



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

February 23, 1998

Mr. Stephen Chao
Naval Facilities Engineering Command
Engineering Field Activity, West
900 Commodore Way, Bldg. 210
San Bruno, CA. 94066-2402

Re: *Draft Site 22 Feasibility Study Report*, dated January 9, 1998

Dear Mr. Chao,

The U.S. Environmental Protection Agency (EPA) has received the subject document and provides the following attached comments. Comments include those from Clarence Callahan of our Technical Support section and Steve Anderson of our Office of Regional Counsel. If you have any questions, please call me at 415-744-2385.

Sincerely,

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

Michael D. Gill
Remedial Project Manager
Federal Facilities Cleanup Branch

cc: J. Chou (RWQCB)
K. Eichstaedt (email)
T. Mower (PRC) (email)
S. Olliges (NASA) (email)
P. Strauss (MHB) (email)

COMMENTS

Draft Site 22 Feasibility Study Report, dated January 9, 1998

GENERAL COMMENTS

1. EPA agrees that there is limited potential for direct impacts to site receptors. The Navy is correct to expect that, as with any landfill, the material could possibly be a source of contaminants for nearby receptors. With this in mind, if the Navy protects the water quality at the level of Aquatic Water Quality Criteria, the local aquatic receptors should be protected.
2. The viable alternatives presented in Section 4.0 are for two extremes of possible solutions to be considered for Site 22. Because 27 CCR Subchapter 5 allows for engineered alternatives, a single barrier cap comprising a geosynthetic clay liner or a flexible membrane liner should be considered. The cost may be significantly lowered for a single barrier cap when compared with a multi-layer cap if the foundation layer thickness is reduced and an integral biotic layer is part of the cap. If the question of inconsistency with local landfills precludes its selection, this can be evaluated later as one of the nine criteria.
3. Discussion should be presented regarding the existing site features and the disturbances that the various alternatives would have on these features. The short-term effectiveness section briefly mentions this, but the existing site features are not described.
4. An alternative that should be considered is the relocation of refuse. This remedy may be more cost effective and environmentally protective than others proposed. This method was employed for Site 2 of OU1. Another example is a similar closed, abandoned, or inactive (CAI) landfill at March AFB. This was a relatively small landfill with refuse in groundwater and minimal groundwater contamination; the landfill was closed in the 1960's. The issue was leaving refuse in groundwater considering the long-term detrimental impacts (e.g., landfill settling, increased potential for off-site transport of contaminants, no leachate control). The State RWQCB required a minimum of a 5-foot separation between groundwater and refuse. This is consistent with the siting of new landfills under current regulations. The landfill was subsequently relocated within the old CAI footprint, allowing the site owners to apply the closure specifications they wanted, but not make all the siting regulations applicable.
5. To best understand the infiltration minimization efficiency of the different cover scenarios, the results of the HELP (hydrogeologic evaluation of landfill performance) model should be presented. Given that there is perched leachate and an elevated leachate level within the landfill, there is significant infiltration. This higher water level elevation increases the potential for migration to groundwater and surface water bodies. The HELP

model will allow a comparative analysis to be conducted between the different capping alternatives. This comparison will provide a better understanding of how the different alternatives will perform.

6. Contingency actions should be proposed for instances when groundwater monitoring detects chemical concentrations higher than certain trigger points, e.g., AWQCs.
7. Significant infiltration appears to be generated by the landscaping practices conducted. To reduce infiltration, discussion should be presented on how irrigation practices can be implemented to minimize excess infiltration. This could include the use of lysimeters and timers for the irrigation system.
8. It appears that Site 22 is a municipal landfill, although no discussion is given. Please add language to substantiate this assumption that Site 22 is not a hazardous waste landfill, but a municipal landfill, as was done for Sites 1 and 2.

