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LETTER REGARDING THE TRANSMITTAL OF REVISED FINAL SITE INSPECTION REPORT  
MUNITIONS RESPONSE PROGRAM SITE UNEXPLODED ORDNANCE 2 NWS YORKTOWN

VA  
06/28/2011  
CH2M HILL



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June 28, 2011

400210.SI.RP

Commanding Officer  
NAVFAC Mid-Atlantic, Bldg. N-26, Room 3208  
Attention: Mr. Jim Gravette  
9742 Maryland Avenue  
Norfolk, VA 23511-3095

Subject: Submittal of Revised Final Site Inspection Report, Munitions Response Program Site UXO-2, Naval Weapons Station Yorktown, Yorktown, Virginia Navy Clean 1000 Program - Contract N62470-08-D-1000 Contract Task Order WE23 (mod 1)

Dear Mr. Gravette:

Enclosed please find one hard copy and one CD copy of the June 2011 *Revised Final Site Inspection Report, Munitions Response Program Site UXO-2, Naval Weapons Station Yorktown, Yorktown, Virginia* for your records. The document has been revised to incorporate comments received from the United States Environmental Protection Agency (comments and accepted responses are included). No comments were received from the Virginia Department of Environmental Quality. Additional copies have been distributed to the individuals on the Yorktown Tier I Partnering Team as outlined in the distribution list below.

Should you have any questions, please feel free to contact me at (757) 671-6267 or Mr. Bill Friedmann at (757) 671-6223.

Sincerely,

A handwritten signature in black ink, appearing to read "Adam Forshey".

Adam Forshey  
Project Manager  
CH2M HILL

cc: Mr. Moshood Oduwole/USEPA - 2 Hardcopies, 2 CDs  
Mr. Wade Smith/VDEQ - 1 Hardcopy, 1CD  
Mr. Bill Friedmann/VBO - Cover letter only  
Project File - 1 Hardcopy, 1 CD  
Admin Record - 1 Hardcopy, 1 CD

**REPSONSE TO COMMENTS FROM THE EPA  
SITE INSPECTION REPORT  
MUNITIONS RESPONSE PROGRAM SITE UXO-2  
NAVAL WEAPONS STATION YORKTOWN, VIRGINIA**

#	Section / Page	Comment	Response
1	General Comment	<p>The SI presents general site information, and summarizes previous investigations at the site; however, detailed information on site receptors and vicinity characteristics has generally not been presented. For example, the SI does not specify whether groundwater at or in the vicinity of the site is used as a potable water supply. The nearest residential areas are also not described. Use of Felgates Creek and its tributaries by human receptors is not described. The Conceptual Site Model (CSM), presented as Figure 5-1, identifies current and future receptors at the site; however, the SI should include a narrative description of these receptors, and identify any sensitive populations in the vicinity of the site. Updated information, if available, should be provided. Consult EPA's <i>Guidance for Performing Site Inspections Under CERCLA</i>, Interim Final, dated September 1992, for additional information that should be considered for a SI. Please revise the SI to incorporate additional detailed and updated information concerning potential receptors and vicinity characteristics.</p>	<p>The objective of this SI was to perform a desktop evaluation of existing documents and evaluate the need for additional activities now that the site has been classified as a munitions response site (MRS). Many of the elements identified in this comment have been addressed by previous documents directed toward the environmental concerns at the site, and were therefore not included in this SI which is more focused on the munitions response elements. Additional information is being included in the previous investigations section of the SI to incorporate the elements requested (i.e. details on surrounding area, potable use for groundwater, receptors, etc). Additionally, as this is only a desktop evaluation, no additional investigations were performed as part of the SI. Therefore, the CSM is a graphical representation of the existing flow chart style CSM included in the Round II RI (with the addition of potential exposure to MEC). Detailed discussion of the development of the CSM is included in the Round II RI and has not been included in this SI to reduce redundancy.</p>
2	Section 3.1/Page 3-1	<p>The first paragraph states, "The study area is bordered to the south by Turkey Road and to the north, east, and west by unnamed tributaries to the Southern Branch of Felgates Creek (Figure 3-1)." The SI does not,</p>	<p>Section 3.1 has been updated with a brief description of the land use surrounding Site 2. A new figure (now Figure 3-2) has been added that shows the land use around UXO-2. This</p>

