N61414.AR.002205
JEB LITTLE CREEK
5090.3a

LETTER AND THE U S NAVY RESPONSE TO THE U S EPA REGION III COMMENTS ON THE DRAFT FINAL FOCUSED FEASIBILITY STUDY FOR GROUNDWATER SOLID WASTE MANAGEMENT UNIT 3 (SWMU 3) PIER 10 SANDBLAST YARD JEB LITTLE CREEK VIRGINIA BEACH VA
09/29/2014
CH2M HILL

CH2M HILL
5701 Cleveland Street
Suite 200
Virginia Beach, VA 23462
Tel 757.671.8311
Fax 757.497.6885

September 29, 2014

Environmental Protection Agency
Attn: Mr. Jeffrey Boylan
1650 Arch Street
Philadelphia, PA 19103

Subject: Response to Comment: *Draft Final Focused Feasibility Study, SWMU 3 – Pier 10 Sandblast Yard*, Joint Expeditionary Base Little Creek, Virginia Beach, Virginia

Dear Mr. Boylan:

On behalf of the Navy, CH2M HILL is pleased to submit the following response to the comments on the *Draft Final Focused Feasibility Study, SWMU 3 – Pier 10 Sandblast Yard*, Joint Expeditionary Base Little Creek, Virginia Beach, Virginia:

Follow-On Comments

TOX

Comment 2: PAGE 5

Dissolved cobalt is eliminated as a Contaminant of Concern because observed concentrations exceeded the background UTL in only 6 out of 36 samples (roughly 17 percent of the time). Were these exceedances in upgradient wells? If not, this justification is weak.

In the paragraph explaining the VI evaluation performed for this site, the report should identify any buildings within 100 feet of MCL exceedances in gw. If buildings are located within this footprint, an explanation should be provided for not collecting subslab vapor, indoor air and outdoor air samples. Further, any provisions for addressing VI if future conditions change (such as construction of an on-site structure or occupancy of existing buildings) should be mentioned in this paragraph.

Response: Cobalt was detected in exceedance of background at monitoring wells LW03-MW06, LW03-MW09, LW03-MW12, LW03-MW14, and LW03-MW15. With the exception of LW03-MW12, cobalt exceedances of background were detected in monitoring wells upgradient or side-gradient of the former sandblasting area. Detections of total and dissolved cobalt in LW03-MW12 (4.9 ug/L and 4.7 ug/L, respectively), located within the former sandblasting facility, only slightly exceeded their respective background UTLs of 2.6 ug/L and 1.9 ug/L. Additionally, concentrations are below the maximum detected background values of total and dissolved cobalt (21.5 ug/L and 12.2 ug/L, respectively). Therefore, cobalt in groundwater is not likely the result of former site activities. It should be noted that cobalt was not identified as a site COC following the SRI HHRA. As part of the Focused FS, data were screened against revised RSL values to identify any new COPCs. Cobalt was identified as a potentially new COPC but risk was not calculated. The risk management considerations presented are conservatively assuming that cobalt concentrations would pose potentially unacceptable risk.

As discussed in the *Final Risk Assessment Update - Vapor Intrusion Evaluation, SWMU 3, Joint Expeditionary Base Little Creek, Virginia Beach, Virginia* (June, 2013) there are no existing pathways for vapor intrusion (i.e. no occupied buildings within 100 feet of the plume) at the site; therefore soil gas, subslab, and indoor air sampling was not warranted for the site. VOC data collected in January and September 2007 as part of the SRI were utilized to assess potential future risk if building use were to change or new construction were to take place. Results of this evaluation concluded, that although calculated risks based upon maximum detected concentrations in groundwater are above USEPA's acceptable carcinogenic risk range of 10-4 to 10-6 and non-carcinogenic hazard level of 1; calculated risks based upon 95 percent UCL values, an estimate that may be more representative of an RME scenario consistent with the goal of USEPA RAGs (USEPA, 1989), are below USEPA's acceptable thresholds. Additionally, maximum-detected constituent concentrations and calculated UCL values are representative of site conditions in 2007. Data collected in August 2014 indicate current concentrations of VOCs in groundwater are similar to the calculated UCL values. No further action for vapor intrusion was recommended. Additional text was added to Section 1.6.4 of the FFS to clarify the results of this evaluation.

