTAG Comment 21: *It is still not clear what contaminant concentrations still exist at this site, including both the landfill and the adjacent shoreline. It is not clear what stabilization activities took place to ensure future erosion of this edge of the landfill did not occur.*

Response: Results of the removal action indicate that all buried debris has been removed from the site, as detailed in the CCR (Shaw, 2009). In addition, the results of post-removal confirmation samples indicate the range of contaminant concentrations remaining at the site following the removal action, which were evaluated as part of the SI. The stabilization activities included the 2006 installation of Geotubes at the toe of the slope to the Site 7 shoreline, and the shoreline sloping (and seeding) conducted after the 2008 removal action.

EPA BTAG Comment 22: *How much erosion occurs in the vicinity of this site? More information is needed to better define/support use of the term “unlikely.” The net loss of sediment needs to be quantified on an annual basis, such that the reader can have an idea of how much sediment (mm, cm lost each year) is transported out of the Site 7 vicinity?*

Response: According to the *Estuarine Suspended Sediment Loads and Sediment Budgets in Tributaries of Chesapeake Bay*, conducted by the Center for Coastal Resource Management (CCRM) and the Virginia Institute of Marine Science (VIMS) (CCRM & VIMS, 2010), the shoreline erosion rate in the vicinity of Site 7 is 0.58 meters per year (Attachment 1). The SI Report will be updated to include this information.

EPA BTAG Comment 23: *Sampling of the shoreline and sediment in the York River is needed to confirm the assumption that it is unlikely that sediment data collected from along the Site 7 shoreline would be indicative of a CERCLA release at Site 7.*

Response: Please see the response to EPA RPM Comment 7.

EPA BTAG Comment 24: *The variability that does occur in contaminant concentrations in sediment makes this conclusion of ecological risk being unlikely uncertain.*

Response: Comment noted.

EPA BTAG Comment 25: *Assessing ecological risk due to contaminated groundwater needs to involve sediment and surface water, at a minimum. Therefore, it is clear that this ecological risk screening will only deal with one of three contaminant migration pathways and not all three. Since sediment and surface water samples are not proposed in this SAP for groundwater, this analyses is needed to reduce uncertainty.*

Response: Initial, screening-level assessments, as were conducted for this SI, are commonly conducted on groundwater data where surface water and sediment data are lacking from the receiving water body. Follow-on sampling of this pathway is generally only warranted if the screening-level assessment shows a potential risk, which appears not to be the case at this site (Appendix B).

EPA BTAG Comment 26: *Another issue that needs to be addressed is how much landfill (e.g., vertical feet, area) remains at Site 7 beneath the backfill material and what are the contaminant concentrations in that material that could be released through erosion. Also, how has the landfill edge facing the York River been stabilized such that erosion is minimized or eliminated?*

Response: Please see the responses to EPA BTAG Comments 4, 20, and 21.

EPA BTAG Comment 27: *Sediment in the York River needs to be added to the media to be sampled because it is in the migration pathway from the site.*

Response: See response to EPA RPM Comment 7 and BTAG Comment 25.

## References

Bhate Associates (Bhate). 2007. *Final Project Completion Report Site 1 – Landfill Near Incinerator, Site 7 – Old DuPont Disposal Area Naval Weapons Station Yorktown, Cheatham Annex, Williamsburg, Virginia*. September.

Center for Coastal Resources Management (CCRM); Virginia Institute of Marine Science(VIMS), 2010. *Estuarine Suspended Sediment Loads and Sediment Budgets in Tributaries of Chesapeake Bay; Phase 1: York, Patuxent, and Potomac Rivers*. Award numbers: W912DR-08-P-0396 and W912DR-09-P-0202. July.

Navy. 2000. *Overview of Screening, Risk Ratio, and Toxicological Evaluation Procedures for Northern Division Human Health Risk Assessments*.

Navy. 2002. *Installation Restoration Policy on Sediment Investigations and Response Actions*. February

Shaw Environmental and Infrastructure (Shaw). 2009. *Final Construction Completion Report Soil and Debris Removal at Site 7, Cheatham Annex, Naval Weapons Station, Williamsburg, Virginia*. March.

