



EPA

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Regional Water
Quality Control
Board**

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MOFFETT FIELD
SSIC NO. 5090.3



April 4, 1998
File No. 2189.8009 (CJC) **Pete Wilson**
Governor

Commanding Officer
Engineering Field Activity, West
Naval Facilities Engineering Command
Attn: Mr. Stephen Chao
900 Commodore Drive
San Bruno, CA 94066-2402

**Subject: Station-Wide Draft Final Feasibility Study Report (SWFS), Moffett
Federal Airfield, January 1998**

Dear Mr. Chao:

The San Francisco Bay Regional Water Quality Control Board (RWQCB), has reviewed the subject document and the response to some of the agencies comments on the Draft Final SWFS report. We appreciate the Navy's efforts in exploring different remedial alternatives such as in-situ biotreatment and wetland restoration based on the regulatory agencies comments. However, the Navy has not yet responded to our comment letter, dated February 14, 1997.

The Navy should submit responses to the February 14, 1997 letter along with responses to the following comments concurrently. Due to the complexity of many unresolved issues, the RWQCB staff recommend early discussions to ensure all of the regulatory agencies concerns are appropriately addressed prior to the issuance of the final document. If you have any questions on these comments, please contact me at (510) 286-1035.

Sincerely,

C. Joseph Chou
Remedial Project Manager

Enclosure

cc:
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General Comments:

1. For avian and mammalian receptors, the Hazard Quotients (HQ) derived from low Toxicity Reference Values (i.e. HQ₃ and HQ₄), are the best indicators of possible adverse effects for most contaminants. HQ₃ and HQ₄ estimates less than one indicate there is low likelihood for adverse effects from the contaminant. When the HQ₃ and HQ₄ estimates are greater than one, then more evaluation is needed to refine the estimates through either toxicity testing, laboratory studies, and/or field investigations. With the existing site specific data, the Navy cannot successfully quantify or differentiate the potential impacts to the receptors between HQ_s > 1, >10, or >100. It is difficult to explain why the modeled HQ_s < 100 or HQ_s < 10 will be protective, since HQ₃ and HQ₄ estimates greater than one indicate there is a possible adverse effect. Therefore, the Navy should use HQ₃ or HQ₄ > 1 to establish cleanup goals.
2. Metals in sediments should remain as Chemicals of Concern (COCs) in this report. The Phase II Site-Wide Ecological Assessment (SWEA) report showed that lead, zinc, mercury and selenium contributed significant risks to avian and/or mammalian receptors in the wetland areas. The State recognizes that the spatial distribution of metal Chemicals of Potential Ecological Concern (COPECs) generally reflects the wetland drainage pattern, and that relatively high concentration of metals in clay-size particles were found. However, all the risk drivers should be evaluated in the SWFS; any early elimination of COPECs may cause underestimating the total risks and bias cleanup decisions.

Specific Comments:

1. Section 1.3.2.2, Chemistry Results, page 30: Inorganic COPECs were identified in the Site-Wide Ecological Assessment (SWEA) and should be included in this section.
2. Section 1.3.2.2, Chemistry Results, page 30, third paragraph: The discussion of chemistry results for porewater has not included organochlorine pesticides. Page 34, item #2 identifies dieldrin and endosulfan II, as well as PCBs, as those COPECs that may pose the greatest potential to adversely effect benthic receptors.
3. Section 1.3.2.2, Chemistry Results, page 30, fourth paragraph: In the paragraph discussing upland soils, the samples from Lindbergh Avenue stormdrain channel are included and the discussion indicates that the stormdrain sediments have been removed. This paragraph is confusing and should be rewritten. What is the relevance of discussing chemical results for sediment which is no longer at the site?



4. Section 1.3.2.2, Chemistry Results, page 31: The last sentence of the top paragraph should be deleted. Discussion of bioaccumulation factor for PCB congeners is not relevant in this section.
5. Benthic Survey, page 31: This paragraph indicates that locations where grabs were taken for qualitative benthic community analysis are on Figure 14, but the figure doesn't clearly indicate the locations for which each benthic analysis was performed. The last sentence indicates that wet and dry cycles influence the benthic community, but this does not apply to the Northern Channel which always receives water from the site and from tidal influence. The last sentence should be rewritten to clarify this point.
6. Measurement Endpoints, page 32, third full paragraph: This paragraph cites the SWRCB Water Quality Control Plan for Inland Surface Waters of California; this document should not be cited. The SWRCB has currently developed new Inland Surface Waters and Bays and Estuaries plans which are expected to be adopted in June 1998. In the interim, Board staff have been relying on federal Ambient Water Quality Criteria.
7. Measurement Endpoints, page 32, third full paragraph: The last sentence cites Long and Morgan 1991 for sediment benchmarks. This citation should also include Long and MacDonald 1995¹, which was an updated version of the Long and Morgan document for marine and estuarine sediment benchmarks. Both were used for screening for Moffett SWEA.
8. Measurement Endpoints, pages 32-33: With respect to magnitudes of Hazard Quotients and expected effects, it is not clear how the HQs > 100, between 10 and 100, and ≤ 10 were used to assess risk. Further, it is not clear in this document, nor has any basis been presented, as to the magnitude of the HQ and its associated level of acceptable risk.
9. Hazard Quotients (HQs) and Hazard Indices (HIs) for Surface Water and Sediment Receptors, page 34: TPH as diesel and motor oil were detected in surface water pond and channel samples. Although there are no standard criteria with which to develop an HQ, TPH should not be eliminated from this discussion.
10. HQs and HIs for Surface Water and Sediment Receptors, page 34, items #1 and #2: These paragraphs discuss which COPECs may pose the "greatest potential to adversely affect benthic receptors" but it is unclear what criteria were used to determine this. Is this based solely on the magnitude of the HQ value? If so, there may be other chemicals with lower HQs which may also cause significant toxicity. If these groups of chemicals are generally co-located, then the COPECs listed as the most significant for sediment and surface water in this section may be acceptable.



