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LETTER AND ATTACHED RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT COMMENTS REGARDING THE DRAFT FEASIBILITY STUDY FOR TANK FARM 1, SITE 7 NS NEWPORT RI
11/17/2014
RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

17 November 2014

James Gravette
NAVFAC MIDLANT
Bldg. Z-144, 1st Floor
9324 Virginia Ave.
Norfolk, VA 23511-3095

Re: Draft Feasibility Study
Site 7 – Tank Farm 1, Category 1 Areas
Naval Station Newport, RI

Dear Mr. Gravette,

The Office of Waste Management at the Rhode Island Department of Environmental Management has conducted a review of the *Draft Feasibility Study (FS)*, dated October 3, 2014 for Tank Farm 1 (Site 07), Naval Station Newport, located in Portsmouth, RI. As a result of this review, this Office has generated the attached comments on the *Draft FS.*

If you have any questions in regards to this letter, please contact me at (401) 222-2797, extension 7020 or by e-mail at pamela.crump@dem.ri.gov.

Sincerely,

Pamela E. Crump, Sanitary Engineer
Office of Waste Management

cc: Matthew DeStefano, RIDEM
Richard Gottlieb, RIDEM
Darlene Ward, NSN
Jane Dolan, EPA Region I
Mark Kaufmann, Resolution
Cindy Castleberry, Resolution

RIDEM's Comments (11/17/14)
on the Draft Feasibility Study (10/3/14)
for Site 07 - Tank Farm 1
Naval Station Newport, RI

General Comments:

1. This Feasibility Study (FS) only focuses on two small areas of Tank Farm 1. Please discuss in this report how the remainder of the tank farm will be addressed under CERCLA. Please indicate if the entire tank farm was thoroughly investigated under CERCLA and if so, if there were any exceedances of CERCLA risk standards or ARARs identified in surface or subsurface soil, groundwater, surface water or sediment.

2. This FS discusses surface soil only at the Ethyl Blending Plant (EBP) and the Transformer Vaults. It states that no exceedances were detected in the subsurface soil at the transformer vaults; however, there is no mention of the exceedances of criteria in the subsurface soil at the EBP. Many of the specific comments below discuss the need to address subsurface soil at the EBP throughout the report. Please include the subsurface soil data for the EBP and the Transformer Vaults in the "Tables" section of this report.

3. Please conduct a thorough review of the report for typographical errors and cross-references, including reference to: 1) "The Transformer Vaults" versus "the Transformer Vaults" versus "the transformer vaults"; and 2) "AOC-004, AOC-005, AOC-018" versus "TF1-004, TF1-005, TF1-018".

4. Sample results from all previous investigations, including the 2010 investigation, should be presented consistently throughout the text, tables, and figures of the report, or justification for not doing so should be provided for completeness. For example, RIDEM notes that samples collected in 2010 from sample locations TV2 and TV3 are discussed in the report text and the results are provided in tables included in Appendix A; however, only the sample collected in 2010 from TV2 is presented on the associated Figure 4, and the sample collected in 2010 from TV3 is not presented in the associated Figure 5. In addition, the results of the 2010 sampling at the EBP are only discussed in text.

5. There are several mentions of chromium being retained as a contaminant of concern until speciation data are available to disprove exceedance of the hexavalent chromium preliminary remediation goal (PRG); however, remedies as presented in the Draft FS do not account for the absence of this data and do not address chromium. For example, on page 23, it is stated in the 4th paragraph that "Figure 8 summarizes all surface soil sample locations that have PRG exceedances for PAHs and/or metals and shows an estimated extent of surface soil impacts for the purpose of evaluating remedial alternatives," yet samples with concentrations exceeding the PRG for chromium IV are not highlighted. Furthermore, it is unclear when these data would be available (i.e., if analysis for hexavalent chromium is being conducted with the DGA, or if it will be performed as a pre-design activity).

Specific Comments:

1. p. ii, Table of Contents, Tables.

