UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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N00221_001123
MARE ISLAND
SSIC NO. 5090.3.A

August 7, 2007

Mr. Michael Bloom
Dept of the Navy
Base Realignment and Closure
Program Management Office
1455 Frazee Road, Suite 900
San Diego, CA 92108-4301

RE: Draft Final Investigation Area F2 (IR04) Remedial Investigation, Mare Island, Vallejo, CA August 2006

Dear Mr Bloom:

EPA has reviewed the above referenced report. We still have comments remaining on the Ecological Assessment, as follows:

General Comments:

1. We find the lack of discussion of surface water as a contaminant transport mechanism to be a data gap for the ecological assessment. Please provide information on the surface water located in the Area and possible transport pathways from the contaminants to the receptors.

2. Please define exactly what depth increments are associated with "surface" and "subsurface" soil.

3. Small burrowing mammals and a small bird receptor should be added to the receptor list. We understand that a receptor list for the entire island was developed during the scoping for the Onshore ERA but current practice is to include small mammals and small birds both as receptors of importance in and of themselves and as links in the food chain. This is a data gap that needs to be filled.

4. Risk to the salt marsh harvest mouse is too easily dismissed based on estimates of bioavailability which are not based on conservative assumptions. The mouse is protected at the individual level and best professional judgment of the risk requires a conservative bias which the Navy has failed to apply in the Area. Please reconsider this analysis of risk.

Specific Comments:

1. Page ES-3: given that there are wetlands involved, were there no places where surface water could be collected? The text mentions "surface water runoff" as a primary transport mechanism.

Surface water would provide an obvious contaminant transport mechanism to biota as is listed on page 1-31 under Potential Contaminant Migration Pathways. This is a data gap.

2. Page ES-3: Please explain how "grab groundwater samples" were collected at the site, especially in wetlands and mudflats.

3. Page ES-5, Subarea 1, Building 1300 Subarea: no mention is made here of ecological risk. There are constituents of TPH which have adverse effect on biota.

4. Page ES-5, Subarea 2, VOC Subarea: there are some studies in the literature which provide information on inhalation effects on biota. See Spring, et al 2004.

5. Page ES-6 Conclusions and Recommendations, bullet 2: please provide support for the statement that "concentrations of TPH are expected to decrease over time due to natural attenuation".

6. Page 1-12: surface water sampling was recommended during the Phase 1 RI 1988. Please provide the data and discuss the surface water transport pathway.

7. Page 1-25: please provide supporting evidence of surveys specifically designed to determine whether the California clapper rail is/is not located on the site.

8. Page 1-32: ecological receptors could also be exposed to contaminants via surface water runoff. Please add this pathway to the first full paragraph on the page and to Section 1.3.2.

9. Page 1-33, Section 1.3.4: soil and sediment should be evaluated for ecological impact to five feet as per DTSC guidance (DTSC, 1998). From the discussion of sampling depths in the following chapters, it is clear there are data available below 2 feet.

10. Page 1-37, Section 1.4.4.1: this section does not address ecological for soils. If the designated use is open space, these would be primary criteria for comparison.

11. Page 1-30: "Potential Sources and Potential Release Mechanisms" should include the transformers as discussed under "Potential Contaminants" in the same section.

12. Page 1-41: please add a discussion of surface water as a potential pathway for contaminant transport.

13. Page 1-49 Sections 1.7.2.2 and 1.72.4: we note that surface water was evaluated as a contaminant pathway in 1996. Please explain why it is no longer included.

14. Page 1-50 Section 1.7.3: it is EPA policy to carry contaminants that exceed TRVs through to the BERA. They should not be screened out based on background or ambient concentrations.

15. Page 1-51 first paragraph: The lack of tissue samples to support the choice of BAFs when the major vehicle for contamination is greensand may constitute a data gap and should be considered and discussed. This material, with its high concentrations of metals and their unknown bioavailability, is not at all the same as the soils and sediments present on the rest of Mare Island.

16. Page 1-51 Section 1.7.6: this section gives the impression that COPECS were not screened out on the basis of ambient values until the first step of the BERA. This contradicts the statement in Section 1.7.3 as noted above.

17. Page 2-3 Section 2.3.2.3: the statement that "there is no current exposure pathway to ecological receptors..." is directly contradicted by the following sentences which state that ruderal vegetation is present and resident small mammals may be present. Please correct.

