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LETTER AND COMMENTS FROM FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION REGARDING REVIEW OF DRAFT REMEDIAL INVESTIGATION REPORT ADDENDUM SITE 2 NAS PENSACOLA FL
2/21/2002
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Department of Environmental Protection

Jeb Bush
Governor

Twin Towers Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

February 21, 2002

Mr. Bill Hill
Code ES311
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
P.O. Box 190010
North Charleston, South Carolina 29419-9010

RE: Draft Remedial Investigation Report Addendum
Site 2 Waterfront Sediments, NAS Pensacola

Dear Mr. Hill:

I have completed the technical review of the above referenced document dated November 12, 2001 (received November 14, 2001). Attached are comments from the University of Florida. I have the following comments:

1. **Page 2-3:** A sample location map should be added to the document.

2. **Page 3-11, 1st paragraph:** Define or explain the Hazard Quotient for this table.

3. **Page 3-11, Table 3-1:** Define "Sediment Benchmark" in the footnotes.

4. **Page 3-14, Section 3.1.2 Sediment Subsurface:** The subsurface findings explained in Appendix B need to be discussed further. Appendix B discusses subsurface contamination for metals, Polynuclear Aromatic Hydrocarbons (PAHs) and Semi Volatiles. Figures showing subsurface contamination with a top view and a vertical cross section should be included in this section.

5. **Page 3-15, 1st paragraph:** What is this sentence trying to say?

6. **Page 4-15, 1st paragraph:** Are we ignoring evidence and data that would lead to a Feasibility Study?

7. **Page 5-1:** Does the decision tree really take us in the direction of NFA? It looks like a FS should be completed for some of the Decision Units (Dus) and some monitoring should take place to confirm ongoing conditions and hopefully show improvement.

8. **Appendix B, Page 2:** A sample location map for the sediment and subsurface samples is required for a complete review of this material.

9. **Appendix B, Page 7:** Metals contamination found in the subsurface for DUs 3 and 4 should be discussed in chapter 3 of the RI Addendum.

10. **Appendix B, Page 9, paragraph 2:** This paragraph should be discussed in chapter 3 of the RI Addendum.

11. **Appendix B, Page 12:** PAHs contamination found in the subsurface for DUs 3 and 11, should be discussed in chapter 3 of the RI Addendum.

12. **Appendix B, 3.1.4 Pesticides/PCB Analysis:** Why is there no discussion of the subsurface findings in this section?

If I can be of any further assistance with this matter, please contact me at (850) 921-9988.

Sincerely,

Tracie Vaught

Tracie L. Vaught
Remedial Project Manager

enclosures

cc: Ron Joyner, NAS Pensacola
Gena Townsend, USEPA Region 4
Brian Caldwell, EnSafe, Knoxville
Allison Harris, EnSafe, Memphis
Terry Hansen, Tetra Tech NUS, Inc., Tallahassee
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February 4, 2002

Ligia Mora-Applegate
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Florida Department of Environmental Protection
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Tallahassee, FL 32399

Dear Ms. Mora-Applegate:

We have reviewed at your request the *Remedial Investigation Report Addendum, Site 2 Waterfront Sediments, Naval Air Station Pensacola, Florida* prepared by Ensafe, Inc. The document presents results of a study designed to determine whether sediment conditions have improved since the last investigation performed in 1996. Previous investigations in 1993 and 1996 found Hazard Indices (HI) greater than 10 at several locations within a general impacted area encompassing approximately 5.4 acres. These HIs represented potential toxicity of the whole sediment and were calculated using as benchmarks the Florida Threshold Effects Levels (TELs) of the Florida Sediment Quality Assessment Guidelines, or the USEPA Sediment Screening values when the former were not available. The hazards were driven by metals and bis(2-ethylhexyl)pthalate (BEHP), which were historically released into Pensacola Bay from a plating shop housed in Building 71.

The most recent field investigation was conducted in 2000 and used the sediment triad approach to assess sediment quality within eleven 150' x 150' Decision Units (DU) located in the general impacted area, and on two nearby reference DUs. Samples for toxicity testing and chemical analysis were derived from a composite of 6-10 samples from each DU. Samples for benthic community analysis were three discrete samples collected at the center and near two corners of each DU. In addition, a 36" sediment core was collected from eight of the 11 DUs to establish if contamination extended beyond 6"; the depth encompassed by all other samples.

