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ST JULIENS CREEK
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U S NAVY RESPONSES TO U S EPA REGION III COMMENTS ON THE DRAFT PROPOSED
PLAN FOR SITE 5 BURNING GROUNDS EPA DESIGNATION OPERABLE UNIT 5 (OU 5)
AND BLOWS CREEK ST JULIENS CREEK ANNEX VA

7/27/2015
CH2M HILL

Responses to Comments
Draft Proposed Plan
Site 5 –Burning Grounds (EPA Designation OU-5) and Blows Creek
St. Juliens Creek Annex
Chesapeake, Virginia

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Comments from EPA, provided July 23, 2015.

1. **Overall Comment:** *There is a deficiency in the rationale for exclusion of cobalt as a COC and there aren't enough facts on the pages for me to make a recommended edit to fix the problem. It appears that the rationale is based on the limitation to act, under CERCLA Section 104(a)(3), although the PRAP does not explicitly state it and the facts aren't consistent with the statutory limitation.*

In relevant part, CERCLA Section 104(a)(3), 42 U.S.C. 9604(a)(3), states: "The President shall not provide for a removal or remedial action . . . in response to a release or threat of release of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found[.]"

Section 5.1, groundwater, on Page 12 of the PRAP indicates: "Risks exceeding EPA's acceptable risk levels were associate with potential future exposure to arsenic, cobalt, iron, and manganese."

- *According to the same paragraph, **iron and manganese** were eliminated as COCs because the contaminants do not exceed background concentrations. (I assume the background concentrations referenced are for groundwater, and I've recommended an edit to clarify that.)*
- **Arsenic** was eliminated for three reasons.
 - *First, dissolved arsenic levels are below the MCL. That seems like a good rationale to me if the tox agrees. The PRAP further indicates that the arsenic concentration was "similar in magnitude" to the 95% UTL for background. Not clear what that means. The concentration does not exceed 10 times the background concentration for groundwater??*
 - *Second, arsenic was highest in a cross-gradient well, and thus, arsenic is unlikely due to site 5 activities. That rationale supports looking for another source of the arsenic, and perhaps creating a new operable unit at the site to address the source; it does not support taking no action if the arsenic poses unacceptable risk.*

- *Third, arsenic does not pose an unacceptable risk under a CTE analysis. The ROD will need a reason to rely on CTE, versus RME, but that's probably going to turn out to be a supportable reason for excluding arsenic as a COC.*
- *Cobalt was eliminated for unclear reasons.*
 - *Concentrations were "similar in magnitude" to 95% UTL for groundwater background. Not clear what that means, but I'm not sure what a clarification would prove? Cobalt concentrations exceed background, right?*
 - *Cobalt was not elevated in groundwater in the waste disposal/burning area and was not a COC for soil. The logical conclusion to this statement is that the source of cobalt is not the waste, which conclusion I recommend adding to the PRAP to clarify the significance of the observation.*
 - *Cobalt in groundwater is highest where the groundwater has the highest pH. The acidity of the groundwater is mobilizing naturally-occurring cobalt into solution. The cause of the acid groundwater conditions is low-pH rain and historic placement of dredge fill. The PRAP does not conclude that CERCLA prevents response to address risk posed by naturally occurring substances, but I assume that's the rationale for excluding cobalt as a COC. The problem is that historic deposition of dredge fill, causing the acid conditions, is not a "naturally occurring process or phenomena." (See CERCLA Section 104(a)(3)(A).) (Acid rain is also not a "naturally occurring process or phenomena" since it's caused by industrial activity, but the PRAP does not indicate that the low pH rain is "acid rain.") Unless the acidic conditions of the groundwater are caused by a naturally occurring process, then there is no limitation on action under CERCLA Section 104(a)(3), and therefore, action to address cobalt in groundwater must be decided based on whether the risk posed by the hazardous substance is unacceptable pursuant to the HHRA and ERA.*

Section 5.1 concludes on page 14 that "... concentrations of metals in the shallow aquifer groundwater are the result of naturally occurring site conditions and/or non-CERCLA related historical activities." There's no list of "CERCLA-related activities" or definition of "CERCLA-related activities" in CERCLA or the NCP so I don't know what "non-CERCLA related historical activities" could mean. If contamination is present that poses an unacceptable risk to human health or the environment, then the contamination must be addressed unless action is forbidden under CERCLA Section 104(a)(3) or the contaminant levels are consistent with background concentrations. I do not know of any provision of CERCLA or the NCP under which the activity causing the contamination would direct the remedial response (except for purposes of determining application of CERCLA Section 104(a)(3)). That term needs to come out or be clarified within the scope of CERCLA and the NCP.

If the circumstances of cobalt in groundwater are further analyzed and it is found that cobalt is "altered solely through naturally occurring processes or phenomena," then note also that Section 6, the Preferred Alternative, must be edited. "[N]o unacceptable risk to human health or the environment remains at Site 5" is not accurate if cobalt in groundwater poses an unacceptable risk to human health. The rationale for no action to address cobalt would be that CERCLA does not provide authority to act.