18. Page 2-6: Please add a discussion of surface water transport of contaminants.

19. Page 2-6 Section 2.3.6: other constituents besides TPH were detected at concentrations above the comparison criteria as noted in the preceding sections. Please correct. In addition, as described on page 2-3, there is potential exposure for small resident mammals. Please add a small mammal such as a vole which would be maximally exposed.

20. Page 2-7: the Navy has already stated in previous sections that the constituents of concern in petroleum such as benzo-a-pyrene were detected at the site. There are ecological criteria for comparison for these compounds. Please revise this discussion.

21. Page 2-8 Section 2.4.3: please revise this decision summary to more accurately reflect the ecological risk present at this site.

22. Figure 2-1: this figure shows that chromium does exceed the screening criteria for this subarea. However, the very few surface samples taken in this area lead to the conclusion that the area was not adequately characterized to determine what the true ecological risk is for surface and shallow soil receptors. This is a data gap.

23. Page 3-8, first paragraph: the statement is made that there are no ecological-risk based...comparison criteria available for VC (vinyl chloride)." This is incorrect. Table 3-2 lists comparison criteria. Also see the ORNL 1996 benchmarks.

24. Page 3-11: please review and revise accordingly to possible changes to the ecological risk summary.

25. Section 3 Figures: please add a figure showing the results for the metals analysis.

26. Section 3 Table 3-2: please include the same list of metals as shown on Table 2-2.

27. Page 4-2 Section 4.2: please identify which figure (if any) shows the regraded portion of the SBM subarea. Could not be located on Figure 1-5.

28. Page 4-20 Section 4.3.6.4 Plants: Page 1-26 Offshore Habitats describes the types of plants found in this habitat. Please discuss the risk to these plants.

29. Page 5-2 Section 5.2 second paragraph: investigation of surface water runoff is mentioned again here but no information is presented on the results of the sampling. Please add a discussion of surface water to the document.

30. Page 5-9 and 5-10: the text states there is no risk to vertebrates but the table shows risk to the gray fox. Please correct the text.

Appendix J

General Comment:

1. The risk discussion frequently makes statements that because an HQ is low the risk is negligible. That is not what HQs are intended to convey and the actual value may or may not mean that there is high or low risk. HQs greater than one mean that further investigation needs to occur to determine whether the risk requires remediation.

2. The percent the site could occupy in a foraging range should be calculated and presented in each section discussing risk.

3. The reduction of bioavailability discussions are based almost entirely on supposition and are not convincing. The Navy should revise these discussions to present more facts and fewer assumptions about what estimated bioavailability of contaminants could be on site. More conservative estimates of bioavailability that are more in line with established and conservative practice should be calculated and presented.

4. Page J-9 Section 2.3.1: As noted above, surface water has to be evaluated as well as soil, sediment and groundwater. Surface water would be present in the wetland, could potentially be affected by surfacing groundwater, and would provide an exposure pathway to receptors in the area. Please revise to include this pathway.

5. Page J-12 Section 2.4.2.5: There is information in the literature which would allow assessment of this pathway. Please do the literature search and revise this section.

6. Page J-15 Measurement Endpoints: For plants, these benchmarks apply to terrestrial flora only. Please make this clear in the discussion.

7. Page J-36 Section 5.2.1 Northern Harrier Dose Calculation Parameters: the soil ingestion rate for a piscivorous eagle is not appropriate for a bird that hunts in the uplands. Please use the soil ingestion rate for the red-tailed hawk as cited in U.S. EPA (2005).

8. Page J-51 Vanadium and Zinc: If the HQ is above one, the compound must be advanced to the BERA. Please revise to include all low TRV HQs greater than one.

9. Page J-67 Section 8.2.2.1: the comparison between HQ avg and HQamb is very confusing. Please replace these HQs with the actual concentrations so a direct comparison can be made. This change would be particularly beneficial when dealing with the "NA" entries.

10. Page J-71, first two paragraphs: the second paragraph seems to be contradicting the first. Please review and correct as necessary.

11. Page J-73 and J-74 Selenium and Silver: the compounds such as selenium and silver which do not have ambient values for Mare Island but do exceed the ORNL plant toxicity values should be advanced to the BERA for further evaluation as a conservative measure.

12. Page J-77 Copper: copper exceeding the ORNL benchmark in 63 percent of the samples is a concern even if the HQs are close to one. Please advance copper in plants in the wetland to the BERA.

