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LETTER AND U S NAVY RESPONSE TO REGULATOR COMMENTS TO DRAFT REMEDIAL INVESTIGATION REPORT OPERABLE UNIT 7 (OU7) SITE 16 NAS CECIL FIELD FL
6/22/1995
ABB ENVIRONMENTAL

4.7.2-017

ABB

June 22, 1995

Mr. Bart Reedy
Remedial Project Manager
Federal Facilities Section
Waste Management Division
USEPA Region IV
245 Courtland Street, N.E.
Atlanta, Georgia 30365

Subject: Responses to Comments on Draft Remedial Investigation Report, Operable Unit (OU) 7, Site 16, Naval Air Station Cecil Field, Florida

Dear Mr. Reedy,

On behalf of Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), ABB Environmental Services, Inc. is pleased to forward five copies of Responses to Comments on the Draft Remedial Investigation Report for OU 7, Site 16, NAS Cecil Field, Florida.

We would appreciate your expeditious review of these Responses to Comments in order to incorporate them into the Final OU 7 Remedial Investigation Report due to be published in July 1995.

Sincerely,

ABB ENVIRONMENTAL SERVICES, INC.

Rao Angara
NAS Cecil Field
Installation Manager

cf: Mr. Eric Nuzie, Florida Department of Environmental Protection (4 copies)
Mr. John Dingwall, NAS Cecil Field (2 copies)
Mr. Alan Shoultz, SOUTHNAVFACENGCOM (2 copies)
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PROJECT REVIEW COMMENTS

NAS Cecil Field Operable Unit 7
Jacksonville, Florida
Remedial Investigation

Department of Navy - J. Lloyd Crews

1. **The subject RI has been reviewed and the one comment follows:**

   (a) **Page 1-8, 2nd complete paragraph -- "site" is not used consistently with its definition in this paragraph.**

   The referenced paragraph will be revised to provide the consistent use of the word "site" in the paragraph.

Florida Department of Environmental Protection - Mike Deliz

2. **Page 1-6, Sections 1.2.1.1 and 1.2.1.2, the use of Florida following Jacksonville and the Villages of Argyle is redundant.**

   The text will be revised as noted.

3. **Page 2-6, Section 2.4.1, flame ionization detector should be spelled out before the use of FID.**

   The text will be revised as noted.

4. **Page 3-2, Figure 3-1, the legend for this figure should include the topographic contour interval.**

   The figure will be revised as noted.

5. **Page 3-13, Section 3.5.2, add "coated" to the description of oolites (...small round coated grains...).**

   The text will be revised as noted.

6. **Page 3-31, last paragraph, change "Under the BRAC program..." to "Under the proposed Base Reuse Plan...".**

   The text will be revised as noted.

7. **Page 4-5, Table 4-1, this table would be enhanced if the FDEP Soil Cleanup Goals for Military Sites level for the appropriate analytes were included.**

   The table will be revised as noted.

8. **Page 4-7, Section 4.2.1.1, why is "reportedly" used when referring to the soil stockpile? Was not ABB-ES conducting field oversight as part of their certification and reporting of RCRA closure for Non-Destructive Inspection Holding Tank?**

   The text will be revised to delete the word "reportedly".

9. **Page 4-9, Table 4-2, this table would be enhanced if the FDEP Soil Cleanup Goals for Military Sites were included for the appropriate analytes.**

   The table will be revised as noted.

10. **Page 4-16, Table 4-3, this table would be enhanced if the FDEP Soil Cleanup Goals for Military Sites were included for the appropriate analytes.**

    The table will be revised as noted.

11. **Page 4-20, Table 4-4, this table would be enhanced if the FDEP Soil Cleanup Goals for Military Sites were included for the appropriate analytes.**

    The table will be revised as noted.

12. **Page 4-26, Table 4-5, this table would be enhanced if the FDEP G-II Groundwater Guidance Concentration were included for the appropriate analytes.**

    The table will be revised as noted.

13. **Page 4-27, Figure 4-5, the size of this figure should be expanded to 8.5 X 17 inch paper. It is difficult to see from which Aquaprobe™ screening location and/or monitoring well the detections where noted. Isoconcentrations of contaminants should also be presented.**

    The referenced figure will be enlarged to 11 x 17 inch paper.