		<p>however, state what is located beyond these boundaries. To provide an understanding of the site vicinity characteristics, please revise the SI to clarify land use in the vicinity of the site. In addition, please revise Section 3.1 to reference a figure that includes the study area, unnamed tributaries, and surrounding site features, as Figure 3-1 only shows the location of UXO-2 within Naval Weapons Station (WPNSTA) Yorktown.</p>	<p>figure (Figure 3-2) is now referenced in Section 3.1.</p>
3	Section 3.3/ Page 3-2	<p>Section 3.3 does not indicate whether any threatened or endangered species have been identified at UXO-2. Additionally, it appears that the primary reference for the ecological setting and natural resource information is the <i>Final Habitat Evaluation Report, Sites 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 17, 18, 19, and 21, Naval Weapons Station Yorktown, Yorktown, Virginia</i>, dated July 1995. As this referenced document is dated, it is unclear if the information provided is representative of current site conditions at UXO-2. Please revise the SI to clarify whether threatened or endangered species have been identified at UXO-2. Additionally, please clarify whether the ecological settings and natural resources information provided is representative of current conditions or update this information to reflect the current conditions.</p>	<p>Endangered species information from the Naval Weapons Station <i>Integrated Natural Resource Management Plan</i> has been added in to the SI in this section (Geo-Marine, 2004). Because this SI was conducted as a desktop review without any additional onsite studies, any changes in ecological setting and natural resources at UXO-2 are unknown. No intrusive activities have occurred at the site since the 1995 Final Habitat Evaluation occurred, so it unlikely that the flora and fauna at UXO-2 have undergone significant changes.</p>
4	Section 4.2 / Page 4-1	<p>This section indicates that concentrations of phenols, total arsenic, and total zinc were detected in groundwater above human health screening criteria. Phenols, total copper, and total silver were detected in surface water above ecological screening criteria. The specific screening criteria used in these evaluations are not described. Please revise the SI to clarify the specific human health and ecological screening criteria used to evaluate the data in the Remedial Investigation Interim Report. This comment also applies to subsequent sections that describe only general screening criteria.</p>	<p>The SI was revised to include the specific screening criteria used to evaluate data in the RI interim report as well as in subsequent sections discussed in the SI that described only general screening criteria.</p>

5	Section 4.3/ Page 4-1	The text indicates that a geophysical investigation using electromagnetic (EM31) survey was conducted at the site to delineate the lateral and vertical extent of the waste and presence of subsurface anomalies. The areas where this investigation was conducted are not described or shown on a site figure. Additionally, the results of the geophysical survey are not presented on a site figure. Please revise the SI to include a figure that shows the boundaries of the geophysical investigation as well as the results of the investigation as supporting documentation for concluding that the waste is distributed along the perimeter of the site adjacent to the drainage ways.	The figure from the 1993 Baker/Weston Geophysical Investigation in the Round 1 RI is now included as Appendix C and the reference to this investigation is now included on the CSM.
6	Section 4.4/ Page 4-2	Section 4.4 describes a removal action to remove "all surface and near surface debris" from the site. However, the SI does not clearly define what constitutes "near surface debris." For clarity, please revise the SI to define and/or describe the depths associated with near surface debris.	This closeout report does not list the specific depths that debris was found, but it does state "depth of backfill placed ranged from zero to approximately 2 to 3 feet." The SI was updated to include this depth range and the CSM was also updated to include the depth range in the legend that defines the removal areas.
7	Section 4.4/ Page 4-2	Following the surface debris removal action conducted at the site, 40 post-removal surface soil samples were collected. However, the SI indicates that the results were not reported or discussed within the closeout report. This appears to represent a significant data gap at the site. Additionally, this section mentions "site restoration" following the collection of the surface soil samples. The SI does not describe what was involved in site restoration. The SI should clarify whether off-site soil was brought onsite for grading, or whether on-site soil was reworked in some areas but not others. To aid in understanding of current site conditions, please clarify what actions were implemented during the site restoration. The lack of data from the post-removal surface soil samples should also be addressed. The SI	The results for the 40 post-removal surface soil samples were used during the Round 2 RI (Baker, 2004) in the HHRA and ERA – this information was added to this section of the SI to show that there is not a data gap.  Site restoration specifics were added to the SI in this section.

