

DEPARTMENT OF TOXIC SUBSTANCES CONTROLREGION 2
700 HEINZ AVE., SUITE 200
BERKELEY, CA 94710-2737

March 22, 1994



Commander
Western Division
Naval Facilities Engineering Command
Attn: Mr. Stephen Chao, Project Manager
900 Commodore Drive, Bldg. 101
San Bruno, California 94066-2402

Dear Mr. Chao:

**DRAFT FINAL OPERABLE UNIT 1 (OU1) FEASIBILITY STUDY REPORT, NAVAL
AIR STATION MOFFETT FIELD**

The California Environmental Protection Agency (Cal/ EPA) has reviewed the subject document. The document was reviewed for completeness, technical adequacy and regulatory compliance. Comments regarding the document have been prepared by the Department of Toxic Substances Control (DTSC) and San Francisco Regional Water Quality Control Board (RWQCB).

Review of the document leads to the following critical comments:

1. The feasibility study needs to address the potential risk to ecological receptors within the landfill boundaries and in adjacent aquatic environments which receive groundwater from the two landfills.
2. Potential hydrologic and ecological impacts posed by implementing the three remedial alternatives must be evaluated in the screening of the remedial actions.
3. The text should clearly define the monitoring wells which are included in the average concentrations of upgradient, downgradient and North Base Area wells used to compare groundwater concentrations at the landfills.
4. The historical and seasonal variations of groundwater flow directions in Site 1 and Site 2 area should be reflected in the text.
5. The established background concentrations for soil and groundwater must be addressed in the text.
6. Water quality objectives from the San Francisco Bay Basin Water Quality Control Plan, 1991, should be utilized to evaluate potential aquatic impacts from the movement of landfill groundwater and leachate.



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7. The State request a revised Draft Final Feasibility Study shall be submitted by the Navy. The data collected from ongoing monitoring program and from Phase II Site Wide Ecological Assessment activities should be included.
8. The California Department of Fish and Game, as a California's State Natural Resources Trustee, should be on the distribution list to provide comments or specific ARARs for wetland and other natural resources related documents.

SPECIFIC COMMENTS

1. Page 1, 2nd Paragraph

The second sentence should read as "This work coordinated through a Federal Facility Agreement (FFA) with the U.S. Environmental Protection Agency (EPA), the California EPA, which include the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB)".

2. Page 20, 1st Paragraph

The consistently high water levels at well W1-9(F) may not be the result of perched groundwater. Please discuss other possible effects such as groundwater mounding or topographic variation.

3. Page 20, 1st and 2nd Paragraph

In an unsaturated zone, it is not uncommon that perched water may show a higher "perched water table" than true water table. Further evaluation will be necessary to decide whether the higher water table from wells W1-9(F) and W1-13(F) were caused by perched layers or not.

4. Page 20, 4th Paragraph

It is agreeable that perched water levels do not result in outward gradients. However, with the limited information, it is immature to eliminate the possibility of outward gradient flow at Site 1.

5. Page 20, 5th Paragraph

It was stated that "groundwater movement in the northern part of NAS Moffett Field flows in the direction of the storm sewer lift station". However, in Figure 10, the groundwater flow directions vary from NW to SW, neither a significant groundwater divide nor southward groundwater flow toward Building 191 could be found from this figure.

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6. Page 21, 3rd Paragraph

The correct statement cited from OU1 Remedial Investigation Report (IT 1993) should be "The trench does not appear to greatly influence the movement of leachate at Site 1". It is too early to conclude that the trench does not affect groundwater/leachate movement. Historical and seasonal influences of groundwater levels and directions should be considered.

7. Page 22, Figure 10

Please compare the potentiometric surface map with previous data such as Quarterly Report (September 1993) and explain the different patterns of equipotential lines.

8. Page 23, 1st Paragraph

According to OU-1 Additional Field Investigation Technical Memorandum, only one measurement of A2 aquifer water level was taken from well W1-7 in November 1993. The existence of upward gradient flow cannot be determined by such limited data. In addition, the upward flow cannot be determined by only comparing water levels from A1 and A2 aquifers, more detailed analysis will be necessary.

9. Page 34, 2nd Paragraph

Please see Specific Comment No. 2 and 3.

10. Page 34, 3rd Paragraph

Please see Specific Comment No. 8.

11. Page 35, 2nd Paragraph

Please explain how to define upgradient and downgradient wells at Site 1. A revisit of previous monitoring data might be necessary to confirm the local groundwater flow directions.

12. Page 37, 3rd Paragraph

Please explain why metals in sediments and surface water were not discussed? Please compare the results with Phase I Site Wide Ecological Assessment (SWEA).