Please add: 1) *"Table ES-1, Summary of Comparative Analysis"* (referenced on p. ES-v), and; 2) change the title of Table 2-1 to *"Chemical Specific ARARs and TBCs"*, consistent with the table.

2. p. ES-i, Executive Summary, Regulatory Context; 1st sentence.

Please change, *"Comprehensive Response"* to *"Comprehensive Environmental Response"*.

3. p. ES-ii, Executive Summary, Remedial Action Objectives, Preliminary Remediation Goals, and Estimation of Areas and Volumes; bullets.

The Remedial Action Objectives (RAOs) should reference PRGs or cleanup goals rather than ARARs/RIDEM's criteria. The PRGs/cleanup goals should be based on the most stringent criteria (including ARARs/RIDEM's criteria).

4. p. ES-ii, Executive Summary, Remedial Action Objectives, Preliminary Remediation Goals, and Estimation of Areas and Volumes; 2nd and 5th bullets.

Please change these bullets to *"Prevent exposure by future residents and other unrestricted users to surface and subsurface soil containing site contaminants that pose unacceptable risk and/or exceed cleanup goals* (or PRGs)*."*

5. p. ES-iii, Executive Summary, EBP; bullet.

Please indicate if there are exceedances below 2 feet at the EBP. Residential PRGs and leachability criteria apply down to the water table. Please recalculate the impacted area including subsurface soil.

6. p. ES-iii, Executive Summary, EBP; table.

Please see comment above. PRGs based on leachability exceedances would not apply to surface soil only. Please include PRGs for subsurface soil as well.

7. p. ES-iv, Executive Summary, Remedial Alternatives.

Alternative 2, 1st bullet –	Add *"and Leachability Criteria"* or include an impermeable cap as part of this alternative.
Alternative 3, 1st bullet -	Are there exceedances of residential criteria in subsurface soil? Excavation of subsurface soil will be required to address subsurface soil exceedances if they exist.
Alternative 3, 3rd bullet -	Please indicate when the Navy proposes to demolish the EBP structure. Will this be part of the remedy?

8. p. ES-vi, Table ES-1, Summary of Comparative Analysis.

Please revise this table based on previous comments and the comments on Sections 3, 4 and 5.

9. p. 2, Section 1.3, Tank Farm 1 Background Information; 1st paragraph, penultimate sentence.

Please correct to state *"The site was used by the Navy as a fuel storage area …"*

10. p. 3, Section 1.3.1, Site Description.

Several references are made to surrounding properties and features. Please identify these properties/features, including, but not limited to: the former Fuel Loading Area, Melville Pond, the Melville Public Fishing and Camping Area, the Navy Fire Department and electrical substation, and vacant Pump House 49, on a figure in this document.

11. p. 4, Section 1.3.2, Site History; 1st paragraph, 2nd sentence.

Please correct *"1,2-dibromomethane"* to *"1,2-dibromoethane"*.

12. p. 4, Section 1.3.3, Previous Investigations; 1st paragraph.

Please change to *"2012-2013 Data Gaps Assessment (DGA; Tetra Tech, 2014)."*

13. p. 4, Section 1.3.3, Previous Investigations; last paragraph, 1st sentence.

Please change to *"….As part of the 2012-2013 DGA…"*

14. p. 5, Section 1.3.3, Previous Investigations, EBP Findings; 1st paragraph.

The 2nd sentence states, *"bedrock was encountered at a depth of 1.5 to 4 feet in each of the soil borings"*. Please review and correct this statement as the subsurface soil samples listed in Appendix A indicate soil boring samples were collected at depths greater than 4 feet at certain locations.

15. p. 5, Section 1.3.3, Previous Investigations, EBP Findings; 1st paragraph, 3rd sentence.

Please change *"…soil samples were collected at the surface (0 to 1 feet below ground surface "* to *"…soil samples were collected at the surface (0 to 0.5 feet, 0 to 1 feet, 0 to 2 feet, or 1 to 2 feet below ground surface"*.

