UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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SFD 8-3

March 19, 2002

Richard Weissenborn
BRAC Operations, Code 06CA.RW/0889
Department of the Navy, Southwest Division
Naval Facilities Engineering Command
1230 Columbia Street, Suite 1100
San Diego, CA 92101

RE: OU 5 Draft Remedial Investigation Report, Alameda Point

Dear Mr. Weissenborn:

EPA has reviewed the above referenced document, prepared by Neptune and Company, Inc., IT Corporation and Environ, and submitted by the Navy on December 21, 2001. DTSC and EPA took a 30-day extension on the comment period, and EPA hereby submits comments on the Draft RI Report. The report was succinct and easily manageable and in general provided much of the information necessary to understand and evaluate contamination problems at IR 25.

If you have any questions, please call me at (415) 972-3029.

Sincerely,

Anna-Marie Cook
Remedial Project Manager

cc: Michael McClelland, SWDiv
Andrew Dick, SWDiv
Sophia Serda, EPA
Marcia Liao, DTSC
Dennis Mishek, RWQCB
Elizabeth Johnson, City of Alameda
Michael John Torrey, RAB Co-Chair
Jo-Lynne Lee, RAB Vice Co-Chair
Lea Loizos, Arc Ecology

EPA Review of the Draft Operable Unit 5 Remedial Investigation Report
Alameda Point

GENERAL COMMENTS

1. Many conclusions are made without adequate supporting evidence. For example, in the discussion of the extent of metals contamination in soil, it was concluded that there were no "areal or vertical patterns." Figures showing the extent of metals contamination in soil were not provided. The only way for a reader to verify this statement would be to post the data for each metal by hand on copies of a figure showing boring locations. Another example is the conclusion that "little volatilization of benzene and other chemicals in groundwater to soil" occurred, when no cross-sections showing the vertical distribution of contamination were provided. It is important to include all of the figures that demonstrate the points and conclusions that are made in the document. Please revise the document to include figures that clearly support the statements made in the discussion of the nature and extent of contamination in the various media that were sampled.

2. Chemical names are misspelled in the text and tables. There are also many grammatical mistakes such as incomplete sentences or duplicate words. Use of a spell checker and having the document edited by a technical editor before it is resubmitted would help correct this problem.

SPECIFIC COMMENTS

1. **Section 1.0, Introduction, Page 1-1:** The text in the second paragraph states "these adjacent parcels were investigated to better understand the spatial distribution of groundwater." Please insert the word "contamination" after the word "groundwater", since groundwater is prevalent under all parcels.

2. **Section 2.0, Site History, Page 2-1 and Figure 2-2:** The text states "aerial photographs from 1947 and 1956 show...large structures of unknown use...on the eastern half of Parcel 181," but Figure 2-2, which appears to include the large structures, is labeled as a 1968 aerial photograph. Please resolve this discrepancy.

3. **Page 2-1, first paragraph**: Please rewrite/clarify the two sentences "Based upon available data, the Navy has decided to perform remediation of soils in Parcel 182 and Parcel 183 to reduce the potential for human exposure to PAH. Therefore, additional sampling assessment in Parcels 182 and 183 were not considered in this RI, beyond describing the area and historical data". The purpose of the RI is to evaluate data so that a decision can be made by the BCT as to whether remediation is necessary. All data, therefore, needs to be presented in the report. Please elaborate on the term "additional

sampling assessment" and clarify whether is refers to the need for additional data collection or existing data.

4. **Section 3.4.1.2, Soil Characterization Activities, Page 3-11**: The text in the fourth bullet states that half of the homogenized soil was discarded but does not state whether the soil was discarded into drums or if it was placed back into the ground. Please revise the text to describe the disposition of the discarded soil.

5. **Page 3-29, Section 3.11**: Why did one drum of liquid decontamination water have such a high pH? Also, where was the non-hazardous water disposed?

6. **Figure 4.2:** The thickness of the clay layer located approximately 6.5 feet below ground surface (bgs) is depicted incorrectly at CH-11 and CH-14. At CH-11, the clay layer is depicted as extending from 6 to 7 feet bgs, but according to the borehole log in Appendix E, The clay only extends from 6.5 to 7 feet bgs. Similarly, at CH-14, the cross-section indicates that this clay layer extends from 4.5 to 6.5 feet bgs, but the log indicates that the clay layer extends from 5 to 7 feet bgs. Please correct the cross-section.

7. **Figure 4-3:** It is not obvious from the cross-section why there is an isolated section of clay (CL) between CH-5 and CH-17, where no coreholes were completed. Review of Figure 4-1 indicates that this may be because cross-section A-A' crosses this line of section. Please label the intersection of A-A' with this line of section on the figure.

