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LETTER AND THE U S EPA REGION III COMMENTS ON THE DRAFT UFP SAMPLING AND
ANALYSIS PLAN FOR THE PRE-DESIGN INVESTIGATION FOR SITE 43 THE TOLUENE
DISPOSAL AREA NSWC INDIAN HEAD MD
02/19/2016
U S EPA REGION III PHILADELPHIA PA



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Date: February 19, 2016

Joseph Rail
NAVFAC Washington
Washington Navy Yard, Building 212
1314 Harwood Street, SE
Washington Navy Yard, DC 20374-5018

Re: Naval Support Facility, Indian Head, MD
Site 43 – Toluene Disposal Area
Review of draft *UFP SAP for the Pre-Design Investigation*

Dear Mr. Rail:

The U.S. Environmental Protection Agency (EPA) has reviewed the U.S. Navy's (Navy's) November 2015 draft *UFP Sampling and Analysis Plan for the Pre-Design Investigation* for Site 43, the Toluene Disposal Area, located at Naval Support Facility Indian Head NPL site (Indian Head). Based upon that review, below please find EPA's comments:

1. Section 3.1 – Partnering Team Scoping Session No. 1, Page 18, second bullet from top: This sentence is slightly confusing. It would be clearer to state "Samples are to be collected from ten borings at up to three depths in each boring, totaling approximately thirty samples." Additionally, the statement about sampling below the water table can be improved. Currently it is not clear if the sampling will be 8-10 feet below the water table, or if the water table occurs 8-10 feet bgs. Any samples collected from below the water table should be referred to as aquifer matrix samples rather than as soil samples.
2. Section 3.1 – Partnering Team Scoping Session No. 1, Page 18, Cobalt Evaluation, third bullet and sixth bullet: Explain the rationale for limited metals sampling in soil and groundwater. Clarify the statement "actual list of metals was determined later" as being determined after the partnering meeting. Some information regarding why only certain metals are being collected is presented in Sections 7.5.1 and 7.5.3, but the rationale should also be mentioned here.

In the sixth bullet, either move the list of metals in parentheses so that it follows immediately after "metals", or list the cations to be sampled for as well.

As a suggestion, if the Navy desires to prove that cobalt is naturally occurring and not a release, it may be appropriate to determine if local reducing conditions exist in the aquifer. However, there are specific data needed to demonstrate this phenomenon, including total metals versus dissolved metals; TOC, ORP, pH, nitrate, and DO. Limiting the metals analysis may not serve this endeavor. Additionally, is there an aerobic or anaerobic reducing condition?

3. Section 4.2.1 - Soils and Geology, Page 22: The first paragraph mentions that Indian Head is underlain by deposits from the "Pleistocene and Cretaceous Periods". The Pleistocene is not a geologic period, but an epoch within the Quaternary period.

Additionally, the first paragraph in this section states that deposits range in thickness from 650 ft to 900 ft and in age from Cretaceous to Quaternary. This statement, in conjunction with the sentence preceding it about the varying units of deposited material, is slightly confusing when first read. It may mislead a reader to think there are multiple deposits with each having a thickness ranging from 650 to 900 feet. Rather than saying "deposits" here, using a more generalized term like unconsolidated material may help to alleviate the confusion, or it may be left out entirely, as the thickness of unconsolidated material to bedrock is covered later in the section.

The last paragraph details the organic clay found in the northern and central portions of the site, and the gray to greenish-gray or reddish gray clay found in the southern portion of the site. Does the clay found in the southern portion of the site directly overlay the organic clay that dips to the south, or do they interfinger? Do these two clay units present a continuous confining layer that underlies the entire study area? Are there vertical hydraulic conductivities available for these clay units (direct measurements or found in literature)?

4. Section 4.3, Summary of Environmental Work Conducted: The draft SAP states that the Draft FS Report submitted in March 2015 included an evaluation of building VI potential due to VOCs in groundwater, and based on the VI assessment, the Team agreed that potential VI issues exist. Buildings 715, 717, and 721 should undergo further VI evaluation (i.e., indoor air sampling). The draft SAP does not state what type of vapor intrusion assessment was performed or the results. Was the VI assessment performed with the use of the VISL calculator and groundwater data, or were subslab samples collected in the buildings?
5. Section 4.4 – CSM Overview, Page 26: The second paragraph on this page states that the maximum detected TCE in groundwater is 9,060 µg/L. It should be clarified what this maximum is in relation to (the current maximum detected?), as Section 4.3 states that TCE in groundwater has been detected at 54,000 µg/L, and 36,000 µg/L in the past.