16. p. 5, Section 1.3.3, Previous Investigations, EBP Findings; 1st paragraph, penultimate sentence.

Please add *"EDB and 1,2-dibromo-3-chloropropane"* and change *"extractable total petroleum hydrocarbons (EPH)"* to *"extractable total petroleum hydrocarbons (TPH)"* for consistency with the associated tables in Appendix A. Use TPH, rather than EPH throughout the document.

17. p. 5, Section 1.3.3, Previous Investigations, EBP Findings, 2nd and 3rd paragraphs.

In the last sentence of both paragraphs, please change *"The analytical results are summarized below"* to *"The analytical results are summarized in Section 1.3.5, Nature and Extent of Contamination"*.

18. p. 5, Section 1.3.3, Previous Investigations, Transformer Vaults Findings.

Please include references to Figures 4 and 5 in this subsection, consistent with the previous subsection "EBP Findings" that references Figure 3.

19. p. 5, Section 1.3.3, Previous Investigations, Transformer Vaults Findings, 1st paragraph.

In the 2nd sentence, please change, *"During the initial sampling event"* to *"During the 2012 sampling event"*.

20. p. 5, Section 1.3.3, Previous Investigations, Transformer Vaults Findings; 1st paragraph.

Please correct the typo in the 3rd sentence (*"….seven additional locations were sampled"*).

21. p. 5, Section 1.3.3, Previous Investigations, Transformer Vaults Findings.

In the 2nd and 3rd paragraphs, please remove reference to the results of sampling as they are incomplete and inconsistent with the previous EBP Findings subsection. Rather, include a sentence stating, *"The analytical results are summarized in Section 1.3.5 Nature and Extent of Contamination"*.

22. p. 6, Section 1.3.4, Physical Characteristics; 1st paragraph, 2nd sentence.

Please remove the reference to *"(Tetra Tech, 2014)"* due to redundancy with the 1st sentence.

23. p. 7, Section 1.3.5, Nature and Extent of Contamination, EBP; 4th paragraph, 7th sentence.

Please change *"…(TEL, ethylene EDB, and EDC)…"* to *"…(TEL, EDB, and EDC)…"*.

24. p. 8, Section 1.3.5, Nature and Extent of Contamination, EBP; last paragraph.

In the 2nd sentence, please define DBCP (or include this acronym earlier in the text). Also, add this to the list of acronyms on p. *iv*.

25. p. 9, Section 1.3.5, Nature and Extent of Contamination, Transformer Vaults.

In the 2nd sentences of the 1st and 2nd paragraphs, please remove *", though"*. Also, in the 1st paragraph, penultimate sentence, please change *"the closer to"* to *"near"*.

26. p. 9, Section 1.3.5, Nature and Extent of Contamination, Transformer Vaults; 1st paragraph.

In the 4th sentence, please change to *"Aroclor 1260 was detected in the 2010 surface soil sample (see 2010 Site Investigation and Remedial Action Report discussion above) and in 5 of the 11 samples collected during the DGA."*

27. p. 9, Section 1.3.6, Fate and Transport; 1st paragraph; 5th sentence.

Please change to: *"Additionally, the single PAH exceedance that was detected in MW-GZ-101R was not detected in the duplicate sample, although the reporting limits for this sample and for other samples are elevated above the standard. Certain other PAHs are reported with similarly elevated reporting limits that are above applicable criteria."*

28. p. 9, Section 1.3.6, Fate and Transport; 2nd paragraph, 1st sentence.

Please change *"are uniformly spread around"* to *"exhibit no apparent association with specific areas or historical operations at…"*.

29. p. 13, Section 1.3.9, Conceptual Site Model Summary, EBP; 1st paragraph, 4th sentence.

Please change *"be equally dispersed throughout the area"* to *"exhibit no apparent spatial trends."*

30. p. 14, Section 1.3.9, Conceptual Site Model Summary, Transformer Vaults.

In the 1st sentence, please remove *"However,"* and *"also."*

31. p. 18, Section 2.2, Development of Remedial Action Objectives.