13. Page 44, 3rd Paragraph

Please clarify if the past regional pumping activities had any contributions to the low water table (currently below mean sea level) at Site 2.

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14. Page 48, Figure 17

The water levels data taken on February 25 and August 26, 1993 should be compared with the current potentiometric surface map. Please explain the different patterns of equipotential lines in these documents.

15. Page 49, 3rd Paragraph

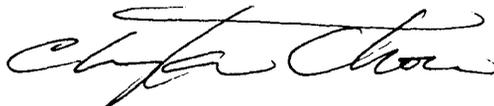
It is inappropriate to compare the estimated equipotential lines with measured A2 aquifer water level from well W2-5. The upward groundwater flow could be detected by installing a nest piezometer.

16. Page 60, 2nd Paragraph

Please see Specific Comment No. 11.

Please respond to all comments. If you have questions regarding these comments, please contact me at (510) 540-3830 to ensure a coordinated approach for all regulatory comments.

Sincerely,



C. Joseph Chou
Engineering Geologist
Site Mitigation Branch

Enclosures

cc: Ms. Elizabeth Adams
Regional Water Quality Control Board
2101 Webster Street, Suite 500
Oakland, California 94612

Mr. Michael D. Gill
U.S. Environmental Protection Agency
Region IX, Mail Stop H-9-2
75 Hawthorne Street
San Francisco, California 94105

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
San Francisco Bay Region

Internal Memo

TO: Ron Gervason

FROM: Elizabeth J. Adams, Project Manager *EA*
(510) 286-3980

DATE: March 14, 1994

SUBJECT: **COMMENTS ON THE OPERABLE UNIT 1 DRAFT FINAL FEASIBILITY STUDY REPORT, NAVAL AIR STATION MOFFETT FIELD, DATED FEBRUARY 1, 1994**

The San Francisco Bay Regional Water Quality Control Board staff has reviewed the subject document and has the following comments.

GENERAL COMMENTS:

1. This feasibility study evaluates the risk to human receptors but does not address the ecological receptors which are present at Site 1 and Site 2 landfills. Since these landfills are viable habitats for a variety of burrowing animals and are adjacent to surface water bodies with aquatic life, the potential risks to the ecological receptors from soil and groundwater in both habitats needs to be evaluated before the final remedy can be determined.
2. The present groundwater gradients indicate that leachate/groundwater is flowing towards two surface water bodies, a portion of Site 1 to the storm water retention ponds and Site 2 to the Northern channel. There is also an indication that the groundwater flow may divide at Site 1 with a portion of the flow influenced by the pumping at Building 191. This groundwater flow data is new information and may change seasonally as the surface water level of Jagel Slough changes. A change in groundwater flow would alter the upgradient and downgradient wells at Site 1 and potentially move contaminants into the Slough during summer months. Seasonal data needs to be collected to verify the groundwater flow patterns at Site 1. The text needs to clearly indicate the specific wells which are being evaluated as "upgradient" and "downgradient" at Site 1 on all tables and the text.
3. The ecological and hydrologic impact of applying the remedial options needs to be included in Sections 5 and 6 of the text. Burrowing animals, and potentially special status species, are presently inhabiting the landfills. The application of the remedial options needs to evaluate the destruction of the current habitat at the sites. The potential hydrologic impacts of the installation of a cap needs to be evaluated. The potential of

landfill since 1964. The clarification of the wells used for this comparison will aid in the evaluation of the conclusions of this section.

14. pg. 71, par 3 The conclusions regarding leachate movement seems relevant to the low levels of organics in the leachate at the sites, but the higher levels of inorganics may still potentially move, or have moved in the past (Site 2), to downgradient locations.

15. pg. 72, section 1.4.1 etc. As discussed in the general comments, the characterization of pathways and receptors pertinent to the ecological habitats in the wetlands, surface water channels and uplands at the sites are necessary to evaluate the remedial options and finalize the appropriate remedy.

16. Table 7 Resolution 68-16 should be included as a potential chemical specific ARAR. The resolution is promulgated to protect all beneficial uses, not just drinking water sources. If groundwater/leachate is impacting wetlands or surface water bodies than the Resolution would be applicable.

17. Table 8 Specific sections of the California Fish and Game Code may be applicable if the landfills are impacting aquatic or terrestrial wildlife.

18. pg. 138, section 5.0 and pg. 150, section 6.0 These sections need to evaluate the impacts of applying the remedial alternatives to the existing habitat and the hydrologic concerns as outlined in general comment #3.

If you have any questions or concerns, please call me at the San Francisco Bay Regional Water Quality Control Board at (510) 286-3980.