Response:

Information has been added to address EPA's concern regarding the deficiency in the rationale for exclusion of cobalt as a COC. Details are provided below in response to the specific comments. Regarding the specific contaminants:

- Iron and manganese: The requested change has been made.
- Arsenic:
 - EPA toxicologist reviewed the Site 5 Supplemental RI Report and agreed with the dissolved arsenic being below the MCL rationale.
 - The concentrations of arsenic exceeding the MCL, 10.1 µg/L at SJS05-MW02S and 11 µg/L at SJS05-MW05S, are similar in magnitude to the SJCA 95 percent background UTL of 8 µg/L. "Similar in magnitude" is used to keep the document more general since it is a public document; however, the specific concentrations can be added if EPA prefers.
 - The partnering team feels that the 1 µg/L exceedance of the MCL does not warrant an additional investigation for a potential source area. The facility boundary is just upgradient of the SJS05-MW05S and there are no known sources of a release between the facility boundary and the monitoring well. The text has been revised to the following: Additionally, the location of the highest arsenic concentration was detected in a well which is crossgradient of the area where waste disposal and burning operations occurred, **in an area where no other historical contaminant releases are known to have occurred; therefore, the arsenic concentrations are background and** not a result of CERCLA site related operations
 - Comment noted. CTE analysis is being used in concert with the other lines of evidence. Decision Making at Contaminated Sites, Issues and Options in Human Health Risk Assessment (ITRC, 2015) states the purpose of calculating the CTE risk estimate is to provide a measure of the degree of conservatism associated with the RME result. The document allows for the use of other aspects of the uncertainty analysis to be integrated into the exposure assessment if the target risk level lies between the CTE and RME result. For Site 5, the unlikelihood of the groundwater ever being used as a potable water supply adds to the uncertainty in using the RME result alone. Per OSWER Directive 9355.0-30, the upper boundary of the risk range is not a discrete line at 1×10^{-4} although EPA generally uses 1×10^{-4} in making risk management decisions, a specific risk estimate around 1×10^{-4} may be considered acceptable if justified based on site-specific conditions. Based on the other lines of evidence presented in the text (i.e., dissolved less than MCL, concentrations exceeding being similar in magnitude, no unacceptable risk under CTE analysis) along with the RME cancer risk and HI for arsenic being 2×10^{-4} and 2, respectively, the risks were determined to be manageable. If necessary, text stating the RME cancer risk of 2×10^{-4} only slightly exceeds the target risk of 1×10^{-4} can be added to the Proposed Plan. Additional details will be provided in the ROD.
- Cobalt:
 - The highest detected concentrations of total cobalt (23.3 µg/L and 40.9 µg/L) are greater than but within the same order of magnitude to the SJCA 95 percent background UTL (15.8 µg/L). "Similar in magnitude" is used to keep the document

more general since it is a public document; however, the specific concentrations can be added if EPA prefers.

- Text has been revised to state, “Cobalt concentrations in the groundwater within the waste disposal/burning area were not elevated, and cobalt was not identified as a COC in the soil; **therefore, the waste disposal/burning area does not appear to be the source of cobalt in groundwater.**”
- The cobalt text has been revised to clarify that the no action decision for cobalt is based on the determination that the cobalt concentrations are not associated with the CERCLA site. The conclusion of the cobalt paragraph has been changed to, “Therefore, **the cobalt in groundwater is associated with naturally occurring and/or anthropogenic sources unrelated to the CERCLA site** and cobalt can be eliminated from further consideration as a site-related COC.”
- The phrases “CERCLA related” and “non-CERCLA related” have been replaced by “CERCLA site related” and “non-CERCLA site related”. RAGS Part A (EPA, 1989) and The Role of Background in the CERCLA Cleanup Program (EPA, 2002) allow for the consideration of both natural and anthropogenic sources not attributable to the specific site releases under investigation. While dredge fill and low pH rain are not considered naturally occurring, they are from anthropogenic sources not related to the CERCLA site. The conclusion in Section 5.1 was revised to state, “Therefore, the cobalt in groundwater is associated with naturally occurring and/or anthropogenic sources unrelated to the site and can be eliminated from further consideration as a site-related COC.”
- Section 6, the preferred alternative, has been revised to the following to acknowledge the unacceptable risk calculated: Based on the results of the investigations, risk evaluations, and the NTCRA completed at Site 5, no unacceptable **site-related** risk to human health or the environment remains at Site 5 and Blows Creek.

2. **Comment:** Section 1, 3rd paragraph - remove bold from the “I” in “investigations”.

Response: The requested revision has been made.

3. **Comment:** Table 1, 5th row, 3rd column, 2nd paragraph – The public is unlikely to understand what this means. Please clarify plainly.

Response: The text has been revised to state, “they were eliminated from further evaluation by the partnering team.”