14. **Pages 4-28 and 4-29, Figures 4-6 and 4-7, the size of these figures should be expanded to 8.5 X 11 inch paper.**

    See response to Comment 12.

15. **Pages 4-37, Table 4-6, this table would be enhanced if the FDEP G-II Groundwater Guidance Concentration were included for the appropriate analytes.**

    The table will be revised as noted.

16. **Pages 4-39 through 4-42, Figures 4-10 through 4-13, the size of these figures should be expanded to 8.5 X 17 inch paper.**

    See response to Comment 12.

17. **Pages 4-54, 4-58, and 4-59, Tables 4-7, 4-8, 4-9, and 4-10, these tables would be enhanced if the appropriate screening level were included for surface water and sediment.**

    The table will be revised as noted.

18. **Page 6-2, Section 6.3.1, the Florida Soil Cleanup Goals for Military Sites should also be used in determining chemicals of potential concern.**

    The Florida Soil Cleanup Goals for Military Sites were used in determining chemicals of potential concern, as noted on pages 6-6 (by the reference FDEP, 1994b) and 6-7 (by the reference to Florida guidance concentrations at military sites).

19. **Pages 6-7, Section 6.3.5, to avoid being overly conservative we should not be concerned with TRPH contamination in soil if it has not impacted groundwater. As we are all aware, the 50mg/kg criteria is a post-thermal treatment number for petroleum contaminated soil.**

    The paragraph will be revised to indicate that TRPH was detected in the soil but was not detected in the groundwater above the Florida Petroleum Cleanup Criterion of 5 mg/l, therefore TRPH is not considered a concern.

20. **Appendix A, it will be acceptable to FDEP to present the analytical data from the previous investigations in electronic format when this document is submitted as Final.**

Since Appendix A has already been created, it will be submitted in the Final document, as is. For future documents, it is planned to present this appendix as an electronic file on a 3.5 inch disk.

21. **Appendix D, it will be acceptable to FDEP to present the PACE analytical data in electronic format when this document is submitted as Final.**

Since Appendix D has already been created, it will be submitted in the Final document, as is. For future documents, it is planned to present this appendix as an electronic file on a 3.5 inch disk.

22. **Appendix J, could this Appendix be deleted or submitted as part of some stand alone document for OUs 1, 2, and 7?**

The Navy proposes that in future documents Appendix J (Background Sampling Program) will contain only the results of site-specific background sampling in tabular form. Reference will be made to Appendix H (Background Sampling Program) of the OU1 RI Report as appropriate when additional background information is needed.

23. **Appendix M, it will be acceptable to present the complete validated data set in electronic format when this document is submitted as Final.**

Since Appendix M has already been created, it will be submitted, as is, in the Final. For future documents, it is planned that this appendix will present the complete validated chemical analysis results will be provided in an electronic file on a 3.5 inch disk.

24. **Appendix N, as has been discussed can this Appendix be deleted?**

Since Appendix N, the PARCC Summary Report, has already been created, it will be submitted in the final document, as is. For future documents this appendix will be deleted and the text will indicate that the report is on file at the information repository for review.

U.S. Environmental Protection Agency - Bart Reedy

25. **Section 3.6.2.2, page 3-27 presents the ground water seepage velocity for the surficial and intermediate aquifers, based on aquifer tests conducted by the USGS at the base. While aquifer test data is generally more reliable for predicting ground water velocity than slug test data, it is probably less valid than slug test data if it is not site-specific data. The RI Report does not present the location of the USGS aquifer tests. Therefore, its applicability to the immediate vicinity of OU7 is unknown. Unless the aquifer test results specifically overlap the area of the OU7 ground water investigation, the slug test results should be considered the best data for calculating the ground water velocity specific to OU7. If the aquifer test data are applicable to the OU7 location, the location and details of the aquifer tests (pumped and monitored wells, discharge rate, duration, and so forth) should be provided in the RI Report, to support the conclusion that the USGS data apply to OU7. Regardless of the applicability of the USGS data to the OU7 location, a range of potential ground water velocities for the various monitoring zones should be presented in the RI Report . This range would incorporate all the relevant hydraulic conductivity data, including the slug test results.**