This section discusses surface soil only. The RAOs should apply to all soil. Are there exceedances of residential or leachability criteria below 2 feet? These will need to be addressed by the RAOs. Please remove the term "surface" where applicable in this section, and revise the RAOs (2nd bullet for both the EBP and Transformer Vaults) to address all soils.

32. p. 19, Section 2.3, Development of Preliminary Remediation Goals.

This section discusses the development of PRGs for surface soil only. Are there exceedances of residential or leachability criteria below 2 feet? If so, please develop PRGs for subsurface soil including an evaluation of subsurface background levels for metals.

33. p. 19-20, Section 2.3, Development of Preliminary Remediation Goals.

It is not transparent in this section, or in Appendix B, how final human health PRGs are selected from among the various values considered. Additionally, the text states that PRGs are developed based on three separate cancer risk levels (10^{-6}, 10^{-5} and 10^{-4}) but does not explain why (when PRGs are typically based on 10^{-6} for individual contaminants - see RAGS Part B and RIDEM Remediation Regulations Section 8), or how the three risk levels are used. Please provide further clarification regarding the development and selection of the final PRGs. A flow chart describing the PRG selection process would be a helpful visual aid.

34. p. 22, Section 2.4, Estimation of Areas and Volumes.

Please recalculate the estimated areas and volumes in this section to include any exceedances of residential or leachability criteria below 2 feet, if applicable.

35. p. 26, Section 3.0, Development and Screening of Soil Alternatives.

Please remove the term "*surface*" from the 1st and 2nd paragraphs on this page and refer to just "*soil*" throughout this section.

36. p. 26, Section 3.1.2, Alternative S-2 – Limited Action.

Please discuss in this section the proposed demolition of the EBP structure and short-term LUCs, similar to the discussion in Section 3.1.3, unless this is only a component of Alternative S-3.

37. p. 26, Section 3.1.2, Alternative S-2 – Limited Action; 2nd sentence.

After *"….PRGs at the EBP"*, add *",and removal of soils exceeding the RIDEM GA Leachability Criteria for naphthalene."*

38. p. 26, Section 3.1.2, Alternative S-2 – Limited Action, Limited Excavation; 1st paragraph.

Add "*and two boring locations (TF1-EBP-SB1012 and TF1-EBP-SB1020) exceed the GA Leachability Criteria"* at the end of the 1st sentence.

39. p. 27, Section 3.1.3, Alternative S-3 – Excavation and Off-Site Disposal; 5th sentence.

Please revise to *"<u>all soil</u> in excess of both Residential and Industrial PRGs would be removed"* and add *", including removal of soils exceeding the RIDEM GA Leachability Criteria for naphthalene (around soil boring locations TF1-EBP-SB1012 and TF1-EBP-SB1020)."*

40. p. 27, Section 3.1.3, Alternative S-3 – Excavation and Off-Site Disposal; 1st paragraph.

Please indicate when the Navy proposes to demolish the EBP structure. Is this part of Alternative S-3? Will a pre-design investigation be conducted?

41. p. 28, Section 3.1.4, Alternative S-4 – Containment.

Please discuss in this section the proposed demolition of the EBP structure and short-term LUCs, similar to the discussion in Section 3.1.3, unless this is only a component of Alternative S-3.

42. p. 28, Section 3.1.4, Alternative S-4 – Containment; last paragraph, 6th sentence.

Please consider changing *"stormwater runoff controls will not need to be implemented"* to *"low permeability cap options are not necessary."*

43. p. 29, Section 3.1.5, Alternative S-5- On-Site Consolidation and Containment; 1st paragraph.

Please note that a soil cover (2 feet of clean fill) is only acceptable if the excavated soil placed under the cover is below the applicable leachability criteria. Otherwise, an impermeable cap will be necessary. Does this alternative include removal and off-site disposal of all soil exceeding the GA Leachability Criteria?