8. **Figure 4-6:** The area depicted with fine diagonal lines on the right side of the section is incorrectly labeled as SP in the vicinity of CH-24 and CH-26. The labels should be CL, OL, or CH. Please label this clay unit correctly in the vicinity of CH-24 and CH-26.

9. **Figures 4-2 through 4-6 and Appendix E:** It is unclear how the Unified Soil Classification System (USCS) symbols were assigned to the units, as it appears that some of the information necessary to assign USCS symbols is not recorded on the borehole logs. For example, for coarse-grained soils, the second letter reflects grading (or sorting), but there are no log entries for grading or sorting. Similarly, for fine-grained soils, information about cohesion, plasticity, dilatancy, and dry strength is necessary for the second symbol and this information is not included on the logs. Please explain how the USCS symbols were assigned and explain why grading/sorting and cohesion, plasticity, dilatancy and dry strength are not noted on the logs.

10. **Figures 4-2 through 4-6 and Appendix E:** It is unclear how the determination that soils represent the Marsh Crust was made. For example, the lowest unit in CH-11 is labeled OH (Organic silts and clays of high plasticity) on the log in Appendix E, but this unit is not labeled Marsh Crust on cross-sections A-A', C-C', or D-D'. The lowest unit is also not consistently labeled Marsh Crust on the logs in Appendix E. The lowest unit in CH-16 and CH-6 is labeled Marsh Crust on A-A' and C-C', but is not labeled Marsh Crust on

E-E'. Please explain how the determination was made that a unit represented the Marsh Crust, and please label Marsh Crust consistently on the cross-sections.

11. **Page 4-15. Section 4.0**: There is a discussion of gas bubbles encountered during groundwater sampling and a pocket of gas that came up through the drill rods. The gas is assumed to be methane. Please include a discussion of any possible health threats, particularly to construction workers, that may be presented by the occurrence of this gas. Also, please include in the discussion the impact of the vapor barrier beneath the houses of Parcel 178 on trapping methane gas in this area and whether the gas bubbles were observed in groundwater samples on other parcels besides Parcel 178.

12. **Section 4.1.2, Inorganic Chemicals, Page 4-45:** The text states "metal detections were found to be homogeneously distributed with no areal or vertical patterns noted," but there are no figures showing the distribution of metals, so there is no way to verify this statement. Please include maps with metals data posted. At a minimum, maps should be created for every metal that exceeded residential preliminary remediation goals (PRGs) and for the common industrial and anti-fouling metals lead, chromium, copper, cadmium and mercury.

    A discussion of how the metals concentrations from soil sampling compare to the background data set would be useful in this section. If the concentrations lie within the established background range (see Tetra Tech EMI's Technical Memorandum on Background Concentration of Inorganics in Soil and Groundwater, Alameda Point, November 2001) it helps to support the claim that there appear to be no impacts from Navy activities on metals concentrations at OU 5.

13. **Section 4.3, Natural Attenuation Information, Page 4-102 to 4-104, and Table 4-9:** The discussion of biotransformation is general and provides no site-specific information on the effectiveness of this natural attenuation process. Please provide a more thorough assessment of site-specific biotransformation, noting that the reported high dissolved oxygen concentrations (Table 4-9) are not consistent with other parameters that would indicate anaerobic conditions (such as ferrous iron, low oxidation/reduction potentials).

14. **Section 4.4, Spatial Distribution of Chemicals in Soil Gas, Page 4-119:** It is unclear why the distributions of toluene, ethylbenzene and xylenes are not shown on figures or discussed in greater detail in the text. These compounds were detected in both groundwater and in soil gas. In groundwater, they were detected in 97 to 100 percent of the samples, but benzene, for which maps were provided, was only detected in 50 to 64 percent of the samples.

15. **Section 4.4, Spatial Distribution of Chemicals in Soil Gas, Page 4-119:** The attribution of a surface source of methyl-t-butyl ether (MTBE) appears to be speculation. Typically, MTBE is a constituent in gasoline and a surface source should also show the hydrocarbon

constituents. MTBE is also apparently present in groundwater. The absence of hydrocarbon constituents could be due to aerobic biotransformation in the upper region of the vadose zone, and this loss mechanism would occur whether the source was from the surface spills or the Marsh Crust. This upper zone transformation process may be acting like an aerobic biofilter, and the effectiveness depends on continued landscaping maintenance (water, fertilizer, etc.) Please provide a conceptual model for explaining the soil gas and groundwater analytical results and the effects of landscape maintenance on the volatile chemical concentrations and their exposure pathways.

