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LETTER REGARDING FINAL REMEDIAL INVESTIGATION REPORT FOR SITE 18 NAS
WHITING FIELD FL
1/20/1999
HARDING LAWSON ASSOCIATES

Harding Lawson Associates

2534-2007

January 20, 1999

Mr. Craig Benedikt, Remedial Project Manager
Federal Facilities Branch
USEPA Region IV
61 Forsyth Street
Atlanta, Georgia 30303

**Subject: Final Remedial Investigation Report
Site 18, Crash Crew Training Area
Naval Air Station Whiting Field, Milton, Florida
Contract No. N62467-89D-0317/116**

Dear Craig:

On behalf of Southern Division Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Harding Lawson Associates ES, Inc. is pleased to submit the subject document for your review and files. Copies of the report have also been forwarded to the Naval Air Station Whiting Field Partnering team.

If you have any questions please call me at (850) 656-1293.

Sincerely,

HARDING LAWSON ASSOCIATES

Rao Angara
Task Order Manager

enclosure

cc: Ms. L. Martin, SDIV (2 copies)
Ms. A. Twitty, CH2M Hill (1 copy)
Mr. J. Cason, FDEP (2 copies)
Mr. T. Conrad, BEI (1 copy)
Mr. T. Hansen, TtNUS (1 copy)
Mr. P. Ottinger, TtNUS (1 copy)
Mr. J. Holland, NASWF (2 copies)
File

**EPA Review Comments Report for
Remedial Investigation Report for Site 18
Crash Crew Training Area
February 1998**

1. **Page 3-1, Second Paragraph.** The text states that the Data Management and Health and Safety Plans are located in Volume III of the RI/FS (E.C. Jordan, 1990). This reference is actually titled Remedial Investigation and Feasibility Study Planning Document Naval Air Station, Whiting Field, Milton, Florida. The text should be corrected to indicate that the reference mentioned is the Planning Document.
2. **Page 3-3, First Paragraph.** The text briefly mentions the establishment of background screening criteria but does not reference an approved plan for the collection of background soil samples. The approved method of collecting background samples should be referenced and the background screening criteria should be added to the tables of analytical results for comparisons in the RI Report.
3. **Page 3-3, Second Paragraph.** The text states that "...29 subsurface soil samples were collected...." According to Page 3-1 and Tables 5-10 and 5-11, the number of subsurface soil samples collected was 24. This discrepancy should be corrected.
4. **Page 5-36, Second Paragraph.** The subsection is incorrectly titled TCL VOCs. The correct title should be TCL SVOCs. This correction should be made.
5. **Page 8-6, Fourth Paragraph.** The text lists the reduced forms of chromium ions as Cr^{3+} , CrOH^{2+} , CrOH^{2+} , $\text{Cr}(\text{OH})_2^+$ and CrOH^{4-} . CrOH^{2+} has been listed twice and the ion, CrOH^{4-} is probably intended to have been listed as, $\text{Cr}(\text{OH})_4^-$. The correction should be made.
6. **Page 8-9, Second Paragraph.** The text states that "Clear Creek is located approximately 5,000 feet southwest of Site 18". However, on Page 9-1 (Fourth Bullet), the text states that Clear Creek is located approximately 2,500 feet southwest of the site. According to Figure 1-2, the scale indicates Clear Creek to be approximately 3,500 feet southwest of Site 18. These discrepancies in the distance of Clear Creek relative to Site 18 should be corrected.
7. **Page 9-1, First Paragraph, Second Bullet.** The text states that "PCBs were not detected in the surface soil samples...." This statement should be corrected to read "PCBs were not detected in the subsurface soil samples..."

8. **Page 9-1, First Paragraph, Second Bullet.** The text discusses organic analytes that were detected in subsurface soil samples. The text lists those organic analytes that did not exceed Florida and/or EPA Region III residential and/or industrial screening criteria. However the text fails to mention that total recoverable petroleum hydrocarbon (TRPH) was detected at concentrations that exceed Florida screening criteria. This information should be included.

The following comments were generated from the review of the risk assessment portion of the RI Report:

GENERAL COMMENTS

9. The groundwater sampling conducted at the site consisted of a Phase IIA investigation in October 1993 and a Phase IIB investigation in July 1996. During Phase IIB, groundwater samples were collected using the low flow sampling process, which results in less turbid groundwater samples when compared with the samples obtained using conventional methods during Phase IIA sampling. Because the less turbid samples were stated to be more representative of the surficial aquifer, the preferred data set was from the Phase IIB sampling event. It was noted that chemicals detected in the groundwater samples collected during the Phase IIA sampling event that were not detected in the groundwater samples collected in Phase IIB were included in the final data set. However, it appears that the presence of dichlorodiphenyltrichloroethene (DDT), detected in two samples during the Phase IIA investigation, was not included in the evaluation of the groundwater at the site. Neither Table 6-3 or Table D-3, which present the screening of constituents against risk-based concentrations (RBCs) to determine the human health chemicals of potential concern (HHCCP), indicate that DDT was evaluated. The document should be corrected to include the evaluation of DDT in groundwater.