13. Section 8.2.2: ORNL plant toxicity values cannot be used with any confidence to determine risk to aquatic plants. Please advance the risk discussion for aquatic plants to the uncertainty section.

14. Page J-82 Chromium: this is another case where the compound is found across the subunit at levels exceeding the toxicity benchmark. Please advance to the BERA.

15. Page J-90 Section 8.3 No.1: The method for calculating the average HQs is not described in Section 4.1.3. Please revise to include the correct section.

16. Page J-97 Zinc: The HQ average indicates that there is a risk from zinc in this subunit and 33 percent of concentrations across the subunit exceeding the ER-M is not inconsequential. As noted in the discussion, invertebrates can be sensitive to zinc. Please evaluate further.

17. Page J-105 Chromium: Given that the 95UCL is significantly greater than the toxicity benchmark and the average HQ is greater than the ambient HQ, any amount above the ambient may be enough to cause a reduction in the population. Every population has its breaking point and we do not have any information on what that threshold may be. Consequently, this compound should be evaluated further.

18. Page J-117 PCBs: Aroclors may be evaluated as total PCBs for which there are toxicity benchmarks.

19. Page J-123 first paragraph: results from WET tests for terrestrial media on Mare Island do not necessarily apply to aquatic sediments. Without site-specific test data, a more conservative default value such as the EPA-recommended 60% should be used.

20. Page J-125 Bioavailability of Lead and Zinc to Birds: the discussion of bioavailability of lead in birds rests on a number of assumptions (none of which can be proved) and results in a conclusion that is not protective of the only bird being assessed in this Area. Recommend using the original TRV unless the Navy can produce some evidence that the argument has any validity.

21. Page J-125 Bioavailability of Nickel to Mammals: please provide a reference for the statement "...the nickel is not readily bioavailable." Also, the relevance of human data to the array of mammals being assessed is questionable. In the absence of site-specific data , we recommend using a more conservative estimate of bioavailability such as 50%.

22. Page J-126 Section 8.4.3 Refinement of Avian COPECs: (1) Please revise the section to reflect changes in the bioavailability estimates, (2) Cadmium: please quantify the actual percent the site forms in the foraging range and confirm that the conclusion of no risk is still well-founded, (3) Cadmium, third paragraph: apparently the Surf Scoter is **not** recommended for further evaluation?, (4) Cadmium, last paragraph: the statement that "birds appear to be relatively resistant to the toxic effects of cadmium" in light of the following litany of adverse effects seems facetious. Please remove.

23. Page J-129: please calculate the percentage of the site in the killdeer's foraging area.

24. Page J-130 Lead, first paragraph: please replace copper with lead (second sentence) since that is what is being discussed.

25. Page J-136 PCBs: please replace "DDTs" with PCBs.

26. Page J-143 - please provide a reference for evidence that antimony around a smelter does not biomagnify.

27. Page J-144 Barium, second paragraph: Section 5.1.4 does not exist.

28. Section 8.4.4 Salt Marsh Harvest Mouse: there are several contaminants (antimony, barium, cobalt, copper, lead, nickel, zinc) where risk to the salt marsh harvest mouse is incorrectly dismissed. Please revisit these estimates using bioavailability estimates that are more realistic.

29. Page J-150 Molybdenum: given that there is no ambient value for molybdenum for Mare Island and knowing that the compound can produce deleterious effects in mammals, the risk to the salt marsh harvest mouse should not be dismissed. Please assume the compound presents a risk and add back into the risk estimate.

30. Sections 8.4.5 and 8.6: These sections should be revised based on revisited assumptions of bioavailability.

References:

DTSC HERD. 1998. HERD ERA Note Number 1. Sacramento, CA. Econotes.

Spring, S.E., Miles, A.K. and Anderson, M.J. 2004. Effects of trichloroethylene and perchloroethylene on wild rodents at Edwards Air Force Base, California, USA. Environmental Toxicology and Chemistry 23:2162-2169.

U.S. EPA. 2005. Attachment 4-1. Exposure factors and bioaccumulation models for derivation of wildlife EcoSSLs. (In) Guidance for developing ecological soil screening levels (EcoSSLs). Office of Emergency and Remedial Response. Washington D.C.

Thank you for the opportunity to review this report. If you have any questions, please contact me at (415) 972-3150.

Sincerely,

Carolyn d'Almeida
Remedial Project Manager

cc: Chip Gribble, DTSC
Brian Thompson, RWQCB