44. p. 29, Section 3.1.5, Alternative S-5 – On-Site Consolidation/Containment; 1st paragraph, last sentence.

If all excavated soil is below the applicable leachability criteria (see comment above), then please consider changing *"stormwater runoff controls will not need to be implemented"* to *"low permeability cap options are not necessary."*

45. p. 29, Section 3.1.5, Alternative S-5 – On-Site Consolidation and Containment; 2nd paragraph.

Please note that in addition to the area consisting of the soil cover, LUCs will be required wherever contaminants exceed RIDEM's residential criteria in surface and subsurface soil (down to the water table).

46. p. 29, Section 3.1.5, Alternative S-5 – On-Site Consolidation and Containment.

Please discuss in this section the proposed demolition of the EBP structure and short-term LUCs, similar to the discussion in Section 3.1.3, unless this is only a component of Alternative S-3.

47. p. 32, Section 4.2, Alternative S-2 – Limited Action.

This alternative will need to require removal of the exceedances of GA Leachability Criteria in soil at the EBP, or installation of an impermeable cap in order to be protective. Please revise this section as necessary.

48. p. 35, Section 4.3, Alternative S-3 – Excavation and Off-Site Disposal.

Please revise this section to address all soils, not just surface soil. For residential or unrestricted recreational use, all exceedances of residential and GA Leachability Criteria in subsurface soil must be addressed.

49. p. 35, Section 4.3, Alternative S-3 – Excavation and Off-Site Disposal.

RIDEM notes that the demolition of the EBP structure is only discussed for Alternative S-3 throughout the report. Is it part of the Alternative S-3 remedy only or should this also be discussed for all alternatives?

50. p. 35, Section 4.3.1, Soil Removal and Disposal; 3rd paragraph.

Please indicate if there a basis for the estimated 20 post-excavation samples (e.g., linear feet of sidewall and square feet of excavation bottom).

51. p. 44-45, Section 5.1.1 & 5.1.3.

These sections indicate that Alternative 4 is more protective, effective and permanent than Alternative 2. However, the contaminated soil would remain on site (capped) in Alternative 4 whereas it would be excavated off-site in Alternative 2. However, it is unclear whether leachability exceedances will be addressed by Alternative 2 and whether subsurface soil exceedances will be addressed by any of the alternatives.

52. p. 45, Section 5.1.5, Short-Term Effectiveness; 2nd paragraph, last sentence.

Please add *"and management (i.e., engineering controls and contingency measures)"* after *"handling."*

53. p. 46, Section 5.1.5, Short-Term Effectiveness; 1st sentence *(continued from previous page)*.

Please add *"and handling and management of impacted soils"* after *"excavation activities."*

54. p. 47, Section 5.1.6, Implementability; 5th paragraph, 1st sentence.

Please remove *"surface"*. Unrestricted use is only possible if all soil exceeding PRGs (including subsurface) is addressed.

55. p. 47, Section 5.1.6, Implementability; last paragraph.

In the 1st sentence, please change *"The remaining alternatives"* to *"Alternatives S-2 through S-4."* Additionally, in the last sentence of this same paragraph, please change, *"Finally, special technologies…"* to *"Finally, special technologies (i.e., proprietary technologies or technologies with more variables affecting ultimate effectiveness), are not proposed…"*

56. p. 49, Section 5.2, Cost Sensitivity Analysis; 1st sentence on page.

Please change, *"…the following two factors…"* to *"the following three factors…"*.

57. Table 2-1, Chemical-Specific ARARs and TBCs.

Only chemical-specific ARARs and TBCs are included in this table. Are there any location or action-specific ARARs or TBCs? There appears to be a number of ARARs missing. Please review recent feasibility studies or RODs for NSN (i.e., Tank Farms 4 and 5) to ensure that all applicable ARARs are included in this report. For example, several requirements from RIDEM's Solid Waste Regulations are applicable to Alternative 4.

58. Table 2-2, PRGs for Soil at the Ethyl Blending Plant.

Please review previous comments and incorporate PRGs for subsurface soil if necessary. Review background data for subsurface soil as it applies to metals.