Follow-On Comment: *In the response to comment #2, maximum cobalt concentrations in downgradient groundwater (total = 4.9 ug/L, dissolved = 4.7 ug/L) are compared to maximum background levels (total = 21.5 ug/L, dissolved = 12.2 ug/L). However, the UTLs for background (total = 2.6 ug/L, dissolved = 1.9 ug/L) are the statistical parameters to which maximum on-site groundwater concentrations should be compared. (This was done in the response, but then followed by a comparison to background maximums.) I agree that cobalt needn't be identified as a COC in the FS (for several reasons cited in the response to comments), but the particular argument given above is faulty.*

Regarding VI, according to the response to comment #2, an evaluation conducted in September 2007 concluded that there is no potential future risks (based on 95th percent UCL concentrations) if new construction were to take place. This conclusion is not strongly defensible, in my opinion, for several reasons: 1) The methodology for conducting VI assessments has been revised since 2007, 2) it is very difficult to predict the extent of VI in buildings that do not yet exist, and 3) toxicity parameters for TCE have changed dramatically. EPA suggests including LUC language in the FS to ensure that VI threats, if any, will be addressed if building use changes or if new construction occurs.

Response: *Comment noted. No comparison of cobalt concentrations to maximum background values is included in the risk management considerations presented in Table 3. No changes to the document were made.*

Risks associated with VI were evaluated as part of a risk assessment update conducted in 2013 using groundwater data collected in 2007. Section 1.6.3.1, 6th paragraph, 2nd sentence was revised to read: "Risks and hazards associated with hypothetical future resident exposure to indoor air via vapor intrusion from groundwater were calculated in 2013 using groundwater data collected in 2007. Results are documented in the technical memorandum Risk Assessment Update – Vapor Intrusion Evaluation, SWMU 3, Joint Expeditionary Base Little Creek, Virginia Beach, Virginia, (CH2M HILL, 2013)." It is acknowledged that assessing risks in future buildings is difficult. The last sentence of the paragraph has been deleted. The first bullet in Section 2.2 has been revised to read: "Prevent exposure to groundwater and groundwater emissions until concentrations of COCs allow for unlimited use and unrestricted exposure." A LUC objective to address future construction as it relates to vapor intrusion will be developed. The LUC boundary depicted on Figure 8 has been revised to represent a 100' buffer around the existing plume.

Follow-on Comment: *Please note that the FFS report section containing revised VI text is 1.6.3.1, not 1.6.4.*

Response: *Comment noted. VI assessment summary is contained in Section 1.6.3.1. No changes to the document were made.*

Comment 5: TABLE 2

The calculation of gw Exposure Point Concentrations (EPCs) in the RI for this site incorporated data from all wells. At that time, I commented that Regional policy is to focus on only the most contaminated wells when establishing EPCs for the risk assessment. However, since risks were already in the unacceptable risk range (thus, triggering the need for action), increasing EPCs by following Regional guidance would have just confirmed the conclusions of the RI. I raise this point again, only because the EPCs presented in this table, as well as their associated potential risks, are higher than the table implies.

PCE seems to have been inadvertently omitted from the table for future adult residents (ingestion and inhalation). The table should be revised to include these risks.

Similarly, inhalation risks to the future resident child and the future resident adult/child are not included in the table. When the report is revised, these receptors should be incorporated.

This table seems to reflect conclusions from the risk assessment performed during the RI. As such, some of the toxicity factors (RfDs and CSFs) presented in the table are dated. A qualitative statement should be added to the table, acknowledging changes to the tox criteria. Note that any remediation conducted at the site will be held to the most current standards for risk.

