



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

July 13, 2001

Ms. Andrea Muckerman
BRAC Environmental Coordinator
Southwest Division, Naval Facilities Engineering Command
BRAC Operations Office
1230 Columbia Street, Suite 1100
San Diego, CA 92101-8517

Re: U.S. EPA Comments on Draft Record of Decision
Site 22 Landfill, Moffett Federal Airfield

Dear Ms. Muckerman:

The U.S. Environmental Protection Agency (EPA) has reviewed the Draft Record of Decision for the Site 22 Landfill, Moffett Federal Airfield, dated May 21, 2001. Our general and specific comments are attached.

Please call me at (415) 744-2387 for clarification or further discussion of any of these comments is needed.

Sincerely,

Carmen White

Carmen White
Remedial Project Manager, MFA

cc: Wilson Doctor, U.S. Navy
Dennis Mishek, RWQCB
Adriana Constantinescu, RWQCB
Jacques Graber, CIWMB
Sandy Olliges, NASA
James McClure, RAB Representative
Kevin Woodhouse, City of Mt. View
James Boarer, MEW Co. Representative
Michelle Schutz, EPA
Hilary Waites, TechLaw, Inc.

**Review of Draft Record of Decision
Site 22 Landfill
Moffett Federal Airfield**

GENERAL COMMENTS

1. The ROD states that landfill leachate is not in open communication with groundwater (Section 5.1.4) and that no direct pathways from the landfill leachate to surface water have been defined (Section 5.3.2), but does not present enough information for the reader to understand the path of migration or ultimate fate of landfill leachate. The ROD also indicates that the combination of precipitation and irrigation on the landfill equal 31 inches per year, but the fate of this water is not clear. In order to support the conclusion that landfill leachate is not in communication with groundwater or surface water, the ROD should describe where the combined precipitation and irrigation water goes, other than to groundwater (e.g., evaporation, ground surface, etc). Please revise the ROD to describe the paths of migration of water and/or leachate from the landfill to account for 31 inches of inflow to the landfill per year. Suggest summarize hydrogeology information from the 1998 Feasibility Study (FS).
2. In the Declaration Statement for Site 22 on Page i, the Draft Record of Decision, Site 22 Landfill (ROD) states that the United States Environmental Protection Agency (EPA), the California Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB) concur with the selected remedy; however, the DTSC is not listed as one of the authorizing signatures on Page iv. If the DTSC concurs with the selected remedy and is authorized to sign this ROD, please add a signature block for the DTSC representative to Page iv. If the DTSC will not sign the ROD, please eliminate the reference to the DTSC from Page i or provide the rationale for why the DTSC will not sign the ROD.
3. The ROD does not consistently state that the selected remedy is protective of human health *and* the environment. For clarity, please revise all applicable sections of the ROD to consistently state that the selected remedy is protective of human health *and* the environment, if appropriate.
4. A detection monitoring program is proposed as part of the selected remedy described in the ROD. The ROD should provide the following information to better describe the proposed monitoring program: groundwater flow direction, contaminants of concern, and cleanup levels. Furthermore, the ROD should refer to a long-term groundwater monitoring plan.
5. The ROD refers to a landfill gas monitoring program. For completeness, please revise the ROD to provide the following information: contaminants of concern and criteria that will trigger further actions (e.g., when dangerous methane gas concentrations are detected within the landfill). Furthermore, the ROD should refer to a long-term landfill gas monitoring plan.
6. The concentrations tables in the ROD do not include the detection limits for the compounds listed. To allow for evaluation of non-detect results, please provide the detection limits on

the tables. In addition, to allow for evaluation of detected concentrations, please add applicable cleanup levels and the sample date to the tables.