59. Table 2-4, Analytical Results – Surface Soil at the Ethyl Blending Plant.

Please include another table after this table with all subsurface soil data from the EBP. Please highlight any exceedances of residential, industrial or leachability criteria or develop residential and industrial PRGs for subsurface soil and highlight PRG exceedances similar to Table 2-4.

60. Table 2-5, Analytical Results – TV2 and TV3

Please include all subsurface soil data from TV2 and TV3 in this table.

61. Table 2-6, Technology Process Option Screening for Surface Soils, page 1.

Regarding elimination of fencing, under screening, please replace *"is only to"* with *"includes"*.

62. Table 2-6, Technology Process Option Screening for Surface Soil, page 1.

For the Excavation and On-Site Disposal remedial technology, please add *"Native Soil or"* before *"Single"* under Process Options.

63. Table 3-1, Components of Surface Soil Remedial Alternatives.

Please revise this table based on previous comments. Also, for Alternative S-2, please add *"future sampling to define the extent of soil requiring excavation and LUCs"* under *"Key Components."*

64. Table 3-3, Screening of Remedial Alternative S-2: Limited Action.

Under *"Effectiveness/Advantages,"* please add *"and other Industrial PRGs."*

65. Table 3-6, Screening of Remedial Alternative S-5: On-Site Consolidation and Containment.

Please see previous comments. Land use controls will be required wherever exceedances of residential or leachability criteria exist in the soil above the water table.

66. Tables 4-1 to 4-4, Detailed Evaluations.

Please revise these tables based on previous comments.

67. Table 5-1, Cost Sensitivity Analysis Summary.

This table compares costs associated with the baseline estimate with the following upper-end projections:

- Alternative S-2: doubling of excavated soil volume (140 to 280 CY) and confirmation samples increasing from 25 to 30.
- Alternative S-3: excavated soil volume increasing from 400 CY to 450 CY and confirmation samples increasing from 20 to 40 (and increasing pre-excavation delineation samples to 20 from an unknown number).
- Alternative S-4: excavated soil volume increasing from 70 CY (60 CY for naphthalene and 10 CY for TV2) to 200 CY and confirmation samples increasing from 15 to 20 (and increasing pre-excavation delineation samples to 20 from an unknown number).

It appears that the upper-end projection for Alternative S-4 does not allow for any increase in the area of impacted soils to be capped. Please summarize the baseline volume and sampling assumptions in the notes to facilitate comparison of baseline and upper-end projections. Given that delineation has not been completed the north, east, and south in the EBP area, the upper-end projections presented may grossly underestimate the "upper end."

68. Figure 5, Transformer Vault 3 Sample Location Map.

Please add the location of TF1-EV2-N.

69. Appendix B, Table 1.

Please note the misspelling of "*Human*". Additionally, the note at the bottom of the table indicates that the risks are based on EPA Regional Screening Levels dated November 2013 (although PRGs are calculated based on more recent RSLs). Please indicate whether use of the current RSLs would change the outcome of the HHSRE.

70. Appendix B, Attachment 1.

Please remove the reference to exposure parameters (such as fish consumption) that are not relevant to the PRG development for Tank Farm 1.

71. Appendix B, Table 5.

PRGs are presented based on a cancer risk of 10^{-6}, 10^{-5} and 10^{-4}. It is unclear how these three sets of values are used in establishing PRGs. Regardless, risk-based PRGs should be based on 10^{-6} cancer risk for individual contaminants (e.g., see RAGS Part B and RIDEM Remediation Regulations Section 8). Furthermore, there are multiple instances where the final PRG is based on the RDEC, which is a value higher than the risk-based PRG (based on 10^{-6} risk; for example, dibenzo(a,h)anthracene). Please explain. (This comment also applies to Section 2.3 of the main report.)

72. Appendix B, Table 6.

Please provide a footnote explaining the derivation of residual risk estimates.