The aquifer test location at NAS Cecil Field (approximately 1.3 miles northwest of OU 7) does not overlap the area of the OU 7 groundwater investigation. The results of the aquifer test were used instead of the slug test results because, as indicated in the comment, the aquifer test results provide a much more reliable estimation of the aquifer characteristics than the slug test results. The characteristics derived from the aquifer tests were used by the USGS in a numerical model to predict basewide groundwater levels. Correlation between the predicted and actual groundwater levels (including the wells at OU 7) is good, which indicates that those aquifer characteristics are valid for the base (and OU 7).

Further, the lithologies in the upper zone of the surficial aquifer and the intermediate aquifer at both locations were also quite comparable. However, this section will be revised as recommended to include a range of potential groundwater velocities, based on both the aquifer test and slug test results. Due to the similarities in lithology and the greater reliability, the characteristics derived from the aquifer test results will be retained in all contaminant fate and transport calculations.

26. **The last sentence of Section 3.6.4 indicates the ground water velocity in the intermediated aquifer is approximately 526 feet per year. This value is inconsistent with the ground water velocity presented in Table 3-5, and would exceed the ground water velocity that would be calculated using any of the hydraulic conductivity data from the investigation at OU7.**

The text will be revised to correct the value of 526 feet per year to 131 feet per year, as shown on Table 3-5.

27. **Table 4-6 indicates that the range of detected concentrations of aluminum in the surficial aquifer is up to 7,970 ug/L. No aluminum concentration of this magnitude is shown on Figure 10, Figure 11, or Figure 12, or indicated in Appendix M. However, Appendix M does indicate a higher aluminum concentration in the well CEF-16-10S sample that reported on Figure 4-10. Several inorganic concentrations shown for the CEF-16-10S sample on Figure 4-10 do not correlate with the concentrations reported in Appendix M.**

The values presented for monitoring well CEF-16-10S are the average of results from the sample and its duplicate. The result for aluminum is incorrectly presented on Figure 4-10 as 70 mg/kg and will be corrected to 7,970 mg/kg.

28. **Section 5.1.3 states that the primary mechanism for migration of contaminants once they reach surface water are dissolution and suspension. Since the primary ground water contaminant of concern at OU7 is the volatile organize compound trichloroethene, loss of this primary ground water contaminant from surface water via volatization will be a major transport pathway, after ground water contamination reaches the surface water:**

Section 5.1.3 will be revised to include volatilization.

29. **The fate and transport section of the report should discuss the probable migration of some of the contaminated ground water from OU7 through leakage into the main storm sewer trending east-west, approximately 500 feet south of Site 16. This transport mechanism is implied in the discussion on page 4-56, and is stated on page 7-3 of the RI Report, but is not discussed in Section 5 of the report. Transport of trichloroethene, or other contaminants, via ground water leakage into the storm sewer would result in more rapid "ground water" migration of the plume than the fate and transport discussion implies.**

The text will be revised to point out that if any contaminated groundwater entered the storm sewer, it would reach the drainage ditch much sooner than the travel time along the projected plume pathway. The surface water and sediments in the drainage ditch which receives the discharge from this storm sewer have been sampled and analyzed (TCE is present in the surface water) and the results of the analyses were addressed in the BRA.

30. **According to calculations presented in Appendix K, the projected leaching of trichloroethene from the vadose and phreatic zone soils uses the median soil organic carbon contents calculated for the entire Cecil Field Site. These median values will differ from the median soil organic carbon for soils within the immediate site 16 area (OU7 area). The soil organic carbon content used in the Appendix K calculations should be based on either exclusively site 16 data, or, if that data set is considered to be too small, the median soil organic carbon contents used in the Appendix K calculations should be calculated by weighing values for their proximity to site 16.**