U.S. Environmental Protection Agency. 1992. *Guidance for Performing Site Inspections Under CERCLA*. Interim-Final. EPA540-R-92-021. Directive 9345.1-05. September.

**Attachment 1**

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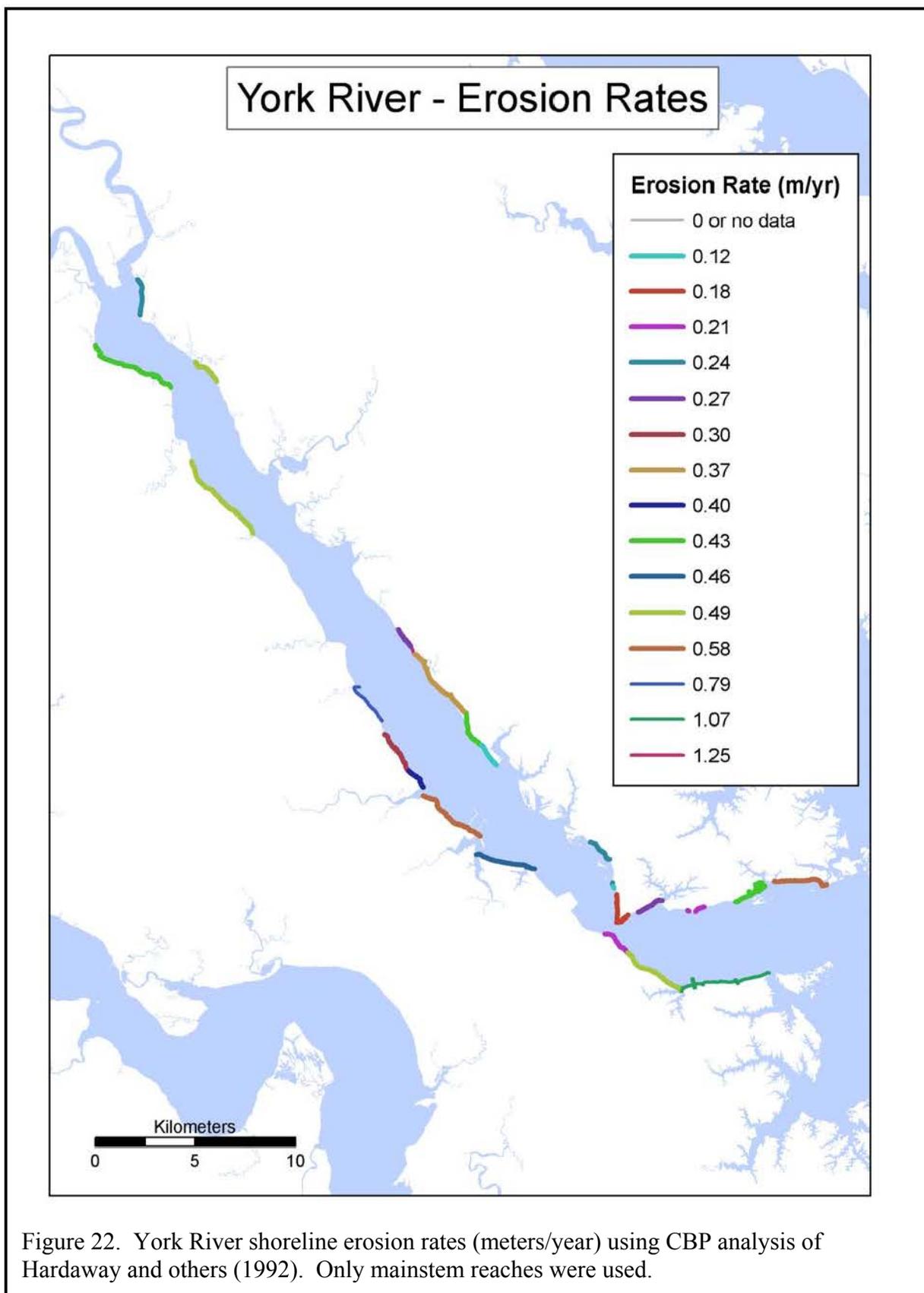


Figure 22. York River shoreline erosion rates (meters/year) using CBP analysis of Hardaway and others (1992). Only mainstem reaches were used.