



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
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December 6, 2005

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

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DRAC OFFICE

RE: Draft Final Feasibility Study Investigation Area H1, Mare Island, Vallejo, California, October, 2005

Dear Mr. Dunaway:

EPA has reviewed the Draft Final Feasibility Study for the Mare Island Area H1 Landfill, and offers the following comments:

GENERAL COMMENTS

1. The Draft Final Feasibility Study (FS) for Investigation Area H1 appears to be inconsistent in the use of the term hazard quotient (HQ). HQ is used in the FS to define ecological risk levels; however, in some cases HQ is used to define noncarcinogenic human health risk. It is not clear, for example, when the FS refers to a noncarcinogenic HQ value of 10, whether the risk contribution from a specific medium (e.g., soil) is referred to, or if the Hazard Index (HI) was intended. In other cases, it is not clear whether HQ refers to human health or ecological risk. For clarity, please revise the FS to define the term HQ when it is used.
2. All of the alternatives for the Upland Areas include backfill of excavated areas to the original grade, and two-feet of cover soil. It is not clear why backfill to the original grade is required, or how and why the two-foot thickness of cover soil was selected. It appears that the Upland Areas could be re-graded after excavation, without backfill, and that various cover thicknesses combined with various degrees of excavation could have been evaluated with respect to achieving remedial action objectives (RAOs). Please revise the FS to clarify why the alternatives are limited to hot spot excavation with two-feet of soil cover.
3. The Hot Spot screening level selected for arsenic is the Mare Island Ambient Fill level of 36 mg/kg; however, several sample locations exceed this level, but the locations are not removed in any remedial alternative. The footnote for Table 4-1 indicates that these

points are not included because “the site-wide 95%UCL for arsenic is below background.” This explanation is not clear. It appears that the screening level for arsenic used to define hot spot areas is something other than 36 mg/kg. Please revise the FS to clarify the screening level for arsenic and how it was developed.

SPECIFIC COMMENTS

- 1. Section 2.1.5 Waste Disposal Practices, Page 2-10:** According to the information in the FS, waste was encountered during the construction of the vertical Containment Barrier in 2004. This indicates that waste is likely present outside the Containment Barrier boundary; however, the limits of the caps in Alternatives 2A and 2B are shown (Figures 4-1 and 4-4) to extend exactly to the Containment Barrier. It appears that the cap remedies should extend to the limits of the waste, which likely extends beyond the Containment Barrier. If the caps will not extend to the limits of the waste, please revise the FS to clarify how waste beyond the limits of the proposed caps will be addressed.
- 2. Section 2.2.6.1.2 Future Exposure Scenario 2-36:** The FS presents results of risk estimates for both current and future exposure scenarios, but it is not clear what the exposure scenarios are or how they differ. For clarity and completeness, please revise the FS to summarize both the current and future exposure scenarios in the discussions of estimated risk.
- 3. Section 3.1.2.1.1 Outlier Chemicals of Concern, Page 3-5:** The FS states that “outliers are presumed to be considered hot spots and will be removed by the remedial action”; however, according to the information in Table 4-1, not all outlier concentrations will be removed by the proposed remedial action. For example, concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene are identified as outliers at location IR16-B3B5-M17, but this location is not included in any removal action. Also, other outlier concentrations were not included in removal actions because they did not present a risk to human or ecological receptors at the hot spot criteria of 1×10^{-4} cancer risk and non-cancer HI of 10. Please revise the FS to include all outlier locations in the removal actions, or revise this section to clarify which outlier locations will not be removed.
- 4. Section 4.1.2.1 RCRA Cap, Page 4-4:** This section refers to the WESTON, 2005 document *Alternative Design of Closure Covers, Area H1 RCRA landfill and Surface Impoundments, Mare Island, Vallejo, California, August*; however, since it was agreed in meetings with regulatory agencies that this document will not be finalized, and the relevant information will be included in the design documents, please delete the reference to this document from the FS.
- 5. Section 4.1.2.2 Non-RCRA Cap, Page 4-5:** The FS discusses creating wetlands as wetland mitigation, but the criteria for wetland creation are not clear. In order to better evaluate the proposed approach to wetland mitigation, please revise the FS to include criteria for wetland creation such as concentration limits for constituents of concern (COC) and target wetland elevations.

