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ALAMEDA POINT
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MEMORANDUM

TO: Marcia Liao, Project Manager
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FROM: James M. Polisini, Ph.D.
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Human and Ecological Risk Division (HERD)

DATE: September 19, 2002

SUBJECT: ALAMEDA POINT (NAVAL AIR STATION ALAMEDA)
DRAFT FINAL SITE 14&15 REMEDIAL INVESTIGATION REPORT
[PCA 18040 SITE 201208-00 H:40]

Background

HERD has reviewed the document titled *Draft Remedial Investigation Report Sites 14 and 15, Alameda Point*, dated August 15, 2002. This report was produced by Tetra Tech EMI, of San Diego, California. This review is in response to your written work request.

Site 14 and Site 15 were designated as Operable Unit (OU) 1 sites because they are relatively small sites with lower levels of contamination related to petroleum oil use. Site 14 and Site 15 are located on the northern portion of Naval Air Station (NAS) Alameda between the Perimeter Road and the channel leading to Oakland Inner Harbor. A delineated wetland of approximately 1 acre is present along the margin of Site 15 extending to the eastern side of the Site 15 boundary. No wetland delineation was conducted beyond the Site 15 boundary.

A removal action for dioxin has been conducted at Site 14 to an ecologically-based 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) concentration of 0.0135 µg/kg. An interim removal action was performed for lead and polychlorinated biphenyl (PCB) contaminated soil at Site 15. The Site 15 Remedial Action Objective for lead was 130 mg/kg and 1.0 mg/kg for polychlorinated biphenyl (PCBs).

General Comments

The DTSC and NAVY estimates of risk and hazard are presented in completely different manners. The NAVY estimate is presented in a table while the DTSC estimate is listed in the text following the table. Please present the NAVY and DTSC estimates of risk and/or hazard as separate columns in the table for consideration by the risk managers.

The term 'appeared' is used to describe situations where the site-specific concentration exceeds an 'ambient' concentration in many instances. Either the site-specific concentration exceeds the 'ambient' concentration or it does not. Please amend these references in the text (e.g., D.7.2.2, page 57).

HERD objects to the term 'target risk range' in describing the incremental cancer risk estimates with range between $1x10^{-6}$ and $1x10^{-6}$ (e.g., D.7.2.5, page 60). Incremental cancer risks in excess of $1x10^{-6}$ are candidates for evaluation of remedial alternatives. HERD suggests the alternative phrase of 'risk management range'.

Please provide a statement in the text of the introduction, which explains why Site 14 and Site 15, which are geographically separated, (Figure D.3-2) are included in a single Human Health Risk Assessment (HHRA).

HERD requested that the previous draft RI risk assessment calculations for OU2, of which Site 14 and 15 were a part, be submitted in electronic format to facilitate review. No electronic copies of the spreadsheets were furnished with this Draft RI for Site 14 and Site 15. The spreadsheet calculations can be transmitted in their native EXCEL, LOTUS or QUATTRO format to expedite review. Microsoft EXCEL is preferred. If there is some concern on the part of the Navy regarding alteration of the spreadsheets, they should be submitted as read-only files.

Specific Comments

1. According to the figure designation (Figure 2-10) storm drains of unknown condition transit the corner of Site 14 to outfall W. This would appear to be an area of elevated soil contaminant concentrations based on the other figures presented. Please verify the condition of this storm drain to ensure that it is not a preferential pathway for groundwater contaminants to the Oakland Inner Harbor.

2. Groundwater concentrations of manganese at Site 15 ranged from 11.1 µg/l to 23,500 µg/l. A deed restriction should be entered to prevent use of Site 15 groundwater and monitoring should be considered.

3. HERD has never agreed to the ambient data sets proposed by the Navy designated as 'pink', 'blue' and 'yellow' (Section 5.1.1.1, page 5-2) particularly as this data applies to polycyclic aromatic hydrocarbon (PAH) concentrations. Total risk and/or hazard should be presented to the risk managers.

4. The discussion of manganese concentrations in groundwater at Site 14 (Section 5.3.4.1, page 5-22, third bullet item) closes the discussion by referring to magnesium, not manganese. Please correct this typographic error.