		should clarify whether the data from the post-removal surface soil samples, although not reported in the closeout report, were used in the risk assessments described in Section 4.5, Round 2 Remedial Investigation (Baker, 2004).	
8	Section 4.4/Page 4-2	The SI indicates that 40 post-removal surface soil samples were collected, but Figure 4-1, UXO-2 Historical Sampling Locations, appears to show 42 surface soil samples collected following the removal action. Please revise the SI to clarify this discrepancy.	A battery/soil and sediment sample that were collected as part of the 1994 removal action were included on Figure 4-1, however, the HHRA in the Round 2 RI used the 40 surface soil samples that were collected after the removal action for the COPC selection – the battery/soil sample and sediment sample were not used in the HHRA. These 2 samples have been removed from Figure 4-1.
9	Section 4.5/ Page 4-3	The first paragraph of this section states that ten soil borings were advanced at the site. However, the SI does not describe what was encountered in these borings. If debris was encountered, the SI should describe what was found in the debris. Please revise the SI to include this information to provide a better understanding of the types of debris and waste that may have been buried at the site.	The Round 2 RI does not discuss what was encountered in the soil borings. It states “the Baker Field Geologist visually inspected each split spoon sample and recorded a lithologic description and observations regarding the appearance, consistency, color, moisture of the soil, and other pertinent information such as evidence of contamination in a field log book.” The soil boring logs are provided in an appendix to the Round 2 RI report. No revision was made to the text based on this comment.
10	Section 4.5/ Page 4-3	This section notes that three existing monitoring wells were abandoned, but the reason for the well abandonment has not been described. Based on the locations of new and abandoned wells shown on Figure 4-1, UXO-2 Historical Sampling Locations, none of the new wells installed as part of the Round 2 Remedial Investigation appears to have been installed to replace an abandoned well. Please revise the SI to indicate why three existing wells were abandoned. Also, please clarify why none of the new wells	Three previously installed monitoring wells were found submerged under water during this investigation and were subsequently abandoned. More suitable locations were identified for three replacement wells that were installed during this investigation. The SI was updated with this information.

		installed as part of the Round 2 Remedial Investigation appears to replace an abandoned well.	
11	Figure 4-2	The figure shows the approximate waste disposal area shaded in green; however, the basis for setting the boundaries for this area is unclear. Please revise Figure 4-2 to include additional information to clarify how the boundaries of the waste disposal area were delineated.	The boundaries in the figure are based on the Mine Casing and Debris Removal Action Closeout Report (IT Corporation 1995). This information has been added to the figure.
12	Section 5.1/ 5-1	The second paragraph states that "Although a targeted surface debris removal was conducted in 1994 .... miscellaneous surface debris .... remain in place." Please clarify what types of surface debris remain, particularly if any munitions items remain. Also, please clarify why this surface debris was not addressed by the 1994 removal action which was to remove all surface- and near-surface debris.	The 1994 removal action plan does not state why all debris was not addressed. It does indicate that "the main objectives of the removal action were to remove all surface and near surface wastes from the designated areas at each site" but it does not go into how the removal areas were designated. The SI was updated in section 4.4 to read "designated areas" instead of "all areas". Debris that was identified during the Non-intrusive Geophysical Investigation (CH2M HILL, 2010) was added to the SI. It is unknown whether any munitions items remain at the site.

13a	Figure 5-1	<p>The CSM addresses potential ingestion and dermal contact with contaminants in soil, groundwater, sediment, and surface water for current and future human receptors. However, the CSM does not address potential inhalation exposures. Inhalation of particulates and volatiles (if detected) should be included as a potential exposure pathway for human receptors. Please revise the CSM to include the inhalation pathway, or provide the rationale for excluding it.</p>	<p>Two VOCs, 1,2-dichloroethene and vinyl chloride were identified at 1 well during the Round 2 RI. These compounds were identified as COPCs during the Round 2 RI HHRA but not identified as contributing to the risk at the site. Inhalation of particulates and volatiles were not included as a potential exposure pathway for human receptors in the “flow chart” style CSM created for the Round 2 RI. The CSM discussed in Section 5-1 is essentially an update of the Round 2 RI CSM in a “graphical model format”. Since inhalation of particulates and volatiles was not identified as a potential exposure pathway for human receptors in the Round 2 RI CSM, it was not added to the updated graphical CSM. During future investigations at the site, the CSM will be updated as necessary, if additional pathways are identified.</p>
13b	Figure 5-1	<p>The CSM shows groundwater flowing radially away from the center of the site to the north, east, and west, but the groundwater flow direction in the southern portion of the site is not clearly presented. Please revise the CSM to clarify the groundwater flow direction in the southern portion of the site.</p>	<p>The CSM has been revised to show groundwater flow direction in the southern portion of the site.</p>
13c	Figure 5-1	<p>The CSM shows the approximate waste disposal area shaded in green; however, the basis for setting the boundaries for this area is unclear. Please revise the CSM to clarify how the boundaries of the waste disposal area were delineated.</p>	<p>The approximate waste disposal area boundaries are based on the Mine Casing and Debris Removal Action Closeout Report (IT Corporation, 1995). The reference to this investigation is now included on the CSM.</p>
13d	Figure 5-1	<p>The areas included in the 1994 Surface Removal are outlined in purple. The debris and waste apparently removed during this event are described (i.e., battery waste pile, tar waste pile, etc.). However, the depths</p>	<p>The depth interval was added to the legend for the 1994 Surface Removal areas. The approximate location of visible surface debris observed during the Non-intrusive Geophysical</p>