SPECIFIC COMMENTS

7. Assessment of the Site, Page i: The statement in the ROD regarding the existence of a release or substantial threat of a release of hazardous substances into the environment lacks clarity. The standard language proposed in the Guidance is “The response action selected in this Record of Decision is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment.” For clarity and ease of understanding, please revise the ROD to adhere to the standard language proposed in the Guidance.
8. Description of the Selected Remedy, Page ii: This section does not include the following components as outlined in the Guidance: A description of how the action fits into the overall site management plan (given that the action is one of several operable units), the intended sequence and timing of the operable units, and the identification of the selected performance standards. Please revise the ROD to include these components.
9. ROD Certification Checklist, Page iii: The first bullet states that the Decision Summary of the ROD includes “chemicals of concern and their respective concentrations”. However, this information is not provided in the ROD. For clarity, provide a list of chemicals of concern and their respective concentrations. In addition, it would be helpful if the certification checklist included page numbers indicating where the listed information can be found in the ROD, as suggested in the Guidance.
10. Section 2.0, Page 2-2: The ROD states that exploratory trenching uncovered municipal waste such as old tires, newspapers, vacuum tubes, and shampoo bottles; however, the Draft Site 22 Post-Remedial Action Monitoring Plan states that “the landfill received wastes generated from domestic aircraft maintenance and other military operations, such as scrap equipment, construction debris, paint and paint thinners, solvents, lacquer, asbestos, waste oil and transformer oil, jet fuel, fuel and transformer filters, and sawdust contaminated with polychlorinated biphenyls (PCBs)”. For clarity and completeness, please revise the ROD to include a description of all types of materials that may have been disposed of at Site 22.
11. Section 3.0, Page 3-1: The third paragraph refers to the final Proposed Plan for Site 22 Landfill; however, the Proposed Plan is not included in the list of references. For completeness, please add the Proposed Plan to the reference list.
12. Section 4.0, Page 4-1: The second paragraph only states that the selected remedy “will prevent burrowing animals from disturbing the waste, thereby minimizing human exposure to contaminated material”. However, the other components of the remedy (groundwater and landfill gas monitoring, surface water management and erosion control,

and institutional controls) are not mentioned. Since the remedy consists of several components besides the installation of a biotic barrier (as described in p. ii), please revise the ROD to include a comprehensive description of the selected remedy. Additionally, this section does not include the following components as outlined in the Guidance: the scope and role of the operable unit within the overall site management plan, the planned sequence of actions, and the authorities under which each action will be/has been implemented (e.g., removal, remedial, State). Please revise the ROD to include these components.

13. Section 5.1.1, Page 5-2: The ROD refers to a document prepared by Foster-Wheeler Environmental Corporation entitled "Pre-Draft Annual Groundwater Report for 1999 and 2000 including August 2000 and November 2000 Quarterly Reports, Revision 0" dated May 2001, for detailed aquifer descriptions. However, since this document was not submitted to the regulatory agencies for review, this reference should be deleted from the ROD.
14. Section 5.1.2, Page 5-2: This section does not include a description of groundwater flow direction within each aquifer and between aquifers, and groundwater discharge locations as required by the Guidance. Please revise the ROD to include a description of groundwater flow direction.
15. Section 5.1.2, Page 5-2: This section identifies a laterally discontinuous permeable zone between 11 and 16.5 feet below mean sea level (msl). The water in this zone is apparently what is referred to as "groundwater" throughout the remainder of the ROD; however, in the previous section six aquifer zones are defined for the region and the C aquifer is described as being used for agriculture and drinking water. It appears that the ROD statement that there are no beneficial uses for groundwater at Site 22 refers to the upper aquifers only, since the 1998 Feasibility Study (FS) (section 1.3.3 Hydrogeology, p.12) states that lithology within the Site 22 area is not known approximately 45 feet msl. If the statement only refers to the upper aquifers, please revise accordingly. Alternatively, clarify the relationship of Site 22 groundwater to the six aquifers in the region and provide evidence that Site 22 groundwater does not communicate with the deeper aquifers in the region or with areas of the A and B aquifers that meet State Water Resources Control Board (SWRCB) and EPA criteria for potential drinking water sources.
16. Section 5.1.2, Page 5-2: This section states that a laterally discontinuous permeable zone is typically encountered between 11 and 16.5 feet below msl (about 9 to 16.5 feet below ground surface (bgs)). This statement implies that the ground surface at Site 22 is at or slightly below sea level (msl); however, the lithologic cross-sections shown in Figures 14, 15, and 16 show the Site 22 landfill as a mound rising about 8 feet above sea level. Please revise the ROD to clarify the topography of Site 22 and the relationship of the ground surface elevation to subsurface features. In addition, please describe the depth and thickness of landfill material and the relationship of landfill surface and bottom

elevations to the water table elevation to support the statement that 5 feet of landfill refuse is below the water table.