SPECIFIC COMMENTS

9. Section 1.2.2, page 5, para 1. Please clarify in this section how much the groundwater at Site 22 exceeds the 3000 mg/L TDS level or reference Fig 4.
10. Section 1.3.1, pages 8, 9. Please provide more detail on the contents of the landfill. This can be done by elaborating on the contents of Sites 1 and 2, if they contain the same materials. Please state whether Site 22 is a hazardous waste or municipal waste landfill, as was done for Sites 1 and 2 in OU1. Did the aerial photos show landfill coverage over the entire 7 acres or was the landfill only concentrated in certain areas?
11. Section 1.3.2, page 9. Please provide the regulations that are in place to protect the burrowing owls, i.e., what prompted the burrowing owl protection zone described in *Trulio 1997*?
12. Section 1.3.4, page 14, para 1. Please clarify which of the referenced quarterly reports contain groundwater and/or soil data from Site 22.
13. Section 1.3.4, page 15, Groundwater. Although meeting AWQC would protect aquatic life in surface water, it should be pointed out that AQWC are available for only a limited amount of the constituents detected at Site 22, including VOCs (3/14), SVOCs (3/13) and none for PCBs (0/2). Other methods of protection from chemicals should be implemented when AWQCs are not available.
14. Section 1.3.4, page 16, Landfill Gas. "...no significant subsurface methane gas is migrating beyond the perimeter of the landfill...". Please elaborate on what the phrase "no significant...gas" means and add it to the text.

15. Section 1.3.4, page 16, Summary. Please clarify that few chemicals have AWQCs. We suggest changing the language of the 2nd bullet to read: "For those organic constituents for which AWQCs are available, either in the landfill leachate or surrounding groundwater, none were detected at concentrations greater than AWQC".
16. Section 1.4, page 17. Please mention the use of the point risk approach and the associated results. Specify exactly what the calculated risks were for Site 22, as opposed to "within the acceptable risk range" for both the area risk and point risk methods.
17. Section 1.4, page 18, para 1. The last two sentences of this paragraph seem contradictory. The first states that "...no detectable quantities of nonmethane hydrocarbons are migrating..." and is followed by "Therefore, there are no risks associated with soil gas exposure or methane hazards". Please clarify the apparent confusion between nonmethane and methane gases. How can one be sure that methane risks are nonexistent if nonmethane hydrocarbons are the gases not migrating?
18. Section 1.4, page 18, para 2. Please add a brief section about the risks to other ecological receptors, as discussed on page 9. Is the burrowing owl considered an indicator species?
19. Section 1.5.1, page 21, Groundwater. Why are AWQCs not considered chemical-specific ARARs? These and other ARARs need to be notated during the FS and ROD, not only when the groundwater monitoring program is developed. In what situations would new chemical-specific ARARs be evaluated?
20. Section 1.5.1, page 21 (Chemical-Specific ARARs).
 - (a) If AWQCs are not chemical-specific ARARs, EPA recommends rewording the section on groundwater (page 21) as follows [new material is underlined]:

"Leachate has not significantly affected groundwater at Site 22. Because the proposed action does not include active groundwater remediation, no chemical-specific groundwater ARARs will be identified. Chemical-specific ARARs may be reevaluated when the groundwater monitoring program is developed."
 - (b) For thoroughness, consider listing the ARARs for methane (page 21), even if it appears they will not be used because no methane was detected at the boundaries of the landfill.
 - (c) While the Site 22 landfill is stated on pages 21-22 to be exempt from the Bay Area Air Quality Management District's Regulation 8, Rule 34 based on the estimated tonnage of waste at the site, the text should discuss whether the BAAQMD rule, although not "applicable", may nevertheless be "relevant and appropriate".
21. Section 1.5.2, page 22 (Location-Specific ARARs).

(a) The text should list the National Historic Preservation Act and the Archeological and Historic Preservation Act and discuss why they are not potential ARARs. See, for example, the notes in Table A-3 of the Draft Final Station-Wide FS dated November 8, 1996.

(b) The text should explain why the Endangered Species Act is not a potential ARAR, both generally and with specific reference to the western burrowing owl. Section 1.3.2 on page 9 states that there is a "western burrowing owl protection zone" within the perimeter of the golf course. Section 5.2.3 on page 44 states that the western burrowing owl is "a California species of special concern." These terms should be explained within the context of the relevant California statute or regulation, and potential state ARARs should be discussed in the text and listed at the appropriate place in the ARARs tables.