Response: Comment noted on use of all monitoring wells. An updated risk assessment was performed using maximum detected concentrations of COPCs (PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride, 1,1-DCA, 1,2-DCA, and benzene) detected during August 2014 sampling. Results of this revised assessment are provided in Section 1.6.4. COCs were identified as TCE and vinyl chloride based upon current site conditions.

Table 2 has been updated to provide only total RME and total CTE risk values. PCE was added to the adult resident receptor. Inhalation risks to the future child resident were not calculated. The inhalation risks for the future adult/child resident are accounted for in the total RME and total CTE values for this receptor.

Toxicity factors (RfDs and CSFs) associated with the SRI HHRA are reflective of values current at the time the risk assessment was conducted (2007/2008). Risks associated with select VOCs were assessed as part of the August 2014 HHRA update. Toxicity factors (RfDs and CSFs) associated with this update are current. As noted in Section 1.6.4 of the FFS, as part of development of this FFS, a review of updated risk-based screening values (November 2013 tap-water RSLs), MCLs, and toxicity values was performed. As a result, 1,1-DCA, chromium, and cobalt were identified as additional COPCs that contribute to an unacceptable risk or hazard in groundwater. Risk management considerations for chromium and cobalt are presented in Table 3. 1,1-DCA was retained as a site COPC, analyzed for during August 2014, and assessed during the August 2014 HHRA update. No unacceptable risks associated with 1,1-DCA were identified.

Follow-on Comment: *Please note that the FFS report section containing revised VI text is 1.6.3.1, not 1.6.4.*

Response: *Comment noted. VI assessment summary is contained in Section 1.6.3.1. No changes to the document were made.*

New Comments

HYDRO

Comment 1: The FFS in Section 3.2.2 states, "Because there are no potential risks to down gradient users, it is assumed groundwater monitoring will be conducted once every five years in conjunction with the statutory Five-Year Review to monitor the concentrations of COCs in groundwater until PRGs have been met. The monitoring assumptions, including frequency, duration, and analytical parameters are included in the cost estimate (Appendix F).

a. The FFS "assumes" sampling on a five year monitoring cycle. This is insufficient and unacceptable. The monitoring plan should be developed separately from the FFS. Appendix F, a cost estimate does have very fine print on what the parameters are, but is incomplete. Field parameters should always be collected too. This has little bearing on the FFS and is more appropriately dealt with in the development of the Long Term Monitoring (LTM) work plan.

Response: The text has been revised to state: "Long-term reduction in COC concentrations will be monitored as part of a LTM plan designed to evaluate the achievement of RAOs over time, determine continued remedy protectiveness, and assess site exit strategies. The monitoring assumptions, including frequency, duration, and analytical parameters, are included in the cost estimate (**Appendix F**). The final LTM plan will be developed following remedy selection." The assumptions in the cost estimate have been revised to annual sampling for the parameters previously listed. Additionally a footnote has been added that additional parameters will be field tested however this does not impact overall cost. The assumptions are not considered the final sampling plan. LTM will be jointly scoped and a UFP SAP prepared following signature of the ROD.

Comment 2: A LTM work plan should be developed for this remedial action separately. The work plan sampling schedule shall be twice yearly, in the spring and fall, to show potential seasonal fluctuations. The MNA monitoring parameters used in the recent August 2014 sampling should continue, i.e. DO, ORP, temperature, nitrate/nitrite, sulfate/sulfite, ethane, etc. This will provide adequate data to support the proposed remedy and be ready for the next five year review.

Response: Comment noted. See response above.

Comment 3: The FFS is acceptable from the Hydro standpoint. However, the LTM should begin as soon as practicable so that trends can be established as necessary for evaluating the proposed remedy's performance monitoring. Sampling once for every five years as part of the Five-Year Review is unacceptable and won't provide the necessary data to make any real analysis of the data.