11. Bioassay Results, page 35, third paragraph: More clarification is requested to explain why the results of porewater bioassay from northern channel are not valid
12. Combined Results of the HQs, HIs, and Bioassays for Surface Water and Benthic Receptors, page 36, top of page: The last sentence states that the surface water HQ data are based on total chemical concentrations rather than the dissolved fraction, which may overestimate potential risk. There are two issues with respect to this. First, the estimation of risk based on total concentrations may or may not be an overestimate of risk, depending upon the organism exposed and the mode of exposure. If an organism ingests the water, then total concentrations may be representative of what the organism is exposed to. Secondly, the issue of total versus dissolved usually relates to metals in water. However, this FS has excluded discussion of metals as COPECs. This discrepancy should be corrected by including discussion of metals (see comment #1 above).
13. Section 1.3.2.3, Summary of Ecological Risk, pages 40 - 42: This sections describes the level of risk for each of the media by using terms “low” to “moderate” to “high” likelihood of adverse effects. The Navy should describe how these qualifiers are used and what they mean.
14. Section 1.3.2.3, Summary of Ecological Risk, pages 40 - 41: Inorganic COPECs were identified in the Draft Final SWFS and should be included in this section.
15. Section 1.3.2.4, Potential Risk Areas, page 42: Elevated concentrations of PCBs and other COPECs were found in the Navy Ditch, Marriage Road Ditch and Patrol Road Ditch. Should these areas also be considered as potential risk areas and subject to corrective actions?
16. Section 1.3.2.4, Potential Risk Areas, pages 41 - 42: The previous section describes the “moderate to high” likelihood of adverse effects for the kestral and burrowing owl (middle of page 41); however, the section 1.3.2.4 has excluded the upland soils for these receptors. It is unclear why these receptors and media have been excluded.

An additional issue in this section is the delimiting of the risk area for the stormwater retention pond to just the pond inlet. There is no explanation for why the area of potential risk has been reduced when the previous sections did not discuss the inlet area, per se. The Navy should clarify and justify this modification.

17. Section 2.1.4, Allowable Exposure Levels (AEL) Based on Risk Assessments, page 44, last paragraph: The Navy has provided no rationale for setting the “allowable exposure level” for benthic invertebrates of bulk sediment at HQ of <



100. Nor have they provided rationale for other alternatives discussed in this paragraph. This section needs significant modification and rationale in order to evaluate the alternatives. See also comment #8 above.

18. Section 2.1.5, Allowable Exposure Levels Based on ARARS, page 44: This section should include discussion of federal Ambient Water Quality Criteria. If sediment concentrations cause surface water concentrations to exceed AWQC, then action may be required.
19. Section 2.1.6, Potential Federal and State Location-Specific ARARS, page 45: The Navy must include the Bay Conservation and Development Commission which has jurisdiction on any activity within 100 feet of the shoreline.

The Navy must include the San Francisco Bay Region Water Quality Control Plan (Basin Plan) dated June 21, 1995 which specifies protection of beneficial uses. These include all water bodies, such as mudflats, wetlands, estuarine and wildlife habitats.

20. Section 2.1.7, Potential Federal and State Action-Specific ARARs, pages 46 - 47: The Navy should include Chapter 15 (Title 23, CCR - discharges of wastes to land) if wastes are left in place. In addition, they must include the San Francisco Bay Region Basin Plan, the Porter-Cologne Water Quality Act (California Water Code, Division 7), State Board Resolution No. 68-16 (Policy on Maintaining High Quality Waters of the State), and State Board Resolution 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304).
21. Section 2.1.8, Development of Remedial Action Objectives, page 48: This section states that the objective is to reduce exposure of the environment to shallow sediments. As to the deeper sediments, if levels remain in place that exceed acceptable risk, they will have to be remediated. This issue is also present in Section 2.3.2.3, In Situ Treatment, page 56 and Section 3.1, Development of Alternatives, page 75.
22. Section 2.2.1.2, Areas of Attainment Based on the SWEA, bottom page 51 - 52: It is unclear why the salt marsh harvest mouse has been left out of the discussion as a receptor of concern. Page 40 (Summary of Ecological Risk) discusses that "significant potential risks were identified for avian and mammalian receptors exposed to wetland sediment . . . "

Additionally, for all these scenarios, there is no rationale presented for selecting the various Hazard Quotient values. The Navy should describe the benefits and limitations (or levels of protection) for each of these scenarios. See comment #17



above. This is also missing from Section 3.1, Development of Alternatives, pages 75 - 76.

