



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

June 18, 1993

Mr. Stephen Chao  
Naval Facilities Engineering Command  
Western Division  
900 Commodore Way, Bldg. 101  
San Bruno, CA. 94066

Re: Draft Operable Unit 1 Feasibility Study, dated April 27, 1993

Dear Mr. Chao,

The U.S. Environmental Protection Agency (EPA) has reviewed the subject document and provides the following comments. The review was performed by EPA and Jim Kao, SAIC/TSC Senior Environmental Engineer. Call me at 415-744-2383 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Michael D. Gill".

Michael D. Gill  
Remedial Project Manager  
Federal and Technical Programs Branch

cc: Elizabeth Adams (RWQCB)  
Josh Marvil (PRC) (Fax)  
Fred Molloy (SAIC)  
Cyrus Shabahari (DTSC)

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**TECHNICAL REVIEW OF THE  
DRAFT OPERABLE UNIT 1 FEASIBILITY STUDY REPORT  
NAVAL AIR STATION, MOFFETT FIELD  
MOUNTAIN VIEW, CALIFORNIA**

**GENERAL COMMENTS**

1. The ARAR analysis fails to identify and analyze distinct action-specific ARARs. The OU1 FS report fails to specifically identify and analyze the requirements applicable to landfill capping and landfill gas collection. These ARARs will form the regulatory design requirements which must be addressed in the remedial design.
2. An industrial scenario was assumed for the future use of Moffett Field. As discussed at the Moffett RPM meeting of 5/28/93, EPA feels that performing both residential and industrial scenario remedy analyses is cost effective in the long run for projects of this size. These analyses are necessary before final remedy selection can be made. No one can realistically predict what the long term future use of the station will be and if residential cleanup goals can be met without greatly increased costs, then that remedy may be considered.
3. Odorous methane emissions are not discussed in the FS report. Selection of appropriate remedial actions for containing, collecting, and treating landfill gas should address odorous emissions.
4. "The OU1 RI results indicate that these characteristics are shared by the OU1 landfills." (page 54) The characteristics mentioned here refer to the assumption that NPL landfill sites typically contain a combination of primarily municipal wastes and smaller amounts of hazardous wastes. This statement was used to justify the use of EPA guidance *Conducting RI/FS for CERCLA Municipal Landfill Sites*, for the OU1 landfills. It appears that large quantities of hazardous wastes were sent to these landfills; the quantities of solvents are not low. Is it not necessary to perform removals at the highest concentration areas? Even though landfill gas pathways apparently don't exist, the Navy may need to consider other pathways (e.g. soils).
5. "The draft OU5 RI report (IT, 1993b) and the draft-final OU1 RI report (IT, 1993a) indicate that contaminant migration from the landfills is not significant and surrounding ground water has not been affected (IT, 1993a, 1993b). In addition, risks associated with groundwater contamination at Sites 1 and 2 are below acceptable ranges (IT, 1993b)." (page 56) These statements were used to justify the elimination of multi-layer capping as a containment process option. Groundwater monitoring should verify OU1 landfills are not contributing to groundwater contamination.