Concentrations of contaminants in these samples were compared with the maximum concentration recorded at each DU during the 1993 and 1996 sampling events. In addition, the data were used to calculate a condition score, which was based on the results of sediment chemistry, toxicity tests, and benthic assessment for each DU. The report concludes that conditions at Site 2 continue to improve and recommends no further action.

We have the following comments on this RI addendum:

Sediment chemistry data

1. The report presents in Table 3-1 chemical data collected in 1993, 1996, and 2000, and the respective Hazard Quotients. The accompanying text repeatedly indicates that the data suggest a decreasing trend in contaminant levels from 1993 to 2000. However, this comparison may be flawed in that the 1993 and 1996 data are the maximum value measured from discrete samples collected at each DU, while the 2000 data are from composites of 6-8 individual samples and are thus more representative of the average concentration. The apparent reductions in concentrations are small enough that they could be explained simply by a comparison of maximum versus average comparisons for these areas, rather than an actual loss of contaminant. Unless the data are compared on a uniform basis, it will be difficult to reach conclusions about trends in concentration over time.

2. An inspection of the chemical data shows that seven of the 11 DUs still have HI values above 40. Again, it must be kept in mind that these HI were calculated using a composite of samples collected at eight locations evenly spaced throughout the approximately 0.5-acre plots. Concentrations at some areas within the plot could have HI values substantially above 40.

3. The study also determined the ratio and difference between Simultaneously Extracted Metals (SEM) and Acid Volatile Sulfides (AVS). This approach is based on the observation that AVS can bind metals in anaerobic sediments, thus reducing their bioavailability. The study found that all but three stations (viz., GH-12, GH-67, and CD-23) had SEM/AVS ratios <1, implying that divalent metals may not be bioavailable. We caution that this approach is only meaningful for anaerobic sediments; and aeration of sediments (such as during dredging operations) can reduce the pH causing release of heavy metals (Christensen, E.P., Metals, acid-volatile sulfides, organics, and particle distributions of contaminated sediments. Water Science & Technology, 37:149-156, 1998). We suggest that a discussion of this shortcoming of the method be included in the uncertainty section of the report.

4. Chemical data were used in the sediment quality triad differently than in previous investigations. Instead of calculating hazards with respect to the Florida TELs, the report instead uses the Effects Range Medium (ERM) of the NOAA sediment quality guidelines as the comparison point (see Table 4-5). These data are then entered into the triad by classifying stations into four categories, depending on the degree and number of exceedances to the ERM and PEL values.

5. We agree with the final categories assigned to the stations during the inclusion of chemical data into the sediment quality triad (see pg. 4-8), except for station KL-34. Although BEHP is one of the most significant site-related chemicals of potential concern, it was not included

in this comparison and in the resulting triad, probably because there is no ERM available for this chemical. If the PEL value were used, station KL-34 would have also been assigned to category 2 based on a calculated HQ for BEHP of 4.15. (Note: BEHP concentrations at stations IJ-12 and CD-23 also exceeded the PEL.). We recommend using the BEHP PEL for this portion of the triad and reclassifying station KL-34.

Biological Analyses

The report includes results of two sediment toxicity tests: 10-day *Leptocheirus plumulosus* survival and growth bioassay, and 7-day *Mysidopsis bahia* survival, growth, and reproduction test. The 10-day test identified station EF-45 as having a significant, although minor, effect on survival. Stations IJ-12, GH-12, GH-67, and both reference locations had a significant effect on growth. On the other hand, the 7-day *M. bahia* test did not identify any station as being toxic. Biological analyses also included benthic community studies that calculated three commonly used indices of biological diversity: Shannon Weiner Diversity, Pielou's Eveness, and Margalef's Species Richness indices. None of these parameters indicated adverse effects on benthic diversity at any of the stations. The design and execution of these studies appears to be reasonable, and suggests that sediment contamination is not having significant effects on populations found at the site.

The results, as well as anecdotal data included in the report, suggest that sediments have moved to the west. Station KL-34 is located in an area not previously sampled and had the highest concentration of BEHP. It is not known if the impacted area extends beyond the boundaries of this station, especially to the north and south.

We hope these comments are helpful. Should you have any questions, please do not hesitate to contact us.

Sincerely,

Hugo G. Ochoa, D.V.M., Ph.D.

Stephen M. Roberts, Ph.D.