23. Section 2.2.2, General Response Actions for Sediments, Mitigation, page 54: As a note of interest to the Navy, the Regional Board typically requires a three to one mitigation for destroyed wetlands.
24. Section 2.3.2.7, Mitigation; Restoration of Eastern Diked Marsh, page 61: Please provide a map to describe the areas of contamination, areas to be excavated, and areas to be restored.
25. Section 2.3.2.7, Mitigation; Restoration of Saltwater Wetland in Stormwater Retention Pond, page 61: Again, a map overlying areas of contamination and areas to be restored would be useful. What is the acreage impacted by chemicals? What is the acreage to be restored?

For either of the above proposals, the Navy should provide a conceptual plan for these wetland restoration projects prior to agency approval of these alternatives.

26. Section 2.3.3.7, Evaluation of Process Options, Brackish Marsh Restoration, page 72: Regarding Costs, the Navy should include the cost for long-term monitoring for performance criteria for a wetland creation and revegetation project.
27. Section 2.3.3.7, Evaluation of Process Options, Saltwater Marsh Formation, page 73: Regarding Effectiveness, the Navy indicates that the relative value of creating wetlands versus leaving some or all contaminants in place is uncertain. An alternative proposal would be to do both; create wetlands and remove contaminants.

Regarding Implementability, the Navy indicates that there is potential for transferring contaminants from Stevens Creek to the created marsh. Has the Navy established that there is contamination coming from the marsh? And, if so, to what levels? Is it stormwater runoff or from some other source? Contaminants should not be assumed to come from the creek unless it has already been tested.

Regarding Costs, see comment #26.

28. Section 3.1, Development of Alternatives, pages 75 - 76: It is unclear why the Navy has focused the remediation of sediments to unsaturated areas only in Alternatives 4, 5, and 6. This needs to be clarified and a basis presented.
29. Figure 14: The legend indicates "other sampling locations used for SWEA." The Navy should indicate what these "other" locations are.



30. Figures 18 through 22: The title indicates these represent avian and mammalian receptors. Are we to assume this represents salt marsh harvest mouse? There is a discrepancy here in that salt marsh harvest mouse is not really discussed in the text as being a receptor of concern.
31. Appendix C, Proposed Approach for Ecological Monitoring: While the RWQCB appreciates the Navy including a conceptual approach for long term monitoring, it may be difficult at this point to include too many specifics. The final monitoring plan will depend upon, of course, the alternative selected. We do not believe this Appendix should be considered final until the remediation work is complete.

Page C-3: Regarding sampling grids only in areas where remediation has occurred, the Navy should consider other areas as well, depending upon the alternative selected. We may be concerned about migration of contaminants from areas that are not ultimately remediated.

Page C-3: It is premature to determine the number of samples required for each area. In addition, the ditches might need to be included in the long-term monitoring to track any contaminant migration.

Page C-3 and C-4, Bioassays: Agreed that we should re-evaluate the test organisms used for bioassays. Recently, the Regional Board has been using, with consistent success, a sediment-water interface test that theoretically is more representative of chemical fluxes between surficial sediments and overlying water. This is a test that can be considered. Regarding the test organisms of choice, there may be more appropriate and more sensitive organisms than bivalve larvae. In addition, the amphipod bulk sediment bioassay nor the FETAX should not be discounted. The RWQCB requests that these discussion remain open until the remediation is complete.

Page C-4: With respect to reference sites, we agree that the use of one of the Regional Board's reference sites for San Francisco Bay should be considered. The specific location should be open for further discussion.

Page C-4, Tissue Sampling: Again, this needs further discussion. The preferred methodology would be collecting and analyzing tissues from organisms at the site, rather than laboratory bioaccumulation tests because they reflect what is actually occurring in the field and what the organisms are exposed to. In addition, the specific tissues collected will depend upon concerns for any residual long-term exposure to receptors of concern. In other words, pickleweed, insects, earthworms should not yet be discounted.

Page C-4 - C-5, Biological Surveys: We agree that these are useful, especially if done in wet and dry seasons. However, the surveys may need to be expanded



beyond benthic populations and include plants and higher trophic level receptors. The number of years that the surveys should be conducted should be open for further discussion as to the species considered.

¹ Long and MacDonald 1995. Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments, Environmental Management, vol 19, No. 1.