6. "Methane was not detected in any other perimeter Site 1 LGMWs, including LGMW 1-2, which is south of LGMW 1-3. This indicates that migration is limited in the western direction. In addition, the areas west and north of the landfill (and west of LGMW 1-3) consists of a storm water retention pond, a marsh area, and wetlands." (page 80) These statements were used to justify a trench vent only along the western boundary of the Site 1 landfill. Landfill gas monitoring of the Site 1 landfill should verify landfill gas is not migrating in any other direction.
7. "Methane was not detected inside Site 2 landfill boundaries which indicates that Site 2 is no longer generating methane." (page 81) This statement was used to justify the elimination of Alternative 3 (soil cap, trench vent, and passive gas vent layer) at the Site 2 landfill. Landfill gas monitoring of the Site 2 landfill should verify landfill gas is no longer being generated in the Site 2 landfill.
9. It is mentioned at least 5 times throughout the text that the OU1 RI is not finalized (pages 17, 27, 75, 84, 104). It was finalized on June 7, 1993. Any RI changes affecting the FS should be incorporated in the FS.
10. Pursuant to 40 CFR §300.430(e)(3)(i), a range of alternatives should be developed that includes "an alternative that removes or destroys hazardous substances, pollutants, or contaminants to the maximum extent feasible". These alternatives (e.g. excavation, more types of caps) need to be considered in the FS.
11. The Record of Decision on this OU should not be written until the groundwater problem at OU5 is defined. Although it appears that the soon to be adopted FFA Amendment schedule covers this possibility, the Navy should be aware of this as a potential problem. It is possible that OU1 source control measures may be necessary prior to the definition of a possible OU5 groundwater problem. It may also be that OU1 remedial action (e.g. installation of a cap) would have to be removed once the groundwater problems at OU5 are defined. Pursuant to 40 CFR §300.430(a)(1)(ii)(B), "Operable units, including interim action operable units, should not be inconsistent with, nor preclude implementation of the expected final remedy". A possible way to avoid inconsistency and unnecessary work may be to delay the OU1 ROD until the OU5 ROD is due.
12. The authors failed to document whether or not the quality of laboratory data used in the risk assessment and comparison of remedial alternatives was known or considered before the recommendations presented in the FS were made. Section 2.4 of the RI documents that all data used in the site characterization were reviewed and considered valid for the purpose of site characterization. There is no mention in either the draft FS or in section 2.4 of the RI, however, as to whether the data used in the risk assessment were judged to be valid for risk assessment purposes.

## SPECIFIC COMMENTS

1. Section 1.2.3.2, (Remedial Investigations), para. 3, page 9

The statement that reads "remediation of the west side aquifers (formerly OU4) will be addressed by the MEW companies" should be reworded to read "remediation of the west side aquifers (formerly OU4) will be addressed according to the MEW ROD".

2. Section 1.4.2, (Identification of Exposure Pathways), para. 2, page 39

Remove the sentence "Direct exposure pathways to landfill groundwater are considered incomplete for both current receptor populations because the landfill groundwater at Sites 1 and 2 is not extracted for use.". Possible sources of drinking water need not be discussed here.

3. Section 1.5.2 (Location-Specific ARARs), Table 1

One additional location-specific ARAR should be included for completeness of this assessment. It is not very likely that this requirement is or will be applicable, but it should be included for completeness.

Location	Requirement	Citation	Applicability
Within area where action may cause irreparable harm, loss, or destruction of significant artifacts	Action to recover and preserve artifacts	National Archaeological and Historical Preservation Act (16 USC Section 469); 36 CFR Part 65	Should scientific, prehistorical, or historical artifacts be found at the site, this will become applicable

4. Section 1.5.3 (Action-Specific ARARs), para.3, page 51

RCRA Subtitle C may be an ARAR if no excavation does occur. The Navy should further investigate whether closure requirements for hazardous waste units may be an ARAR for these sites. For example, how would a cap meet the listed ARARs? How would the gas emission system meet ARARs (e.g. Air Quality Management District regulations)?

5. Section 1.5.3 (Action-Specific ARARs), Table 2

It is generally not acceptable to cite entire sections of state or federal regulations. Citing entire regulatory sections does not demonstrate a complete understanding of the specific requirements related to landfill capping and landfill gas collection and treatment.

This FS identifies EPA guidance *Conducting RI/FS for CERCLA Municipal Landfill Sites* as a reference. At a minimum, the ARAR analysis should start with the potential action-

specific ARARs identified in Table 5-3 of this reference. Even if these potential action-specific requirements are not applicable or relevant and appropriate, the FS should explain why they are not ARARs at this site. The ARAR analysis should include the following actions: capping, closure with waste in place, gas collection, surface water control, and treatment.

6. Section 1.5.3 (Action-Specific ARARs), Page 53

Clean Air Act (CAA) Section 101 and 40 CFR 52 (preparation of fugitive and odor emission control plan) is a potential action specific ARAR for landfill gas. Please provide an analysis in the FS which evaluates the potential for odorous emissions and the need for this plan.

7. Section 2.1 (Remedial Action Objectives), Page 56

Methane gas venting to the atmosphere can also cause an odor problem. Controlling odorous emissions should be evaluated as a possible remedial action objective (RAO) for landfill gas.