22. Section 1.5.3, page 22. Please identify which provisions of the federal and California state solid waste regulations are more stringent.

23. Section 1.5.3, page 22. Please provide some explanation of the change in California's solid waste regulations. In OU1's ROD, 14 CCR and other regulations were ARARs, but for this site, the ARARs are 27 CCR. A short description of the change in state regulations would be appreciated.

24. Section 1.5.3, page 22 (Action-Specific ARARs).

(a) The first reference in the text to Title 27 (on page 22) should include a full citation to the regulation.

(b) The quotation in the last paragraph on page 22 should be followed by a citation to the specific regulation that is being quoted. If the quotation is from Section 21100(b)(1) of Subchapter 5, it should be revised to read:

These regulations are applicable to solid waste "disposal sites that did not complete closure prior to November 18, 1990, in accordance with all applicable requirements."

(c) Is it correct that Title 27 is "applicable" to a landfill that has not been in operation since the mid-1960s, i.e., that the closure of a landfill dating from that time must be carried out in accordance with the requirements of Title 27, including the requirements in Subchapter 5 for a cap? If part or all of Title 27 is not "applicable", the text should discuss whether it may nevertheless be "relevant and appropriate". If Title 27 is either "applicable" or "relevant and appropriate", Alternative 2 does not appear to meet ARARs and may not be protective of human health and the environment. See comment below on Section 5.2.1.

(d) The last two sentences on page 22 are confusing because they attempt to explain both the relationship between Title 27 and other state and federal regulations and the concept that, as between similar state and federal requirements, the more stringent requirement will be an ARAR. The sentences

should be reworded for clarity and should include a specific citation to the other "federal and California solid waste regulations" that are being referred to, e.g., 40 C.F.R. Part 257 or 258. As necessary, these regulations should be added to Table 3.

(e) A statement should be added to the text explaining why state and federal hazardous waste regulations are not ARARs for this action. See, for example, the statement in Section 2.11.2.3 (pages 71-72) of the Final OU1 ROD dated August 1, 1997.

25. Section 2.1.2, page 24. The Navy' definition of the RAO for groundwater surrounding this site is "...to protect surface water and associated environmental receptors from exposure resulting from leachate migration into ground water and subsequently into surface water". This is vague and does not clearly state the goal. EPA suggests that the goal be "To maintain a level of protection of the surface water that meets or exceeds the Aquatic Water Quality Criteria (AWQC)." For those contaminants in the landfill that do not have identified AWQC, surrogate standards should be defined e.g., "no significant impact as determined in an appropriate bioassay."
26. Section 3.1.1, page 31, Capping. The FS should consider at least one additional capping alternative for comparison, possibly a single layer cap. If this alternative turns out to be insufficient to meet ARARs, it can be screened out at a later time.
27. Sections 3, 4. Text in various places states that groundwater will be monitored in perimeter monitoring wells. (See page 32, para 2; page 32, para 6; page 33, last para; page 35, para 2) Why are no groundwater wells within the landfill to be monitored?
28. Section 4.2.4, page 36, para 1. Please provide some examples of what type of corrective actions would be proposed to control any methane gas releases.
29. Section 5.2.1, page 42. Is Alternative 2, which proposes only access restrictions, the placement of a "biotic barrier" around the landfill, and gas and groundwater monitoring, in fact adequately protective of human health and the environment, when it does not provide for a cap? This should be discussed in light of the apparent requirement in Title 27 that closed solid waste landfills have a multilayered cap of a specified standard of construction and the statement in Section 1.3 (page 8) that the refuse in Site 22 has not been fully characterized.
30. Section 5.2.2, page 42 (Compliance with ARARs).
 - (a) The reference under Location-Specific ARARs to Section 1.5.3 should apparently be to Section 1.5.2.
 - (b) Action-Specific ARARs. Assuming that only the groundwater monitoring requirements of Title 27 are "applicable" to Alternative 2, the text should discuss whether other major requirements of Title 27 (such as the requirement for a cap)

are nevertheless "relevant and appropriate". If they are "relevant and appropriate", Alternative 2 does not appear to meet ARARs, because it does not provide for a cap. (Title 27 specifies a multilayered cap of a specified standard of construction for closing solid waste landfills.)