5. The incremental cancer risk and non-cancer hazard estimates are performed using two sets of toxicity values and/or exposure parameters (i.e., dual tracked) (Section D.2, page 3). These two estimates must be presented in the same manner. An additional column of DTSC estimates should be added to the table presenting the NAVY estimates of risk and/or hazard.

6. There was considerable discussion regarding the criteria for selection of Contaminants of Potential Concern (COPCs) for the Operable Unit 2 (OU2) Remedial investigation. The concentration criterion agreed to by HERD for the selection of COPCs was that the COPCs could be eliminated if the frequency of detection were low and if the maximum concentration is less then one tenth the U.S. EPA Region IX Preliminary Remediation

Goal (PRG) as long as no more than ten COPCs were eliminated. This comparison to U.S. EPA Region IX PRGs was used as an inclusive criterion, to retain COPCs which might pose significant risk despite low frequency of detection, not a criterion to remove COPCs. This criterion is incorrectly stated (Section D.4, page 11) as a simple comparison to one-tenth the Region IX PRG with no mention of the limit of 10 COPCs eliminated. HERD agreed to this criterion for NAS Alameda after lengthy discussion, as a site-specific exemption from the normal HERD guidance that Region IX PRGs are for screening sites, not COPCs. HERD agreed to this criterion because it was used to include COPCs which would have been eliminated based on low frequency of detection and was, therefore, health protective. The inclusive and secondary nature (i.e., applied to those COPCs which could be eliminated based on low frequency of detection) of this criterion as originally agreed to by HERD and the Navy should be correctly stated in this HHRA. The process appears to have been implemented correctly and this comment should require no more than a correct statement of the PRG comparison criterion. This criterion was also stated in a HERD memorandum dated August 24, 1999 regarding OU2. Please expand the description of this criterion in this portion of the text and others where it appears (e.g., Section D.7.1.2, page 52).

7. It is standard procedure to test the distribution of chemical concentrations, rather than assume that the distribution is lognormal (Section D.4, page 11). As polycylic aromatic hydrocarbon (PAHs) compounds are the major organic compounds contributing to risk please provide a statistical test of these compounds demonstrating that the distributions are, in fact, lognormal.

8. Please obtain concurrence of the San Francisco Regional Water Quality Control Board (SFRWQCB) that beneficial uses of groundwater at Site 14 and Site 15 do not include residential use (i.e., potable) to exclude this pathway. Personal communication with SFWRCB staff indicate that there was an error in description of the NAS Alameda boundary between aquifers deemed potential drinking water sources and those not potential drinking water sources (Section D.5.1, page 14).

9. Use of the geometric mean to determine the Exposure Point Concentration (EPC) for organic compounds (Section D.5.3, page 17) is dependent on presentation of proof that the distribution of organic compound concentrations is, in fact, lognormal. Please see the prior comment regarding the demonstration of the distribution of concentrations.

10. There is much discussion of the multiple sources for Toxicity Reference Values (TRVs), whether Cancer Slope Factors (CSFs), Reference Doses (RfDs) or Reference Concentrations (RfCs) (Section D.6, page 21). There does not appear, however, to be any statement for the choice of TRV when more than one value is available. The most health-protective value should be used in the Human Health Risk Assessment (HHRA) with allowance for the dual tracking of the NAVY and DTSC estimates.

11. The reference to the Superfund Technical Support Center (SPTC) advice for toxicity data preparation (Section D.6, page 21) does not convey the complete interaction of U.S. EPA Region 9 with SPTC. Sophia Serda, Ph.D., Region 9 toxicologist, has checked with the SPTC staff in Cincinnati and there has been a clarification, which states that EPA Region 9 toxicology guidance should be followed. There's no mention of this clarification from SPTC to the Region 9 Superfund Technical Assistance Team. This clarification should be included in the text or the statement should be removed from the text.

12. Cancer Slope Factors (CSF) were checked at random and found to be arithmetically correct with the exception listed in Specific Comment number 22 below.

13. The non-carcinogenic RfDs for PAHs were checked and found to be inclusive and arithmetically correct (Section D.6.23, page 43). No response is required for this comment.