6. **Section 4.2 Upland Areas Outside the Containment Barrier Alternatives, Page 4-9:** It appears that debris is expected to be present in the Upland areas, however, the removal remedial alternatives do not include any screening or separation of potentially hazardous material, or material unacceptable for disposal in the Containment area. Please revise the FS to include screening of material during excavation, or explain why screening is deemed unnecessary.
7. **Section 4.2.2.4 2-Foot Soil Cover, Page 4-12:** All of the Upland areas Hot Spot removal alternatives include placement of a 2 feet deep soil cover; however, the purpose of the soil cover is not clear (e.g., achieve human health remedial action objectives (RAOs), protect ecological receptors, etc.) and the reason for the selection of the 2-foot depth is not clear. In order to better evaluate the adequacy of 2-feet of soil cover, please revise the FS to provide the rationale for the selected cover thickness, and its function in achieving RAOs.
8. **Section 4.2.4.2 Hot Spot Removal, Page 4-15:** The FS states that the depth of contamination at each area was estimated at approximately 1 foot deeper than the contaminated sample depth; however, according to the information presented in Tables 4-1 and 4-7, the depth of contamination is the same as the contaminated sample depth in some cases. Please correct this discrepancy.
9. **Section 4.3.2.2 Hot Spot Removal, Page 4-20:** The description of the procedure for excavating in the Non-Tidal Wetland Areas is not clear. The FS states that excavation will continue until the criteria set out in the Wetland Mitigation Plan are met or excavation has reached 3 feet below target grade. It is not clear what the target grade is or what the criteria in the Wetland Mitigation Plan are. Therefore, it is not clear if meeting the requirements of the Wetland Mitigation Plan or excavation to 3 feet below target grade will result in removal of the hot spots identified in the FS. Please revise the FS to clarify the target grade (is it the hot spot contamination depth, for example?) and include the wetland mitigation criteria.
10. **Section 5 Detailed Analysis of Remedial Alternatives, Page 5-1:** Throughout this section, alternatives are evaluated with respect to reduction in toxicity, mobility, or volume; however, the intent of this criterion is to evaluate the reduction in toxicity, mobility, or volume, *through treatment*. Since none of the alternatives evaluated in this FS include treatment, please revise these sections to clarify that each alternative will not reduce toxicity, mobility, or volume, through treatment.
11. **Section 5.1.4 Alternative 3–Removal and Disposal, Page 5-14:** The first bullet on this page refers to backfill to a sufficient grade, however, it is not clear what is a sufficient grade. For clarity and completeness, please revise the FS to provide the assumption that was made as to what would comprise a sufficient grade for backfill.
12. **Section 5.3.2.7 Cost, Page 5-37:** The discussion of cost refers to the placement of the soil cover; however, soil cover does not appear to be an element of this alternative. Please clarify what is meant by soil cover, or correct the wording in this section as

necessary.

13. **Table 5-1 Compliance with Potential ARARs:** The evaluation of potential applicable or relevant and appropriate requirements (ARARs) does not include state or federal landfill closure and post-closure requirements for the non-RCRA portion of the containment area. Whereas these requirements may not be applicable, they are most likely relevant and appropriate to the capping of the containment area. Please revise the FS to evaluate the landfill closure and post-closure requirement in Title 22 and Title 27 of the California Code of Regulations as potential ARARs.
14. **Tables 6-4 and 6-5 Comparison of Remedial Alternatives:** Since none of the removal alternatives involve treatment, it appears that all should score equally under "reduction of toxicity, mobility, or volume through treatment". Also, since the alternatives vary in the degree of ecological protectiveness, it appears that they should be ranked differently in terms of overall protectiveness of human health and the environment. Even though this is a threshold criterion, some alternatives which meet the threshold could be more protective than others, and therefore should score higher. Please revise the scores in these tables accordingly.

MINOR COMMENTS

1. **Section 5 Detailed Analysis of Remedial Alternatives, Page 5-4:** It appears that the paragraph that follows the bulleted items under "implementability" should have "Cost" as its subtitle/header. Please correct as appropriate.

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

Sincerely,



Carolyn d'Almeida
Remedial Project Manager

cc: George Leyva, RWQCB
Chip Gribble, DTSC