6. Section 5.1 – Identification of Goals, Page 29: The first sentence in the section mentions “cis-DCE”, it should read cis-1,2-DCE.

Later in the first paragraph it is stated that under appropriate geochemical conditions, TCE degrades into cis-1,2-DCE. While this is true, it would be more appropriate to simply state that it is degraded to DCE. Cis-1,2-DCE is the most prevalent daughter product from TCE’s reductive dechlorination, but the other forms of DCE may also be produced.

VC should be removed from the same sentence discussed above. TCE does not directly degrade to VC. If mentioning VC, it should be done while describing the full reductive dechlorination pathway to ethene, which should be the ultimate goal at the Site.

7. Section 5.2.4 – Substrate Delivery Testing, Page 31: This section states that a bromide tracer will be used to determine the site-specific radial distribution of substrate. How closely will the bromide study injections approximate the actual substrate to be used in the remedial action?

Appendix A makes it clear that the distribution test substrate will essentially be the same substrate for any EISB, but with added sodium bromide in it. This is a detail that should be mentioned in the main body of the SAP, not just in the Appendix.

8. Section 5.2.6 – Quality Assurance (QA) and Quality Control (QC) Samples, Page 32: This section mentions that no equipment rinsate blanks will be collected, and it is assumed that a peristaltic pump will be used for collection of groundwater samples. State the pump that will be used to clarify why no rinsate blanks are needed, if true. The statement that no rinsate blanks will be collected contradicts the table presented as Section 6: Field Quality Control Samples.
9. Section 5.2.6 also states one duplicate sample will be analyzed for the target contaminants. The table presented as Section 6 states that duplicates will be collected at a rate of one per ten field samples per matrix. This alone means that at least two duplicates will need to be collected (one for soil and one for groundwater). Section 7 shows that more than ten samples will be collected for each matrix and thus requiring additional duplicate samples.

Will MS/MSD samples be collected? They are not mentioned in this section, but are included in Section 6.

Please review this section so that all subsequent sections concerning sample numbers and QA/QC numbers are in agreement with each other.

10. Section 7.5.1 – Monitoring Well Groundwater, Page 41: The number of samples listed under the “Select Metals” row shows “same as above”. This includes QA/QC samples, however it is unclear if all of the analysis included in this table are scheduled for QA/QC samples per earlier sections of the SAP, please review.
11. Section 7.5.1 table entry for Injection Test and Figure 15 – Please clarify how Figure 15 supports the information depicted on the table in 7.5.1 under ‘Injection Test.’ For example, the 8 to-be-installed MWs in the table do not appear in Figure 15, and the ‘injection points’ (represented as small yellow dots in Figure 15) and the biological treatment barrier do not appear in the table in Section 7.5.1. In addition, Section 7.5.1 includes the statement “Refer to Figure 15 for injection test well locations.” Figure 15 presents injection points (in the source area) but does not provide locations for the injection test well as provided in Appendix A, Electron Donor Injection Test Instructions. It is presumed that the information gathered following the sampling approach in Section 7.5.1 will dictate the implementation of the preferred treatment approach, but Figure 15 only presents an injection target area and the physical components (injection points and barrier) of the potential treatment approach.
12. Section 7.5.2, Matrix: Indoor Air: For the vapor intrusion analysis, only indoor air and ambient air samples are proposed: 2 sample locations inside each building, and 2 ambient upwind air samples for a total of 8 TO-15 samples (plus QA/QC samples). The document does not mention whether subslab samples have been previously collected in the buildings. If subslab samples have not been collected, the collection of subslab samples to determine the potential for vapor intrusion at each building is highly recommended. If the subslab sample COC concentrations are below levels of concern, these subslab sample results would be the data used to determine that vapor intrusion is not a concern at the buildings.

Indoor air sampling without subslab sample results will not provide the data necessary to determine that vapor intrusion will not be an issue in the future, even if current COC concentrations in the indoor air of the buildings are found to be non-detect/acceptable.