The basewide TOC median was used in the leaching calculations for OU 7 because of the limited data set (three TOC samples) at OU 7. The results used in the basewide median are approximately the same distance from OU 7 (Sites 3, 5, and 17). For vadose soils, results from less than 20 feet bls were used, and for phreatic soils, results from less than 50 feet bls were used. Only one result from OU 7 was from less than 20 feet bls (5,200 mg/kg) but it is very similar to the basewide median of 5,000 mg/kg, so the time calculated for TCE leaching from the vadose soils (currently estimated at 30 years) should not be significantly affected. However, the median of the values less than 50 feet bls at OU 7 (790 mg/kg) is less than the basewide median for this interval of 1,200 mg/kg. Use of the site-specific TOC data in place of the basewide median would decrease the time estimated for the TCE to be flushed from the phreatic soils beneath the seepage pit area by the natural flow of groundwater (currently estimated at 20 years). If more accurate concentration and time estimates are required for selection of remedial alternatives, additional TOC samples could be collected at OU 7.

31. **In Section 5.2.3.3, the text should note the near-absence of trichloroethene in the lower zone of the surficial aquifer. The cause for this absence of vertical plume spreading through the aquifer should be reiterated in the fate and transport discussion. The potential for future vertical migration of trichloroethene into the lower part of the surficial aquifer, at various distances from the source area, should also be discussed.**

The fate and transport discussion will be revised to reiterate the interpreted groundwater flow pattern as the reason for the lack of downward migration of the TCE plume. The discussion will also address the potential for future downward migration of TCE at various distances from the source area, based on continuance of the flow pattern.

32. **The discussion of plume dilution in the drainage ditch (page 5-12) includes calculations which may be very uncertain. Specifically, the text states that the estimated flow rate in drainage ditch, based on visual observations, is approximately 5 to 10 gallons per minute. It is unclear from this discussion if this observed, estimated range includes very low flow conditions in the ditch. Appendix K indicates that this flow estimate is for water discharging to the ditch from a storm sewer outfall. Such a source of water implies that storm water runoff, rather than baseflow runoff, is responsible for the observed flow in the ditch. However, ground water leakage into the storm sewer system is implied elsewhere in the RI Report. Regardless, it is questionable if the volume of this water available for plume dilution under low flow conditions has been or can be adequately quantified.**

The observations of flow from the storm sewer outfalls to the drainage ditches were made during dry weather conditions and are not interpreted to represent storm water runoff. The flow was relatively consistent among the three outfalls observed. The source of the discharge from the storm sewer outfalls is most likely the result of groundwater leakage into the system (some sections of the pipelines have invert elevations below the water table elevation) and/or steady discharges from base operations into the system. Regardless of the source, the visual observations of volumetric flow from the outfall was used to estimate the volumetric flow in the drainage ditch. A more accurate estimate of volumetric flow could be obtained directly by measuring flow in the drainage ditch.

33. **Also, it is unclear if there are data available to estimate the proportion of the surficial aquifer that contributes to the flow in the drainage ditch, at the projected point where the ground water trichloroethene plume will discharge into the ditch. If there is discharge from the entire surficial aquifer into the drainage ditch at that point, the ditch water concentration could be diluted by ground water discharge from the lower, uncontaminated part of the surficial aquifer. Upstream, discharge of uncontaminated ground water from other areas of the facility may also dilute the plume.**

It was conservatively estimated that only contaminated groundwater will discharge in the reach of the drainage ditch projected to intercept the plume. Discharge of uncontaminated groundwater to the drainage ditch upstream of the plume discharge could be considered if the dilution in the drainage ditch is re-calculated (see response to Comment 8).

34. **Clearly, the ground water contaminant transport model assumption that the source area trichloroethene concentration remains steady at 1,175 mg/L is overly conservative. Therefore, the peak trichloroethene concentration in the plume at the point of discharge to the drainage ditch is highly unlikely to be as much as 730 ug/L. However, without adequate quantification of the water in the drainage ditch available for dilution of the plume under dry-weather, base flow runoff conditions, the potential maximum surface water trichloroethene concentration can probably only be estimated by considering the volumes of contaminated and uncontaminated ground water which discharge to the drainage ditch at or upstream of the projected plume discharge area. If these volumes of ground water discharge to the ditch cannot be reasonably estimated, then the plume dilution calculations should not be attempted.**

As stated in the response to Comment 8, additional measurements of the dry weather flow in the drainage ditch could be made to provide a more accurate estimate of dilution. As stated in the response to Comment 9, estimates of uncontaminated groundwater discharging to the drainage ditch upgradient of the projected plume discharge area could be included in that re-calculation.

