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LETTER OF TRANSMITTAL AND U S EPA REGION IV COMMENTS ON RESOURCE CONSERVATION AND RECOVERY ACT FACILITY INVESTIGATION/REMEDIAL INVESTIGATION FOR SITE 3 CAUSEWAY LANDFILL MCRD PARRIS ISLAND SC
5/18/1999
U S EPA REGION IV

19.01.03.0001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAY 1 9 1999

4WD-FFB

Brigadier General J.R. Battaglini
Commander
Marine Corps Recruiting Depot - Parris Island
P.O. Box 19001
Parris Island, SC 29906-9001

SUBJ: RCRA Facilities Investigation (RFI)/Remedial Investigation (RI) for Site/SWMU 3 - Causeway Landfill dated March 1999
Marine Corps Recruiting Depot, Parris Island, SC
EPA ID#: SC6 170 022 767

Dear General Battaglini:

The United States Environmental Protection Agency (EPA) Region 4 has finalized its review of the RFI/RI for Site/SWMU 3 - Causeway Landfill dated March 1999. The comments are both general and specific in nature. Non-risk related comments are contained in enclosure 1 and human health and ecological risk assessment comments are contained in enclosure 2. Overall, the RFI/RI report is well written and documents the activities conducted during the RI/RFI accurately.

In addition, I would like to commend the Marine Corps and the Navy for agreeing to pursue a final record of decision for one of the sites/SWMUs at Parris Island for the first quarter of fiscal year 2000. Your cooperation is greatly appreciated. Please feel free to contact me if you have any questions. I can be reached at (404) 562-8526.

Sincerely,

Kenneth R. Lapierre
Remedial Project Manager
DOD Remedial Section

cc: Jerry Stamps, SC DHEC
Art Sanford, Southern Division
Tim Harrington, MCRD
Dave Brayack, Tetratech NUS

Enclosure 1

GENERAL COMMENTS

1. Recommendation 11 (Section 8 - Conclusions and Recommendations) states that groundwater does not need to be considered in a FS/CMS [feasibility study/corrective measures study]. There are two issues associated with this statement. The first is that the RFI/RI report does not contain a discussion that supports this conclusion. The RFI/RI report should be revised to include a justification as to why the surficial aquifer should not be considered in the FS/CMS. In addition, for future reference, EPA would expect to see similar justification in the FS/CMS report.

2. Throughout the RFI/RI Report reference is made to a clay layer that was encountered at a depth of approximately 28 feet below ground surface (bgs) during the drilling of monitoring well PAI-03-SB-01. Specifically, Page 3-1 states, "This unit would act as a confining unit to the overlying formations by restricting the downward migration of any possible contaminants." However, the areal extent of the clay has not been determined. Therefore, any assumption that it would act as a confining unit is questionable. The RFI/RI Report should omit any reference to the clay layer serving as a confining unit unless the lateral continuity of the clay layer can be verified.

3. The RFI/RI Report does not provide sufficient data concerning the characterization and construction of the landfill. The RFI/RI Report should include a conceptual site model and two cross-sections of the landfill (one bisecting the landfill length and the other bisecting the landfill width). At a minimum, the cross-sections should characterize the landfill with respect to the Santee Limestone, any known confining units, and the placement and depth of monitoring wells (including screened intervals).

4. Section 4 (Nature and Extent of Contamination) of the RFI/RI Report does not provide the necessary information regarding the COPC identification process or the relevant screening criteria used in determining contamination. Although this information is presented subsequently in Section 6 of the RFI/RI Report, references to Section 6 should be provided in Section 4 as necessary.

Specific Comments

1. **Page 3-2, Table 3-1** The entry listed for monitoring well PAI-03-MW-03(S) states that groundwater samples from this well were "Collected to provide analytical data from the deep surficial aquifer." However, this well is a shallow groundwater monitoring well. Therefore, the entry should read that samples were collected to provide analytical data from the shallow surficial aquifer.

2. **Page 3-26, First Full Paragraph**. The text states, "The groundwater samples from wells installed in the shallow surficial aquifer exhibited lower salinity readings than the well

installed in the deeper portion of the surficial aquifer." However, according to Table 3-9, the groundwater sample from one of the shallow monitoring wells (PAI-03-MW-04) exhibited a comparable salinity reading to that of the sample from the monitoring well installed in the deeper portion of the aquifer. The RFI/RI Report should address this discrepancy.