		<p>of excavation associated with these removal areas are unclear (surface only, or near-surface, etc.)</p> <p>Additionally, Section 5.1, Results, indicates that some surface debris remains at the site but these areas do not appear to be shown on the figure. Please revise the CSM to add a footnote that indicates that the areas outlined in purple are those identified for the 1994 Surface Removal, and then describe the depths to which the removals were conducted. Also, identify any locations where additional surface debris remains in place.</p>	<p>Investigation (CH2M HILL, 2010) was added to the CSM.</p>
14	Appendix A	<p>All of the aerial photographs include a red box, which is assumed to designate the UXO-2 site location. However, for clarity, please revise the aerial photographs to define the meaning of the red box</p>	<p>Appendix A legends have been updated to include the red box with a definition of UXO-2.</p>
15	Appendix B	<p>The source of the biohabitat map has not been included on the figure. Please identify the source of the biohabitat map, and indicate whether the information presented is still representative of current site conditions.</p>	<p>The source has been identified both in Section 3-3 and in the appendix title. There have been no new habitat studies on UXO-2 since the 1995 Baker study. It is likely that the information presented in the 1995 study is still correct, as no intrusive activities at the site occurred since the study was conducted.</p>
16	Appendix E	<p>Several sections of Table A, MRS Background Information, appear to be incomplete. For example, the date the information was entered/updated has not been described. Additionally, the media evaluated and a description of pathways and receptors sections have not been completed. Please revise Appendix E to complete the appropriate sections of Table A, or clarify why it is unnecessary to do so.</p>	<p>Currently the missing information in Table A is unavailable. This is the scoring that was submitted for QA panel review and is the most complete form of the scoring thus far. As additional information becomes available during future investigations, the scoring will be updated. Updating the MRSPP scoring was not identified as an objective of this SI, as no additional data was collected and no additional onsite investigation activities were performed. No change has been made based on this</p>

			comment.
17	Appendix E	Table 4, EHE Module: Ease of Access Data Element Table, states, "There is a barrier preventing access to parts of the [Military Response Site] MRS, but not the entire MRS." Please clarify what type of barrier prevents partial access to the MRS.	The existing barrier includes chain gates between steel I-beams located at the vehicle access points of the sites. However, updating the MRSPP scoring was not an objective of this SI. No change has been made based on this comment.
18	Appendix E	Table 21, HHE Module: Groundwater Data Element Table indicates that vinyl chloride and 1,2-dichloroethene (total) were detected in site groundwater. Table 22, HHE Module: Surface Water - Human Endpoint Data Element Table, also notes that 2,4,6- trinitrotoluene was detected in surface water. The detection of these constituents was not noted previously in Section 4, Previous investigations. Please revise Section 4 of the SI to clarify the investigation in which these constituents were detected.	The Round 2 RI discusses that "The only organic compounds identified in groundwater at Site 2 during the Round Two RI were two VOCs, 1,2-dichloroethene and vinyl chloride. These VOCs were detected in a newly installed well at the toe of the landfill. While results do not indicate any historical pattern, they could reflect random disposal at the site. One organic, 2,4,6-TNT was detected in one surface water sample collected at Site 2 at a level of 0.14J." These constituents were identified as COPCs during the HHRA but not identified as contributing to the risk at the site. Therefore, they are not included in the discussion in Section 4. No change has been made based on this comment.
19	Appendix E	Table 21, HHE Module: Groundwater Data Element Table, Table 23, HHE Module: Sediment - Human Endpoint Data Element Table, Table 26, HHE Module: Surface Soil Data Element Table, and Table 27, HHE Module - Supplemental Contaminant Hazard Factor Table, include hand-written corrections, but the reason for these corrections is not specified. Please clarify why hand-written corrections were necessary on Tables 21, 23, 26, and 27.	The corrections were made to the original MRSPP document because of an error in the version of the tables that were used to create the tables. The supplemental contaminants table did not automatically transfer over in the scoring, so the scores had to be hand entered. Updating the MRSPP scoring was not included as part of the objectives for this SI; therefore, no change has been made based on this comment.