4. **Comment:** Table 1, 8th row, 3rd column, 2nd paragraph – Is this date correct? The public notice was published 10 days before the end of the comment period?

Response: The date has been revised to January 19, 2007 which is the date of the initial public notice. The date of February 8, 2007 is for a second public notice, which was issued to correct the end date of the public comment period from February 7, 2007 to February 18, 2007.

5. **Comment:** *Table 2, Blows Creek Section, 3rd column – Which chemicals exceeded the 95% UTL and why don't those chemicals pose an unacceptable risk?*

Response: A list of the constituents exceeding the 95% UTLs in at least 1 sample was not included as the table is supposed to provide a summary of the results of the BERA and listing every constituent would not be in line with purpose of the table. Most of the chemicals which exceeded ecological screening values also exceeded the UTLs in at least one sample but the frequency of UTL exceedance was relatively low for most of these chemicals; the text was revised to be consistent with the wording in the final BERA. Further, the background comparison was only one of multiple lines of evidence to evaluate potential ecological risks. Conclusions related to the other lines of evidence (e.g., the frequency and magnitude of screening value exceedances and the results of sediment bioassays) have also been added to the text of this table section.

6. **Comment:** *Section 3 – Should “above” in “above mean sea level” be bold face?*

Response: “mean sea level” is the term defined in the glossary, “above” was not included since it provides a reference in relation to mean sea level.

7. **Comment:** *Section 3 – Check numbering for footnote 2.*

Response: The footnotes are numbered in sequential order with the numbering continuing throughout the document. The first footnote is on page 1.

8. **Comment:** *Section 3, 4th paragraph, 3rd sentence – check font and insert “the” before “Chesapeake”.*

Response: The font has been checked, no changes to the document were made. The text has been revised to state “...southern reaches of the Chesapeake Bay.”

9. **Comment:** *Section 4, 1st paragraph, 3rd sentence – Remove “sites” from sentence.*

Response: The sentence has been revised to state, “...including several Blows Creek watershed sites (AOCs 1, 8, and 12 and Site 1).”

10. **Comment:** *Section 5.1, Groundwater, 1st paragraph – Insert “groundwater” before “background”.*

Response: The requested revision has been made.

11. **Comment:** *Section 5.1, Groundwater, 2nd paragraph – What does “are similar in magnitude” mean?*

Response: The concentrations of arsenic exceeding the MCL, 10.1 µg/L at SJS05-MW02S and 11 µg/L at SJS05-MW05S, are similar in magnitude to the SJCA 95 percent background UTL of 8 µg/L. This is what is meant by “similar in magnitude”, we were trying to avoid going into this level of detail for a public document but we can add the information if necessary.

12. **Comment:** *Section 5.1, Groundwater, 2nd paragraph – the phrase “is not likely a result of those conditions.” Could be interpreted as an argument for further RI and a new OU.*

Response: The sentence has been revised to state, “...burning operations occurred and where no other historical contaminant releases are known to have occurred; therefore, the arsenic concentrations are background and not a result of CERCLA site related operations.”

13. Comment: Section 5.1, Groundwater, 2nd paragraph – The ROD will require a good reason for relying on CTE.

Response: Additional details regarding the use of CTE will be incorporated into the ROD.

14. Comment: Section 5.1, Groundwater, 3rd paragraph – Insert “and cobalt would precipitate out of the groundwater.” at the end of the 5th sentence.

Response: Since precipitation would depend on the amount of alkalinity present the sentence has been revised to state, “...and cobalt would never have dissolved.”

15. Comment: Section 5.1, “What is Human Health Risk and How is it Calculated?” Text Box – delete “not” from third bullet under Step 1 portion.

Response: The “not” needs to remain in the statement. The text is saying background is not used to identify COPCs. All constituents are carried forward, regardless of whether or not they are below background levels and then are eliminated as COCs in risk characterization/risk management discussions. The text has been revised to further illustrate this point, as follows: **Background is not considered in the identification of COPCs.** Constituents are not excluded from the risk assessment process if they are within the range of background. **COPCs that are within the range of background concentrations are discussed during risk management.**

16. Comment: Section 5.1, “What is Ecological Risk and How is it Calculated?” – What does “iterative” mean.

Response: The text has been replaced with “repeated”.

17. Comment: Section 5.1, Groundwater, 4th paragraph – There is no list of “CERCLA related activities” and there is no such thing as “non-CERCLA related activities”.

Response: The phrases “CERCLA related” and “non-CERCLA related” have been replaced by “CERCLA site related” and “non-CERCLA site related”.

18. Comment: Section 5.1, Sediment, 3rd paragraph – Conclusion needs to be added to Table 2.

Response: The requested revision has been made.

19. Comment: Section 6 – Cobalt poses unacceptable risks in groundwater.

Response: The text has been revised to state, “...no unacceptable site-related risk to human health or the environment remains at Site 5 and Blows Creek.”

20. Comment: Glossary – Capitalize “Land use controls”.

Response: The requested revision has been made.