17. Section 5.1.2, Page 5-3: The first paragraph on this page states that the water table in the Site 22 area is encountered between 1 and 5 feet bgs. In Section 5.1.4 the ROD states that groundwater in the landfill can be mounded above surrounding groundwater by as much as 7 feet. If these two statements are true, groundwater in the landfill can be mounded 2 feet above the ground surface. For clarity, please describe the water table in terms of elevation in addition to depth bgs. In addition, please clarify the water table elevations with respect to the topography of Site 22, including the landfill area.
18. Section 5.1.3, Page 5-3: This section concludes that there is no communication between groundwater and surface water features such as the North Patrol Road Ditch, because during times of low stormwater runoff, there is not water flowing in the ditch. However, the FS (section 1.3.3 Hydrogeology, p.12) states that shallow groundwater is in hydraulic communication with surface water, based on chemical comparisons of water samples from wells and the Northern Channel. Please revise the ROD to clarify that shallow groundwater is in communication with surface water.
19. Section 5.1.4, Page 5-4: This section states that communication between the “perched leachate” and shallow groundwater is limited due to clay and clayey silt beneath and around the landfill; however, the next sentence states that *groundwater* in the landfill can be mounded above surrounding groundwater by as much as 7 feet. Please revise the ROD to clarify that the water mounded in the landfill is landfill leachate or perched groundwater and not shallow groundwater. The section goes on to discuss results from “perimeter wells” and “leachate wells”. Please revise the ROD to clarify that the two wells within the landfill are completed within the landfill material above the clay layer and are monitoring *landfill leachate or perched groundwater* and not shallow groundwater. Finally, since the permeable zone occurs from 11 to 16.5 feet below mean sea level (msl) and the water table is encountered between 1 and 5 feet below ground surface (bgs), it appears that groundwater occurs under confined conditions. Please revise the ROD to clarify that the conclusion that landfill leachate is not in communication with groundwater is supported by water chemistry analysis, as explained in the FS section 1.3.3 Hydrogeology pp.13-14.
20. Section 5.2, Page 5-5: This section states that a very recent survey identified no owls, and 7 or 8 active squirrel burrows at Site 22. Since the burrowing owl population varies seasonally, please revise the ROD to indicate the month and year that the “much more recent” survey was conducted.
21. Section 5.3, Page 5-5: The ROD states that soil samples were analyzed for Volatile Organic Compounds (VOCs), Semi-Volatile Organic Compounds (SVOCs), pesticides, Polychlorinated Biphenyls (PCBs), Total Petroleum Hydrocarbons (TPH) and metals; however, the Final Station-wide RI Report indicates that Phase II soil samples were also

analyzed for radioactivity. Please revise the ROD to include a summary of results of radioactivity analyses.

22. Section 5.3.2, Page 5-7: This section describes four rounds of groundwater samples collected from four wells surrounding the landfill and two wells within the landfill (WGC2-2 and WGC2-3). Since the ROD concludes that landfill leachate is not in open communication with the surrounding groundwater, please revise the ROD to describe these two wells consistently throughout the ROD as “landfill leachate or perched groundwater” wells and samples collected from these wells as “leachate or perched groundwater” samples rather than groundwater samples.
23. Section 5.3.2, Page 5-7: The second paragraph on this page concludes that monitoring wells considered upgradient of Site 22 may receive groundwater moving from the higher, perched landfill leachate, and no distinct upgradient location exists at the perimeter of the landfill. This statement contradicts the conclusion in Section 5.1.4 that “the landfill leachate is not in open communication with the surrounding groundwater.” If the landfill leachate is not in open communication with the surrounding groundwater, then an upgradient (and downgradient) location should be defined in order to evaluate the impact of the landfill on groundwater. If an upgradient direction can’t be identified then the conclusion in the ROD that the landfill leachate is not in open communication with the surrounding groundwater should be removed. Please revise the ROD to define upgradient and downgradient locations at Site 22 or eliminate the conclusion that landfill leachate is not in open communication with the surrounding groundwater.
24. Section 5.3.3, Page 5-8: The last sentence states that air Solid Waste Assessment Test (SWAT) results indicate that no detectable concentrations of non-methane organic compounds (NMOCs) are migrating to the atmosphere from the landfill and no methane gas is migrating beyond the perimeter of the landfill. However, the text does not state whether methane gas was found to be migrating to the atmosphere from the landfill. Additionally, the ROD does not describe the composition of the landfill gas. Please revise the ROD to provide a more complete summary of the results of the SWAT tests including composition of landfill gas, concentrations, and migration pathways.
25. Section 5.3.4, Page 5-9: The ROD concludes that organic constituents in perimeter wells may have originated from the landfill due to the presence of *groundwater within the refuse*; however, the ROD has previously concluded (Section 5.1.4) that landfill leachate is not in communication with groundwater. Also, if leachate is not in communication with groundwater, please clarify the route of contaminant migration from the landfill to perimeter wells.
26. Section 5.3.4, Page 5-9: The fourth bullet states that metal concentrations detected in groundwater surrounding the landfill were not significantly different from background concentrations. For clarity and completeness, please revise this bullet statement to indicate that nickel, lead, and zinc concentrations exceeded AWQC in some perimeter