35. **Section 4.2.1, p 4-4. Material blanks of grout and bentonite should have been collected prior to their use. If this had been done, the question of impact upon the analytical could have been answered.**

The Navy agrees that the question of impact to the analytical results could have been answered with chemical analyses of well construction material samples. The collection of filter pack sand, grout, and bentonite samples were proposed in the RI/FS workplan for OUs 3, 4, 5, and 6. The RI field program is currently underway for these OUs and the proposed samples were collected in June 1995.

36. **Section 7.2.3, p 7-11. The investigation of the storm sewer network should include tracing the 4 inch V.C. line from Site 16 to its outfall. In addition, an investigation of this line should include determination of position relative to the water table. Should you have any questions, or if I can be of any assistance, please contact me.**

An OU7 storm sewer investigation was conducted and the results are presented in Appendix P of the RI report. Figures in this appendix present the storm sewer network leading away from Site 16 and the sewer invert elevations for determining the position relative to the water table.

Florida Department of Environmental Protection - John Mitchell

37. **The last sentence of Section 1.3 (Conceptual Understanding Based on Site History and Previous Investigations) states that effects of subsurface features on groundwater and contaminant migration is unknown. This should be included as a data gap in Section 7.2.2 (Data Gaps).**

The purpose Section 1.3 is to identify data gaps or additional information needed to be collected in the RI. The conceptual understanding of site conditions presented Chapter 1 is based on historical information collected prior to conducting additional field investigations. Section 1.3 will be revised to clarify that it presents the conceptual understanding prior to RI field activities. Subsection 7.2.2 identifies data gaps which remain after completion of the RI.

38. **The last paragraph on p. 3-32, under Section 3.7.2 (Public Water Supply and Groundwater Use), mentions wells which are used for irrigation and flushing of toilets. These wells should be sampled and analyzed. This is also a general data gap for NAS Cecil Field which should be included in Section 7.2.2.**

The sampling and analysis of the referenced wells is considered to be beyond the scope of the OU 7 RI, and should not be addressed in the RI Report. However, this recommendation will be presented to the BCT for consideration as a basewide issue.

39. **The third paragraph on page 4-2, under section 4.0 (Nature and Extent of Contamination) indicates twice the background (BG) concentration for inorganic results will be used as screening criteria. This is appropriate for those constituents which do not have a standard, criteria, or guidance value established. This paragraph should include a statement that ARARs and "To be Considered" (TBC) guideline will also be used for screening of constituents.**

The third paragraph on page 4-2 will be revised to indicate that inorganics were screened in this chapter to identify which constituents would be used in the Nature and Extent of Contamination discussion. Screening criteria included a background criterion and regulatory or other criteria presented in Appendix O. Only aluminum and iron groundwater background values exceeded the other criteria, but are not discussed because they are commonly found above the criteria. Only the background surface water value for lead exceeded the other criteria. Since lead was not identified as a constituent of the wastes at OU 7 lead is not discussed in this chapter. However, all constituents detected in the various media sampled at OU 7 are addressed in the health and ecological risk assessments presented in Chapter 6.

40. **On page 4-62, the subsection Summary of Inorganics in Surface Water of Section 4.2.4.3 states that inorganics detected in surface water do not pose a risk to ecological receptors as determined by the Baseline Risk Assessment (BRA). We do not agree with this conclusion, as Florida Surface Water Quality Standards (FSWQS) were exceeded for beryllium, cadmium, copper, and lead. These standards are based upon toxicological affects to aquatic organisms.**

Also on this page, the subsection Summary of Inorganics in Sediment states "the BRA indicates that aluminum, chromium, and iron detections in the sediment may pose a risk to ecological receptors." This appears incorrect as chromium was below the EPA Region IV sediment screening value (SSV), and aluminum and iron were below twice BG. However, cadmium. lead, mercury and zinc should be included as their SSV was exceeded.