8. Section 3.1.1.3 (Capping), Page 66

A third type of cap should have been discussed, single barrier caps. The main functions of a single barrier landfill cap are to reduce surface infiltration, prevent direct contact, *limit gas emissions*, and control erosion (EPA, 1991). Since native soil covers are not an effective barrier for gaseous emissions, single barrier caps should be included in this section. A discussion should be added in the section which addresses the need to control of odorous emissions.

9. Section 3.1.2.3 (Active Gas Control Actions), Page 71

One of the reasons active gas control actions were eliminated from further evaluation is that "no severe odors have been identified at NAS Moffett Field near Sites 1 and 2." Please quantify the term "severe." Please describe the non-severe odors at NAS Moffett Field near Sites 1 and 2.

10. Section 3.1.2.4 (Treatment Actions), Pages 72 and 73

Landfill gas treatment actions are eliminated because "the preliminary screening level evaluation of risks included in the OU1 RI (IT, 1993a) does not indicate that any potential risks to human health and the environment are associated with NMOC emissions. In addition, calculations based on proposed rule identified in FR 24503 concerning NMOC landfill gas emissions indicate collection and treatment will not be required." For OU1, the landfill gas of concern is methane. Methane is an odorous gas which may require treatment before discharge to the atmosphere. The need for process options to treat odorous methane emissions should be addressed.

11. Section 4.2 (Alternative 2: Soil Cap, Trench Vent), Page 80

Landfill gas collection corrective actions should also be triggered by unacceptable odorous emissions.

12. Section 4.3 (Alternative 3: Soil Cap, Trench Vent, Passive Gas Vent Layer), Page 83

Landfill gas collection corrective actions should also be triggered by unacceptable odorous emissions.

13. Section 5.0 (Detailed Analysis of Remedial Alternatives)

Detailed analyses in sections 5.1, 5.2, and 5.3 may need to be revised due to modifications of the FS report resulting from comments provided above. Discussions on "Overall Protection of Human Health and the Environment" and "Compliance with ARARs" are the sections most likely to require revisions.

14. Section 5.0 (Detailed Analysis of Remedial Alternatives), Page 84

Please provide an explanation of the differences that exist between the nine criteria. The text gives the idea that all are weighted equally, when in fact that is not true.

15. Section 5.2 (Alternative 2: Soil Cap, Trench Vent), Page 92

In the "Compliance with ARARs" section, the FS report states "several action-specific landfill closure requirements will be appropriate for Alternative 2, such as cap slope requirements, gas monitoring requirements, and vegetative layer thickness requirements." Please include these requirements in the ARAR analysis section.

16. Section 5.3 (Alternative 3: Soil Cap, Trench Vent, Passive Gas Vent Layer), Page 96

This section states alternative 3 "is similar to Alternative 2 for Site 1 except that Alternative 3 includes passive gas control." This statement is incorrect. The trench vents (included in alternative 2) are a form of passive gas control. Alternative 3 adds passive vertical gas control to reduce damage to the vegetative layer.

17. Section 6.0 (Comparative Analysis of Selected Alternatives)

This section may need to be revised due to modifications of the FS report resulting from comments provided above.

18. Section 6.0 (Comparative Analysis of Selected Alternatives), Table 7

At Site 2, the cost for alternative 2 is higher than alternative 1 (no action). Therefore, the ranking scores should not be the same.

19. Appendix A (Cost Estimate Worksheets)

Please revise the worksheets for each alternative so that the cost for gas monitoring is the same. Small unexplained differences occur in capital and O&M costs. Alternative 1 for Site 1 has a cost of \$5,500 for capital cost and \$12,800 for O & M. Alternatives 2 and 3 for Site 1 have costs of \$5,440 for capital cost and \$12,790 for O & M. Alternative 1 for Site 2 has a cost of \$4,000 for capital cost and \$12,800 for O & M. Alternative 2 for Site 2 has a cost of \$4,030 for capital cost and \$12,790 for O & M.

**EDITORIAL COMMENTS**

1. A statement concerning the transfer of NASMF to NASA/Ames would clarify the statement on base closure made in the last sentence section 1.2.1 on page 6.
2. The section on landfill gas treatment actions is misnumbered (page 72). This section should be numbered 3.1.2.4.
3. The word "overall" is spelled incorrectly at the bottom of Table 7 (page 99).