31. Section 5.2.3, page 43, para 2. We disagree with the proposal that the biotic barrier will be protective if only placed in or on the sloped areas of the landfill. The alternative should be modified to cover the entire landfill with a biotic barrier. The analysis, including costs, should be modified to reflect this coverage. This is because there is presently nothing, such as fencing, to prevent the squirrels from digging into the portions of the landfill within the perimeter.
32. Section 5.3.2, page 46. The existing text discusses potential action-specific ARARs for Alternative 3 only in terms of applicability. However, certain provisions of Title 27 that are not "applicable" to Alternative 3, may be "relevant and appropriate". The text should discuss any such provisions and should be revised to be consistent with any added discussion in Section 5.2.2.
33. In Section 6.2.1, page 50, para 2. It is stated that a cap specifically designed to reduce infiltration is of little value, since waste is already below the water table. This is contradictory and does not explain the presence of perched leachate within the landfill up to 7 feet above the surrounding groundwater table. Please clarify. It is also appropriate to consider a single barrier cap for this landfill. This section should be objectively reevaluated to assess whether Alternative 3 can provide increased long-term effectiveness and permanence over Alternative 2.
34. Section 6.2.1, page 50, para 2. Please elaborate on what corrective actions would be taken if leachate migration is discovered through the groundwater monitoring program.
35. Section 6.3, page 50. If a single- or multi-barrier cap can reduce infiltration, and thus mobility, of the leachate, does not Alternative 3 provide a greater reduction of the contaminate mobility? Please clarify.
36. Section 6.6, page 52 and Appendix F. The costs associated with a multilayer cap would be reduced if a single-barrier cap is used. The associated costs of a single barrier should be provided for comparison.
37. Tables 2, 3. It would be desirable throughout to state whether a particular statute or regulation is "applicable", "relevant and appropriate", or "to be considered".
38. Table 2.
 - (a) Is 40 C.F.R. Part 258 "applicable"? Compare it to 40 C.F.R. Part 257.
 - (b) Add the Endangered Species Act and/or the equivalent State statute as

necessary based on the additional discussion in the text at Section 1.5.2 relating to the western burrowing owl.

(c) Add the National Historic Preservation Act and Archeological and Historic Preservation Act, etc., as necessary based on the additional discussion in the text at Section 1.5.2.

39. Table 3.

(a) Consider adding Section 21090 to the list of state ARARs in Title 27.

(b) Consider adding Section 21160 (landfill gas control and leachate contact) to the list of state ARARs in Title 27.

40. Figures. To better understand the site conditions and drainage patterns, it is suggested that a topographic map be provided.

41. Figure 4. Please indicate Site 22 on this figure.

42. Table 6. In this comparison of remedial alternatives table, the ratings scale seems to imply that one must use the entire spread of 1 to 5 in the ratings of the three alternatives. We don't believe that was the intention. Possibly redefining the scale as 1=meets most criteria and 5=meets least criteria would provide more clarity. When we made this change and re-evaluated, the overall ratings changed somewhat and Alternative 3 was the most preferable. We understand that the inherent problem with these kinds of ratings is that they are subjective, but changing these definitions may help to clarify the comparison.

43. Figure 15 and Table B1. Sample designations presented in Table B1 are not found on Figure 15. On which figure are samples SBGC-1 through -5 located?

44. Figure 17. "Diagram" is misspelled in the legend.

45. Appendix B. Sample descriptions should be provided indicating if samples were taken inside or outside of the landfill.

46. Appendix B. Are these soil concentrations maximum concentrations detected? How many rounds of sampling are represented here? Please indicate data collection dates on the tables in this appendix.

47. Appendix C. Table C4 needs a definition for the *.

48. Appendix D. Table D1 is mislabeled. The title for this table should read **Landfill wells**, not **Perimeter wells**. Also, please describe the purpose of the cochran t-test and what it is showing in this appendix.