Response: Comment noted. See response above. Preparation of the UFP SAP and initiation of sampling will begin as soon as practicable based upon available funding.

TOX

Comment 1: Table 2 requires some clarification:

- In the summary of 2009 BLRA results, there should not be a Receptor Total cancer risk (RME or CTE) for the future adult resident. The combined residential cancer risk is given for the child + adult scenario.

- For the 2014 risk assessment update, non-cancer hazards should be provided for the COCs (TCE and vinyl chloride). Non-cancer endpoints will drive TCE risks.
- The indoor air risk summary is confusing.
    - Cancer risks should be presented for the future resident (child + adult).
    - Non-cancer hazards should be presented for the child resident and for the adult resident (two separate scenarios.)
    - It is not clear from the table if the exposure point concentrations used to estimate risks represent 95th percent UCLs or maximum indoor air concentrations
    - There is no explanation of how the EPCs were calculated. I assume these are modeled predictions based on groundwater concentrations; that should be stated in the report, along with the attenuation factor applied.
    - The cancer and non-cancer RME risks exceed EPA's triggers for action. This seems to contradict the conclusions in Section 1.6.3.1 of the FS, which imply that the 2014 data do not indicate a VI threat. This needs to be clarified.

Some of the footnote explanations don't seem to correspond to the footnote numbers in the table. This should be reviewed and revised accordingly.

Response:

- Bullet 1: Cancer risk totals were removed from the table.
- Bullet 2: Table 2 presents only those receptors/scenarios with unacceptable risks, as indicated by the yellow highlighted footnote. Although the total receptor HI is above 1, there are no target organ effects above 1 and therefore no potentially unacceptable risks to these receptors; therefore they are not presented on the table. No changes to Table 2 were made. When developing remediation goals for the COCs, both cancer and non-cancer endpoints are considered. However, as both of the COCs have MCLs, the MCLs will be used as the remediation goals.
- Bullet 3:
    - The indoor air risks were calculated using EPA's Vapor Intrusion Screening Level (VISL) calculator. This VISL calculator calculates cancer risks and non-cancer hazards for the adult resident. Table 2 was revised to indicate the receptor is "Future Adult Resident". Additionally, the summary provided in Section 1.6.3.1 was updated to more clearly identify the receptor evaluated.
    - See response in previous bullet.
    - As noted in footnote 1, the RME EPC is reflective of modeled indoor air predictions based upon maximum detected concentrations in groundwater and CTE EPC is based on 95% UCL of the mean concentrations in groundwater. No changes were made to Table 2.
    - Footnote 1 will be changed for the indoor air EPCs as follows: "The indoor air EPCs were calculated using 2007 groundwater data and EPA's Vapor Intrusion Screening Level calculator, current at the time the VI assessment was conducted (2013). USEPA's default attenuation factor of 0.001 was utilized. The RME EPC for indoor air was calculated using the maximum detected groundwater concentration. The CTE EPC for indoor was calculated using the 95% UCL of the mean groundwater concentration."
    - The last sentence of the vapor intrusion discussion has been deleted. The first bullet in Section 2.2 has been revised to read: "Prevent exposure to groundwater and groundwater emissions until concentrations of COCs allow for unlimited use and unrestricted exposure." A LUC objective to address future construction as it relates to

vapor intrusion will be developed. The LUC boundary depicted on Figure 8 has been revised to represent a 100' buffer around the existing plume.

All footnotes have been reviewed and corrected as needed.

If you have any questions concerning these responses to comments, please feel free to contact me at (757) 671-6280.

Sincerely,

Nathaniel Price, P.E.,
Project Manager

cc: Mr. Paul Herman/ VDEQ
Mr. Matthew Stepien/ NAVFAC Mid Atlantic
Ms. Cecilia Landin/CH2M HILL