wells. In addition, please state what the background concentrations are and how they were determined.

27. Section 6.0, Page 6-1: According to the Guidance, this section is to include a description of adjacent/surrounding land use, and the basis for future use assumptions. Please revise this section to include the above-mentioned information.
28. Section 7.2, Page 7-2: According to the Guidance, this section should include summary tables listing the occurrence, distribution, and selection of chemicals of concern (COC), ecological exposure pathways of concern, and COC concentrations expected to provide adequate protection of ecological receptors. For completeness, include tables listing the above-mentioned information in the ROD. In addition, revise the ROD to provide a summary of the ecological risk characterization for each COC at Site 22.
29. Section 8.0, Page 8-1: According to the Guidance, the remedial action objectives (RAOs) should address risks identified in the risk assessment. The only potential threat at Site 22 was identified as exposure to contaminants due to direct contact with refuse. Three mechanisms were identified in the risk assessment which could cause subsurface disturbance and exposure to refuse: construction, significant erosion, or the activities of burrowing animals. However, the RAO defined in this section addresses only one mechanism: burrowing animals. Please revise this section to include prevention of construction activities (through institutional controls, for example), and prevention of significant erosion (through surface water flow management, for example) to the statement of the RAOs for Site 22.
30. Section 9.2.3, Page 9-4: The text states that access controls will be included in NASA's land use planning documents. Please describe NASA's land use planning procedures and specify the document or type of document which will contain the access controls.
31. Section 9.2.5, Page 9-4: The ROD states that shallow landfill gas monitoring points would be installed just above the seasonal low water table, since the water table is between 1 and 5 feet bgs; however, according to Section 5.1.2, the permeable zone is 9 to 16.5 feet bgs and is separated from the ground surface by clay and clayey silt (Figures 14, 15, and 16). If groundwater occurs under confined conditions, it is not clear why gas monitoring wells can't be screened to the bottom of refuse. Please revise the ROD to clarify whether groundwater occurs under confined conditions and, if so, please revise the ROD to indicate that wells will be screened to the bottom of refuse as required by Title 27 CCR.
32. Section 10.2.2, Page 10-5: This section states that the substantive portions of landfill closure requirements in 40 CFR § 258 would be considered relevant and appropriate because Site 22 received domestic wastes from MFA similar or identical to wastes managed in municipal solid waste landfills, and that provisions in 40 CFR § 258.60 require that the final cover system be designed to minimize infiltration and erosion. This

section appears to contradict the information presented in Tables 17 and 18 where only gas and groundwater monitoring provisions of 40 CFR § 258 are deemed relevant and appropriate. Please revise the ROD to clarify whether the cover system design requirements of 40 CFR § 258 are relevant and appropriate.

33. Section 10.3, Page 10-6: The last sentence of the first paragraph states that “leachate will exist whether a multilayer cap is employed or not because some of the refuse is located below the water table”. This statement appears to contradict the conclusion in Section 5.1.4 that landfill leachate is not in communication with surrounding groundwater. Please clarify how the position of the water table influences the formation of leachate if landfill leachate is not in communication with surrounding groundwater.