3. **Page 3-35, Fourth Paragraph**. The text states, "The geometric average hydraulic conductivity . . . is provided in Table 3-9." However, Table 3-9 is a Summary of Groundwater Quality Parameters Collected During Purging and does not include the hydraulic conductivity as stated. The RFI/RI Report should correct the text.

4. **Page 4-1, Third Paragraph**. The text states, "Sample locations are shown in Figures 3-2 and 3-3." However, this statement should also include Figure 3-1 which depicts the locations of monitoring wells that were sampled for groundwater.

5. **Page 4-3, Fifth Paragraph**. The text refers to soil sample location PAI-03-SS-001. However, this nomenclature is derived from the laboratory sample identification number. According to text, tables, and figures previously presented in the RFI/RI Report, the correct nomenclature for the soil sample location is PAI-03-SS-01. The RFI/RI Report should correct this discrepancy and apply this comment throughout the remainder of the document.

Enclosure 2

GENERAL COMMENTS

1. Hazard quotients (HQs) were calculated in the food chain model using maximum detected values and mean values from the sampling locations at SWMU 3. Mean values, however, are not reported in the text until Table 7-17 which is after the food chain modeling HQs are calculated. Presenting the data after they are used in previous tables can be somewhat confusing to the reader and disrupts the flow of the document. Mean values should be reported before the food chain modeling section where they are used to calculate NOAEL and LOAEL HQ values.

2. Food chain modeling calculations are presented in Appendix F-3. However, calculations are presented for only four of the receptors used in the food chain model. It is unclear as to why calculations for all of the receptors are not presented in Appendix F-3. These calculations are necessary to review the results of the food chain model and presenting them would help to determine the source of any discrepancies found in the modeling results. Calculations for all of the receptors included in the food chain model should be presented in Appendix F-3.

3. The "Occurrence, Distribution, and Selection of COPCs" tables (Tables 6-2 through 6-7) do not include a note at the bottom of the table to indicate that shaded contaminants on the table have been selected as COPCs at the site. A note should be included on each of the tables for clarity.

4. Throughout the document, it appears that the chromium concentrations detected in site media are evaluated using the RBCs for trivalent chromium. As a conservative measure, the RBCs for hexavalent chromium should be used.

SPECIFIC COMMENTS

1. **Section 3.2.5, Page 3-21**. Section 3.2.5 discusses the sediment sampling that was performed at SWMU-3. It is stated that a total of 22 sediment samples (PAI-03-SD-09-01 through PAI-03-SD-28-01, PAI-03-SD-12-02, and one duplicate sample) were collected during the field investigation. However, it is stated in the Section 3.2.4 that only 21 surface water samples were taken at the site. Typically, sediment and surface water samples are co-located and sediment samples are taken along with surface water samples. It is unclear why an extra sediment sample (PAI-03-SD-12-02) was taken at this site without a corresponding surface water sample. The reason for this extra sediment sample should be discussed in Section 3.2.5.

2. **Section 4.0, Page 4-1**. The fourth sentence of the fourth paragraph on page 4-1 states that samples were collected at remote and relatively pristine areas on Pickney and Parris

Island and that these samples were used as background samples. However, this is all the information provided regarding background sampling locations. A better description of the background locations and a map showing the precise sampling locations should be provided in this section..

3. **Table 6-6, Page 6-19**. The table presents a comparison of the 1991 fish data with USFDA Action Levels and EPA Region III RBCs. The table does not include any units. The units should be included on this table.

4. **Table 6-7, Page 6-21**. The table presents a comparison of calculated fish tissue concentrations from 1998 with USFDA Action Levels and EPA Region III RBCs. The units for the data are not include on the table. The units should be presented on the table.

5. **Table 6-7, Page 6-21**. The EPA Region III RBC that is used in the evaluation of mercury is for mercuric chloride. However, this information is not presented in the table's endnotes. This information should be added to the table.

6. **Figure 6-2, Page 6-27**. The figure presents a human health conceptual site model for the site. Table 6-9 provides a summary of the potential exposure pathways at Site 3. The table indicates that the adult recreational user will be qualitatively evaluated. However, Figure 6-2 does not indicate that this is a complete exposure pathway. The figure should be corrected.

7. **Section 6.2.4, Page 6-31**. The section provides a description of the potential receptors at Site 3. Information should be provided in the text that distinguishes the full-time maintenance worker from the military personnel receptor that is indicated on the conceptual site model for the site.

8. **Section 7.2.3, Page 7-5**. It is stated in this section that inhalation does not represent a significant exposure pathway because air contaminant concentrations are assumed to be quite low. Although it is agreed that this is most likely true, this statement needs to be substantiated. It should be briefly stated why air contaminant concentrations are assumed to be low.