SPECIFIC COMMENTS

10. **Table 5-1, Page 5-5.** This table presents a summary of the water-level elevations at Site 18. The groundwater elevation measured during the November 1996 investigation for monitoring well WHF-17-3 is listed in the table as 93.53 feet above mean sea level (ft msl). This is inconsistent with Figure 5-1 which presents the investigation results on a groundwater contour map of the water table. The figure indicates that the groundwater elevation at monitoring well WHF-17-3 is 90.94 ft msl. The inconsistency between the table and figure should be corrected. In addition, pages 5-5 and 5-6 provide identical information. The duplicate copy of this information should be removed from the document to avoid unnecessary confusion.

11. **Table 5-8, Page 5-32.** The table presents a summary of the analytical results of organic constituents in the surface soil. The table lists the residential risk-based concentrations (RBCs) for benzo(a)anthracene and benzo(a)pyrene as 0.0088 ug/kg and 0.00088 ug/kg, respectively. These values are incorrect. The appropriate RBC value for benzo(a)anthracene is 880 ug/kg and the RBC for benzo(a)pyrene is 88 ug/kg for residential soil. The table should be corrected accordingly.
12. **Table 6-2, Page 6-8.** The table presents the selection of HHCP for subsurface soil associated with Site 18. However, the table does not screen all constituents detected in the subsurface soil against residential RBCs or Florida Soil Cleanup Goals. According to Table 5-12, which presents a summary of the organic constituents in the subsurface soil, the pesticides 4,4-DDD, 4,4-DDE, and 4,4-DDT were detected in one of the subsurface soil samples. Therefore, 4,4-DDD, 4,4-DDE, and 4,4-DDT should be screened against residential RBCs and should appear on Table 6-2.
13. **Section 6.4, Page 6-18.** The text states that Appendix D contains brief toxicity summaries for HHCPs identified in the surface and subsurface soil at Site 18. However, toxicity information for the HHCP is not provided in the document. The document should include a brief toxicological profile for each of the constituents determined to be HHCP at the site.
14. **Figure 7-3.** This figure presents the ecological contaminant of potential concern selection process. The flow chart would more accurately display the selection process if the first decision diamond indicated "detected in less than or equal to 5% of the samples" instead of "detected in less than 5% of the samples".
15. **Table 7-3.** This table provides the equations used to calculate the potential dietary exposures for wildlife receptors. The variable entitled "secondary prey item concentration" needs to be better defined. Sufficient information should be provided to allow the reader to calculate potential dietary exposures (PDEs) without needing to review the General Information Report prepared by ABB-ES in 1997. Please provide equations to represent how contaminant concentrations in the tissue of mammalian and avian food items are calculated in this ERA.

Also, the variable " T_N " is given three different definitions in Table 7-3. They are as follows, 1) the tissue concentration in food item N, 2) the secondary prey item concentration, and 3) the primary prey item concentration. Clarification in Table 7-3 is needed.

16. **Section 7.4.2, Page 7-17, Second Bullet.** The home range of the short-tailed shrew is not provided on this page although the home ranges for the other ecological receptors are provided. The home range of the short-tailed shrew should be provided in the second bullet.

17. **Section 7.4.2, Page 7-19.** The discussion of avian bioaccumulation factors (BAFs) should mention that BAFs were unavailable for all of the contaminants of concern, except cadmium. The discussion should include how the avian prey concentration was calculated for use in calculating the red fox and red-tailed hawk potential dietary exposures.
18. **Section 7.8, Page 7-31, Paragraph 1, Sentence 5.** There appears to be a typographical error in this sentence: "RME" should be "RTV". The sentence is as follows. "However, because the concentrations only slightly exceed the RME, it is unlikely that plant or soil invertebrate biomass or plant cover availability would be reduced over the entire area of Site 18 such that small mammal and bird populations would be affected."

Also, this conclusions does not directly correlate with the decision points presented in Table 7-1. The terrestrial plant decision point is: if the RME in surface soil is greater than the terrestrial plant RTV, then there is a concentration in surface soil that results in adverse effects on growth, reproduction, or survival to terrestrial plants. The correlating conclusion should be as follows. Some RME concentrations in surface soil slightly exceed the phytotoxic RTVs indicating the possibility for adverse effects on growth, reproduction, or survival to terrestrial plants; however, the central tendency concentrations are less than the phytotoxic RTVs suggesting that any adverse effects to terrestrial plants would be at a localized scale.