14. Please state the specific statistical test applied to determine whether site specific soil concentrations were significantly different from the proposed 'ambient' data set for inorganic elements (Section D.7.1.2, page 52). The statement that statistical tests of means were conducted is not sufficient.

15. HERD has several problems with the conclusions for Site 14 (Section D.7.1.5, page 55):

    A. The maximum arsenic concentration at Site 14 is 18.2 mg/kg. This is above the maximum 'background' concentration of 15.6 mg/kg. Given the NAVY policy regarding treatment of 'background' any difference in arsenic concentration is attributable to NAVY activities and subject to discussion of remedial alternatives;

    B. The report is correct that no estimate of any 'ambient' PAH concentration due to use of sediments in construction of NAS Alameda is yet available. However, it is HERD's opinion that material used to construct NAS Alameda, which was contaminated prior to placement at NAS Alameda, must remain in the HHRA risk assessment for consideration of remedial alternatives. Private parties which place contaminated materials on their property are responsible for the consideration of remediation of those materials. There appears to be no specific Department of Defense (DoD) exclusion in the Comprehensive Environmental Response and Liability Act (CERLA) as amended by the Superfund Amendment and Reauthorization Act (SARA) which would cover this issue. Human health incremental cancer risk and non-cancer hazard, as well as ecological hazard, posed by these compounds must be included in the consideration of remedial actions;

    C. Dioxin removal which is '...in process...' does not decrease the estimate of current incremental cancer risk. Once the dioxin removal action is complete an additional estimate of incremental cancer risk may be required for Site 14.

16. Please provide a listing and proportion of the constituents in the material described as 'brocade' which was stored at Building 27 (Section D.7.2.1, page 56) which would be relevant for the risk assessment.

17. Please provide a listing of the Interim Action Levels (IALs) (Section D.7.2.1, page 57) used for Former Buildings 283, 301, 389. These IALs could be supplied as an additional table and merely referenced in the text of this section.

18. HERD objects to the term 'target risk range' in describing the incremental cancer risk estimates with range between $1x10^{-6}$ and $1x10^{-6}$ (e.g., D.7.2.5, page 60). Incremental cancer risks in excess of $1x10^{-6}$ are candidates for evaluation of remedial alternatives. HERD suggests the alternative phrase of 'risk management range'.

19. HERD never agreed with the values developed for 'ambient' concentrations at NAS Alameda (Appendix G). These values were presented as the 'blue', 'yellow' and 'pink' data sets based on historical fill records. In the current HHRA, the 'pink' data set concentrations are being used to assess whether a COPC will be carried forward in the HHRA. For example, HERD does not agree that maximum 'ambient' concentrations of antimony can range to 8.6 mg/kg, chromium 'ambient' maximum can range to 66.7 mg/kg, silver 'ambient' maximum can range to 5.64 mg/kg, nor a non-detected limit of 10

mg/kg selenium is adequate to define a reasonable 'ambient' selenium concentration (Table D.4-1). In addition, statements are made the certain concentrations 'appear' to be elevated (See Specific Comment 14 above) without providing the statistical test.

20. Please provide the documentation or rationale for the Exposure Duration (ED) of 5 years for the Central Tendency value for the occupational scenario (Table D.5-3). If this is best scientific judgement, just indicate that basis in a footnote for this table.

21. Please provide the number of Total Organic Carbon (TOC) measurements made at Site 14 and Site 15 in support of using a default value of 10 percent for Fraction of Organic Carbon (Foc) (Table D.5-8). If no measures of TOC were taken at Site 14 and Site 15, please provide that information in the footnotes of this table.

22. The cancer slope factor (CSF) values for the DTSC assumptions require some revision:

    A. The CSF for Aroclor-1260 listed (e.g., Table D.7.1-11) under the DTSC assumptions calculations is $5.0x10^{+00}$ $(mg/kg\text{-}day)^{-1}$. The value for the CSF on the Office of Environmental Health Hazard Assessment (OEHHA) web page is $7.7x10^{+00}$ $(mg/kg\text{-}day)^{-1}$. Please correct this value and the incremental cancer risk estimates which are affected.