The draft SAP did not provide the square footage of the buildings, or a figure or diagram showing the buildings’ uses and characteristics, so it is difficult to determine if the proposed number of indoor air samples is adequate. Using Figure 3, it appears that Buildings 715 and 717 are approximately 10,000 ft² in area. Based solely on the size of the buildings’ footprints, both Building 715 and Building 717 should have at least 4 subslab samples and 3 indoor air samples collected for adequate spatial coverage. Building 721 appears to be less than 1500 ft². If so, the number of indoor air samples planned for Building 721 is appropriate. Two subslab samples would also be appropriate.

13. Section 7.5.2 – Indoor Air, Page 43: Indoor air sampling should be conducted at a time where any potential stack effects on the building may be heightened. This is typically during the heating season.
14. Section 7.5.3 – Subsurface Soil, Page 43: The number of samples listed below the “Select Metals” row of the Cobalt Investigation shows “same as above”. This includes QA/QC samples, however it is unclear if all of the analysis included in this table are scheduled for QA/QC samples per earlier sections of the SAP, please review.
15. Section 8.4 – Analytical SOP Requirements Table, Page 55: The VOCs in soil are to be collected into unpreserved sample containers via Terra Core samplers. In order to not use preservatives the samples must be frozen to less than -10°C within 48 hours of sample collection. The table left out the negative in front of the 10°C in the “Preservation Requirements” column.

The “Maximum Holding Time” for VOCs in soil should reflect that the time to analysis is 14 days, only if the sample is frozen within 48 hours, or a preservative is used.

For several analytes in soil and groundwater, there are very short holding times. It should be mentioned in the SAP how the potential for field work to be conducted during nonstandard working hours will be taken into account to assure that holding times are not exceeded.

16. Section 9.1 – The EPA residential soil RSL for TCE is 0.41 mg/kg (based on HQ=0.1 and ILCR of E-6), not 0.96 (which is based on cancer risk of E-6 and HQ=1 and does not account for consideration of exposure to multiple contaminants as stated in footnote 1).
17. Section 9.3 – Recommend using the industrial air RSL of 0.88 µg/m³ (based on HQ=0.1 and ILCR of E-6), as the buildings to be sampled appear commercial/industrial. The RSL included in the table in Section 9.3, 0.48 µg/m³, is based on residential cancer risk, and the selection of the air RSL did not consider noncancer effects and exposure to multiple contaminants, as stated in footnote 1 (which would result in residential air RSL of 0.21 µg/m³).
18. Section 9.3, Matrix: Indoor Air: For TCE and vinyl chloride, the Project Screening Limit and/or Project Action Limit is between the laboratory Limit of Quantitation and the Limit of Detection. Are samples to be analyzed using TO-15 SCAN or TO-15 SIM? TO-15 SIM yields the lowest possible detection limits.

Appendix B contains the site-specific SOP for the collection of indoor and ambient air samples using stainless steel canisters with analysis by EPA Method TO-15. If subslab samples are to be collected, the SOP for subslab sampling should also be included in the Appendix.

19. Figure 5, Cross Section A-A': This figure does not reflect the apparent groundwater divide present on the potentiometric map, and discussed in the text. Double check the water elevation presented for monitoring well MW28. This may be a result of the cross section being presented as feet bgs rather than elevation.
20. Figure 15, Injection Distribution Test Area: This figure depicts the pink dashed line as being the inferred CVOC contour. It should be listed as the inferred cobalt contour.
21. Appendix B, Site Specific SOP – SUMMA Canister Air Sampling Procedure:
The SOP states that an acceptable Summa Canister is one that has a vacuum of -30 psig Hg or greater, and a vacuum less than -30 psig Hg is unacceptable. Please note that most laboratories evacuate canisters to only a vacuum of -30 in Hg, and canisters with vacuums in the range of -28 in Hg to -30 in Hg are considered to be acceptable. While the optimum vacuum is -30 in Hg, in the field you may find that some of the canisters are at -29 in Hg, and setting a stringent tolerance limit may automatically invalidate many of the Summa canisters for use. If the tolerance limit remains at -30 in Hg or greater, please ensure that the laboratory is aware of this criterion so that the canisters will be properly prepared.

If a Summa canister reaches zero/equilibrium during sampling, the sample is considered to be compromised and should be recollected.

Duplicate indoor and ambient air sample canisters are collocated (e.g. side-by-side without sharing a connection).

If you have any questions, please feel free to call me at (215) 814-3357,

Sincerely,



Robert Thomson, P.E., REM
Office of Federal Facility Remediation (3HS11)

Cc: Curtis DeTore (MDE - Baltimore)
Travis Wray (NSWC-IH)