16. **Section 4.4, Spatial Distribution of Chemicals in Soil Gas, Page 4-119:** The text states "these soil gas results suggest that there is little volatilization of benzene and other chemicals in groundwater to the soil" and "benzene and other VOC concentrations in groundwater decrease upward.." These conclusions are not supported by figures, so in order to assess whether these statements are true, the reader must compare two figures to select co-located or near by locations, and then compare results from two different tables in Appendix D. Please provide cross-sections with posted soil gas and groundwater analytical data so that a reader can assess these statements. Please justify the statement that "there is little volatilization of benzene and other chemicals in groundwater to soil." If there are any exceptions to these statements, please discuss the exceptions in the text.

17. **Section 4.4, Spatial Distribution of Chemicals in Soil Gas, Page 4-120:** It is unclear whether soil gas and groundwater samples were collected from the same boring. Please discuss whether soil gas and groundwater samples were collected from the same borehole.

18. **Page 5-14, Section 5.3.3.1.** Correct the sentence that begins "The 0 to 5 foot interval" to "The 0 to 0.5 foot interval".

19. **Page 5-15, second and third paragraph**: One of the primary concerns for PAH contaminated soils is not the actual exposure to a construction worker during construction activities, but rather the handling of the soil generated by trenching during construction activities. If the soil is brought up from depth and left on the surface, exposure becomes a major issue. This scenario is identical to the problems faced with addressing the Marsh Crust contamination at depth and should be acknowledged as a potential exposure pathway that needs addressing in the Feasibility Study.

20. **Page 6-1, Section 6.1:** The statement that an applicable background data set does not exist for rigorous comparisons of Parcel 181 soil metal concentrations with background levels is misleading. Background data for inorganics constituents does exist; in fact, Alameda Point has established three sets of background data to better reflect filling operations at the base. This effort goes beyond that performed at many other sites where more regional background information is used. Please include a more detailed discussion of the comparison of metals concentrations at Parcel 181 to Alameda Point "pink"

background data sets. In addition, Appendix B, Page 2-26 should reflect the comparison of background metals concentrations to Site 25 sample results. If Arsenic is higher at Site 25 than the "pink" background data, a discussion should be included on how much greater and possible reasons for the difference if it is believed to not be site related. Note that records for Parcel 178 apparently claim that the top two feet of soil were excavated in this area and removed because of high Arsenic levels and that an additional two feet of imported fill was brought in to build houses on.

21. **Page 6-2, third paragraph**: The sentence that states the majority of soil gas data were obtained from an approximate depth of 5 feet bgs is incorrect. Most soil gas data were obtained at a depth of 2 feet bgs (see page 4-120).

22. **Page 6-2, last paragraph**: Please expand on the statement: "Concentrations of VOCs in soil gas were also considerably lower than would be predicted if the soil gas was in equilibrium with groundwater VOC concentrations between 12 and 20 feet." What prediction method is being used (VLEACH?) and how and what moisture content was factored into the prediction? Section 5.4 discussed the modeling used to calculate soil gas to indoor air and trenches, but does not give the parameters used or the results of such calculations. Why would the soil gas not be in equilibrium after so much time has passed? What would explain the considerable difference between expected prediction and actual soil gas sampling results? Since the major pathway for residents to be exposed to groundwater contamination is through soil gas accumulating in houses, the issue of the discrepancy between expected and actual results should be more fully explored and explained.

23. **Page 6-6, Section 6.4.1, bullet 1:** EPA does not necessarily agree with the remedial action objective of 3×10^{-5} incremental lifetime cancer risk for soil containing PAHs.

Comments from Dr. Sophia Serda, EPA Toxicologist on the Operable Unit 5 Remedial Investigation Report, Alameda Point

I have reviewed the above referenced document with a focus on the human health risk assessment. A human health risk assessment calculates the cancer and noncancer risk due to exposure. The calculated risks are not likely to be exceeded by any member of the exposed population under maximum exposure conditions and actual risks may be zero. A risk assessment cannot identify who within an exposed community may or may not become ill due to exposure to toxic agents; nor can a risk assessment be used to associate a particular illness with a particular toxic agent. A risk assessment is best used as a predictive tool to identify those circumstances under which exposure to a toxic agent may potentially lead to unacceptable health outcomes. This information can then in turn be used to select options that will reduce or remove the community's exposure to the toxic agent.

Comments

1. Section 5.2 Data Collection and Analysis: Appendix B Calculation of Benzo(A)Pyrene and Exposure Point Concentrations

   Clarify if the weights used in calculating weighted averages (Table B-1) were used in the calculation of exposure point concentrations used to quantify risk. Also, I do not recommend the bootstrap statistical procedure for the calculation of exposure point concentrations. Recalculate exposure point concentrations and risk without these methods.

2. Section 5.4 Migration of Volatile Chemicals

   The full nature and extent of groundwater and soil gas contamination have not yet been determined and limited samples were collected. I suggest indoor air measurements be taken to validate the results of the model.