    B. The CSFs and non-cancer RfDs were checked at random and the vast majority of those checked were found to be correct for both the NAVY and DTSC assumptions. However, after discussion with the NAVY contractor, during on September 11, 2002, it appears that under the DTSC assumption calculations of incremental cancer risk, some of the oral CSFs were accidentally transposed with the inhalation CSFs in the spreadsheet calculations (e.g.,Table D.7, DTSC assumptions) which are reflected in the text. These arithmetic errors will be corrected in the Draft Final RI for Site 14 and Site 15 as agreed to by the NAVY contractor.

23. HERD defers to the Geological Services Unit (GSU) of DTSC to determine whether the soil type (i.e., SL = Sandy Loam) used in the Johnson and Ettinger model for exposure to indoor air at Site 14 and Site 15 is appropriate for this portion of NAS Alameda (Appendix D).

24. All the discussions of ERA Hazard Quotients (HQs) based on 'refined' estimated of intake must present the proposed 'revised' HQ for the risk managers, rather than stated proposed values for absolute intake (e.g., Section 2.1.3.1, page H-27) ratios.

25. Statements describing a HQ of 2.02 (e.g., Section 2.1.3.1, page H-27) as '...not significantly above the background HQ of 0.65....' must demonstrate the rationale for this judgement. All toxicants evaluated in this ERA are threshold toxicants, which can demonstrate a toxic effect immediately above the TRV.

26. Please state in the ERA the revised HQ as modified by the proposed absolute or relative absorption factor in the text (e.g., Section 2.1.3.1, page H-28 through H-30). Discussions of absorption without specifying absolute absorption or absorption relative to the absolute absorption of the compound or element used in the original toxicity study cannot be verified or considered in terms of recommendations for remedial alternatives.

27. Numerous typographic errors appear in the discussion of the ecological hazard to birds (Section 2.1.3.2, page H-31 through H-43). Several phrases are shaded in the middle of sentences or paragraphs. In addition, the symbol ' □' appears to be substituted for ' μ ' in

many portions of the text (e.g., Section 2.1.3.1, page H-30 or Section 2.1.4, page H-34). Please correct these errors in the Draft Final document for Site 14 and Site 15.

28. HERD agrees that TRVs, in addition to the NAVY/BTAG TRVs, may be included in an ERA (Section 2.1.3.1, page H-28). The BTAG is currently in the process of evaluating new information to modify the mammalian lead NAVY/BTAG TRV. The provisional value does not appear to be significantly different from the 0.88 mg/kg-day discussed here. However, any HQ developed from these alternative TRVs should be considered in the range of the HQs developed using the NAVY/BTAG TRVs for evaluation of remedial alternatives.

29. The conclusion regarding the hazard to passerine birds from exposure to dioxin does not follow (Section 2.1.3.1, page H-32). How can birds be '...relatively sensitive to dioxins and furans...', but the risk may be an overestimate? Please provide additional rationale for this conclusion.

Conclusions

Soil concentrations of arsenic, PAH and dioxin at Site 14 appear to be elevated above health-protective concentrations for some potential future use scenarios. HERD recommends a reevaluation of the potential human health risk once the dioxin removal is completed, as outlined in the conclusions for Site 14.

The projected land use of Site 15 is a golf course. If this project land use is completed, HERD has no objection to the HHRA and ERA conclusions for Site 15. However, some notification should be entered into the deed for this property which outlines the human health risk or hazard estimated by the other use scenarios in the event a golf course is not developed or long term use does not remain as a golf course.

HERD agrees that the ecological hazard at Site 14 and Site 15 are fairly minimal. This is based on the small size of Site 14 and Site 15, the projected future use as recreational areas (e.g., a golf course) and the, and the ERA hazard quotients, which are marginally above 1.0 in most cases. However, fragmenting the area along the Oakland Inner Harbor into geographically separated areas does not present a full picture of any potential ecological hazard. Some type of area-wide ERA, including Site 14 and Site 15, and the other contiguous areas, must be developed once the other adjacent areas are ready for transfer.

US Fish and Wildlife Service (USFWS), as a future custodian of the western end of NAS Alameda, and California Department of Fish and Game should be consulted regarding the approximately 1 acre of wetland defined at Site 15 to determine whether additional wetland characterization beyond the boundary of Site 15 is necessary.

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