The decision point related to the assessment of small mammal and bird populations is a "comparison of potential dietary exposures in mammalian and avian wildlife with literature derived RTVs. HQs > 1 indicate potential risk." The decision points presented in Table 7-1 along with the measurement endpoints do not link adverse effects to mammal or bird populations to a reduction in plant or soil invertebrate biomass as the fifth sentence on page 7-31 does. The conclusions should be revised to better correlate with the measurement endpoints and decision points.

19. **Section 8.2.3, Page 8-9.** This section presents information regarding the fate and transport of chemicals in groundwater. The text states that Clear Creek, which is the final point of discharge for groundwater from the surficial aquifer, is located approximately 5,000 feet southwest of Site 18. However, the conclusions presented in Section 9.1 indicate that Clear Creek is located approximately 2,500 feet southwest of the site. The inconsistency within the text should be corrected.
20. **Table D-3, Page D-5.** Footnote 6 states that the RBC value for chromium is based on chromium IV isomer as a conservative screen. However, the value listed in the table indicates that the RBC value for chromium VI was used for screening chromium concentrations detected in groundwater. Therefore, the footnote should be corrected to indicate that the RBC value used to evaluate chromium in the groundwater was based on the chromium VI isomer.

21. **Table E-1.** This table summarizes bioaccumulation factors (BAFs). The reference for the invertebrate BAFs provided in Table E-1 is Beyer 1990. However, data regarding the bioaccumulation of bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, and naphthalene in earthworms are not provided in Beyer 1990. The footnote reference should be revised as appropriate.

The reviewer could not confirm the plant BAFs for semivolatiles using the cited Travis and Arms equation and the dry weight to wet weight conversion. Please re-confirm the calculated plant BAFs.

The reviewer could not confirm the mammal BAFs for semivolatiles using the cited Travis and Arms equation for biotransfer factors with conversion to BAFs. The average ingestion rate used for this calculation in the ERA was not provided. It does not appear as if the average of the ingestion rates for the cotton mouse and short-tailed shrew was used. Please provide more information on the calculation of the mammal BAFs and re-confirm the calculated mammal BAFs.

22. **Table E-2.** Table E-2 presents ingestion toxicity information. The LOAEL column heading should not be under the lethal RTV heading. The LOAEL should be presented with sublethal RTVs. The column headings need to be verified to ensure that they reflect the data in the column and be revised as necessary.
23. **Table E-3.** Table E-3 presents the reference toxicity values (RTVs) selected for the ERA. Table E-2 presents ingestion toxicity data for wildlife. Pyrene has a NOAEL of 75 mg/kg/BW/day, and phenanthrene has a LOAEL of 120 mg/kg/BW/day presented on Table E-2; therefore, it is not clear why Table E-3 presents a surrogate RTV of 10 mg/kg/BW/day for both pyrene and phenanthrene. Table E-3 has a footnote that indicates a value for benzo(a)pyrene was used as a surrogate for pyrene and phenanthrene; however, benzo(a)pyrene toxicity data are not presented in Table E-2. The pyrene NOAEL and the phenanthrene LOAEL should be used in this assessment instead of using a surrogate.
24. **Tables E-3 and E-9.** The RTV for bis(2-ethylhexyl)phthalate is erroneously typed as 35 mg/kg/BW/day on Table E-3. This error has been carried forth into the hazard quotient calculation presented on Table E-9 for the red fox. The RTV should be 3.5 mg/kg/BW/day. The HQ is still less than one when 3.5 mg/kg/BW/day is used as the RTV. Both tables should be corrected.
25. **Table E-6.** This table provides exposure parameters and assumptions for terrestrial receptors. The note at the bottom of Table E-6 referencing the Cecil Field Naval Air Station appears out of place and should be deleted.

26. **Tables E-7 through E-9.** The reviewer could not confirm the red fox and red-tailed hawk potential dietary exposures (PDEs). The assumptions used to calculate the PDEs without bird BAFs are not provided in the ERA. An explanation within the ERA is necessary since 10% of the red fox's diet is birds and 27 % of the red-tailed hawk's diet is birds. Please clarify.
27. **Table E-9.** The red fox HQ from zinc appears to be in error. When the presented PDE is divided by the presented RTV, the HQ is 4.5×10^{-3} . An HQ of 4.5×10^{-2} is presented in Table E-9. Please correct.