9. **Figure 7-1, Page 7-7**. Figure 7-1 is the conceptual site model for ecological receptors at SWMU-3. It is stated in Section 7.2.5 that the protection of aquatic vegetation from the adverse effects of site-related contaminants on growth, survival, and reproduction is one of the assessment endpoints. However, aquatic vegetation is not one of the receptors listed in the conceptual site model. Figure 7-1 should be changed to include aquatic vegetation as a potential receptor.

10. **Section 7.3.1, Page 7-9**. It is stated in the first sentence of the third paragraph of this section that surface soil ESVs are not available from U.S. EPA Region IV. However, in a December 22, 1998 memo from Ted W. Simon, a toxicologist for the USEPA Region IV

Office of Technical Services, new surface soil guidelines for Region IV are introduced. The surface soil screening values used in this ecological risk assessment are the same values presented in the memo. Nevertheless, the statement that surface soil ESVs are not available from U.S. EPA Region IV is inaccurate and should be changed.

11. **Section 7.3.2, Page 7-10**. Section 7.3.2 discusses the toxicity reference value (TRV) selection process presented in Tables 7-1 and 7-2. The reference "U.S. EPA Environmental Response Team (ERT) reports" is cited several times in the TRV tables. However, a full citation is not provided for this reference in the reference section. Full citations should be provided for all materials cited in the text and tables of this report.

12. **Table 7-1, Page 7-12**. The NOAEL and LOAEL derived TRVs for 4,4'-DDE is stated as being 0.8 mg/kg/day and 4 mg/kg/day, respectively. These are also the TRV values presented for 4,4'-DDT. However, when referring to Sample *et al* (1996), NOAEL and LOAEL values for 4,4'-DDE are not presented. It is therefore assumed that 4,4'-DDT was used as a surrogate for 4,4'-DDE in this table. All surrogates should be noted in the footnotes of the table.

13. **Table 7-2, Page 7-15**. The NOAEL and LOAEL derived TRVs for Aroclor-1260 are the same as the TRV values for Aroclor-1254. Since data for Aroclor-1254 is in Sample *et al* (1996) and Aroclor-1260 data is not, it is assumed that Aroclor-1254 was used as a surrogate for Aroclor-1260 in this table. All surrogates should be noted in the footnotes of the table.

    It also seems that alpha-chlordane is used as a surrogate for gamma chlordane since the TRV values are also the same. Again, all surrogates should be noted in the footnotes of the table.

14. **Table 7-3, Page 7-18**. Table 7-3 presents the exposure parameters for the ecological receptors used in the food chain modeling. Values of 4.3 g/day and 214 g/day are presented as food ingestion rates for the cotton mouse and the racoon, respectively. During the review of Table 7-3 it was determined that these values were derived using the rodent and mammal food ingestion equations presented in the Exposure Factors Handbook (EPA, 1993). Footnotes should be provided for these two values stating that food ingestion equations were used to derive these values.

    A value of 2.4 acres is presented as the home range for the short-tailed shrew based on data from the Exposure Factors Handbook (EPA, 1993). According to the Handbook, the mean home range of the short-tailed shrew is 0.39 hectares which can be converted to 0.96 acres. This discrepancy should be addressed.

    As Table 7-3 is currently presented, all of the exposure factors for the mummichog and red drum were taken from the Exposure Factors Handbook (EPA, 1993) except for the mummichog body weight value. Exposure parameters for fish are not included in the

Exposure Factors Handbook (EPA, 1993). Any exposure factors that were not taken from the Handbook should have the appropriate footnote that cites where that specific value was obtained.

15. **Appendix F-1, Table F-1, Page F-1**. Table F-1 presents bioaccumulation factors, bioconcentration factors, and biota sediment accumulation factors for use in the food chain modeling calculations. Average values from Beyer (1990) are presented for the terrestrial invertebrate BAFs for many of the SVOCs. It is unclear why average values are used when individual BAFs are available in Beyer (1990). Average values should be used only when individual values are unavailable. Table F-1 should be corrected as appropriate.

16. **Appendix F-6, Page F-34**. Appendix F-6 presents the aquatic food chain model using mean concentrations and area use factors. It is stated in the second paragraph on page F-34 that area use factors were calculated by dividing the assumed home range by the size of the potentially impacted foraging area. This sentence is backwards. The area use factor is calculated by dividing the impacted foraging area by the assumed home range. The calculations in this section are correct, it is only this sentence that is incorrect. This sentence should be changed to state the correct method of calculating area use factors.