Beryllium was not selected as an ecological chemical of potential concern (ECPC) for aquatic receptors in surface water because the maximum detected concentration is less than the USEPA Region IV Waste Management Division screening value (see response below to FDEP comments on BRA). Also, beryllium was not detected in any of the media at the OU 7 seepage pit area, therefore is interpreted to be unrelated to OU 7. The text will be revised to state that although concentrations of cadmium, copper, lead, iron, and zinc exceed available toxicity benchmarks, it is believed that the presence of these metals in the surface water of the drainage ditches is not site related. The surface water samples were collected from the drainage ditch during dry weather conditions, and are not interpreted to represent stormwater runoff from OU 7. The water in the ditch during dry weather conditions is interpreted to be the result of groundwater discharge and discharge from the storm sewer system. The dry weather discharge from the storm water system, in turn, is interpreted to be the result of some groundwater leakage into the system and/or steady discharge from activities at the base.

Response to FDEP comments on BRA - The USEPA Region IV Waste Management Division Screening values used to select ECPCs are generally more conservative than Florida Surface Water Quality Standards (FSWQS). Most of the screening values represent 1/10th of the Federal Ambient Water Quality Standard. Region IV specifies that the screening values be used to select ECPCs. Use of the FSWQS in screening ECPCs would likely result in a different list of ECPCs. The Region IV screening values represent "safe" concentrations for ecological receptors however some of the FSWQS do not represent ecological protection values but instead protect for human health concerns. Those FSWQS values intended to protect human health would not be applicable to screening contaminants that may present a risk for ecological receptors. Subsection 6.1.2 will not be changed but any FSWQS (protective of ecological receptors) that is lower than the Region IV Screening Value will be used to select ECPCs.

The statement "the BRA indicates that the aluminum, chromium, and iron detections in the sediment may pose a risk to ecological receptors" is incorrect. Risks to aquatic receptors (i.e., sediment toxicity to amphipods) may be associated with exposure to TRPH in sediment. Concentrations of total chromium in sediment are well below the NOAA ER-L screening value and the USEPA Region IV sediment quality screening value. Maximum detections of aluminum and iron in sediment exceeded two times background; however sediment screening values are not

available for these analytes. Cadmium, lead, mercury, and zinc were selected as ECPCs because the maximum detected concentration exceeded the Region IV screening values; however these concentrations were well below the NOAA ER-L sediment screening values, which are considered to protective of most benthic species.

41. **Section 5.2.2 (Persistence and Fate of OU 7 Specific Contaminants) needs to include surface water contaminants above FSWQS as a risk (refer to comment #4).**

Subsection 5.2.2 will remain unchanged for the reasons presented in the response to Comment 4 above.

42. **Sections 5.2.3.1 (Surface Water) and 5.2.3.2 (Sediment) needs to include those constituents mentioned in comment #4 as potential sources of ecological risk.**

Subsections 5.2.3.1 and 5.2.3.2 will remain unchanged for the reasons presented in the response to Comment 4 above.

43. **Table 6-3 (Summary of Ecological Chemicals of Concern (ECPC)) should include beryllium for aquatic receptors.**

The maximum concentration of beryllium (0.49 μg/l) does not exceed the USEPA Region IV Freshwater Water Quality Screening Value for Hazardous Waste Sites (0.53 μg/l) used to screen for surface water ECPCs. This is in compliance with Region IV CERCLA guidance. Because a background screening concentration is not available, beryllium is an ECPC for wildlife only. Beryllium was not detected in any of the media at the OU7 seepage pit area, and therefore is interpreted to be unrelated to OU7.

44. **We have a general comment related to the surface water drainage and the contamination detected in the ditches. We agree that OU7 is not the likely source of this contamination, and this it is likely from other sources or is a non-point source problem. To eliminate further or future contamination of wetlands or surface water bodies at NAS Cecil Field, best management practices need to be established which curb this ubiquitous situation. Any stormwater discharge via swales or sewers should enter some form of retention basis prior to discharge into a surface water body or wetland. As long as the current situation exists at this area of the base, the stormwater discharge from various areas on the base may cause the streams and wetlands to become sites (Potential Sources of Contamination -PSC).**

Basewide stormwater management is considered beyond the scope of the OU7 RI, and should not be addressed in the RI Report. However this recommendation will be presented to the BCT for consideration as a basewide issue.