34. Section 12.2, Page 12-3: According to the Guidance, a description of the institutional control components of the remedy should be expanded upon in this section.. The institutional controls should be described as explicitly as possible. Include: **Objective:** clearly state what will be accomplished through the use of institutional controls. **Mechanism:** describe the specific types of institutional controls that will be used to meet the remedial objectives and the monitoring process/program that will be used to determine the integrity and effectiveness of the institutional controls. **Timing:** when will the institutional controls be implemented and/or secured and how long must they be in place. **Responsibility:** who will be responsible for securing, maintaining and enforcing the control(s). Include a description of the procedures that will be used to report violations or failures of the institutional controls to the appropriate EPA and/or state regulator and the designated party responsible for reporting. Include a description of the legal authority for enforcement procedure(s), such as state statutes, regulations, ordinances, or other legal authority. Also clarify the method(s) that will be used to provide notice of the institutional controls at the site to subsequent owners or lessees.

In addition, please revise the ROD to include more detail regarding the long-term groundwater monitoring plan, the landfill gas monitoring plan, and the landfill and monitoring wells O&M Plan.

35. Section 12.2, Page 12-3: This section states that the groundwater monitoring program will incorporate the substantive provisions of 22 CCR applicable to the development and implementation of a monitoring program; however, details of how the requirements of the relevant sections of 22 CCR will be met are not provided. For example, the ROD does not describe constituents of concern, concentration limits, monitoring parameters, analytical suite, the method for detecting a release, and the method for determining background concentrations that are proposed for Site 22. Also, the ROD states that if monitoring results show no significant impacts, monitoring intervals may be increased or deemed unnecessary, but the ROD does not define what constitutes “significant impacts.” Finally, the ROD states that if contaminant concentrations in groundwater exceed levels established in accordance with Title 22 CCR, § 66264.97, the Navy will immediately notify the regulatory agencies, evaluate groundwater contamination in accordance with

CERCLA, and obtain concurrence from EPA, RWQCB, and DTSC on remediation decisions. However, the ROD does not define the contaminant concentrations that will trigger these actions or at what concentrations remediation will be deemed necessary. In order for the monitoring program to be meaningful, and for agencies to make appropriate decisions in the future based on monitoring results, the ROD should summarize details of the monitoring program as described above. If this information will be developed at a later date, please clarify when. Consider using Ambient Water Quality Criteria (AWQC) as interim standards.

36. Section 12.4, Page 12-4: According to the Guidance, this section is to include a description of the available uses of land and the time frame to achieve available use, anticipated socio-economic and community revitalization impacts, and anticipated environmental and ecological benefits. Please revise this section to include the information described above.
37. Section 14.1, Page 14-1: This section states that institutional controls as well as monitoring will be implemented to prevent exposure to contaminated groundwater; however, exposure to contaminated groundwater was not identified as a risk in Section 7.0. Please clarify whether exposure to contaminated groundwater is a concern at Site 22. If not, please remove the above-referenced statement from this section.
38. Figures 3 and 4: Please add the groundwater flow direction to these figures. See Figure 4 from the FS.
39. Figure 3: It appears that the symbol indicating the locations of the proposed gas monitoring wells have no identification (ID) number and are not identified in the legend. Please revise the figure to provide ID numbers for the proposed gas monitoring wells and include an explanation of this symbol in the legend. In addition, one symbol (a small circle with a dot in the center) is shown inside the boundary of the landfill. However, this symbol is not defined in the legend. Please include this symbol in the legend or delete this symbol from the map.
40. Figures 5 and 6: Please add the sample date, and applicable soil action levels to the figure (for comparison with the soil concentrations). In addition, please include the analytical laboratory data qualifiers to the legend. Lastly, please explain why no data are listed for sample location SBGC2-6.
41. Figures 7 and 8: Please add the sample date and applicable groundwater action levels (i.e., Ambient Water Quality Criteria (AWQC)) as mentioned in the text of the ROD to the figure for comparison with the groundwater concentrations. The existing figures show that, at some sample locations, VOCs were below Maximum Contaminant Levels for Drinking Water (MCLs), but the text of the ROD states that the A and B aquifers underlying the site are not considered drinking water. Therefore, MCLs are not relevant, suggest use AWQC. In addition, please include the analytical laboratory data qualifiers to

the legend. Lastly, please include the groundwater flow direction on the figures.

42. Figure 9: The figure shows the air SWAT sampling locations which are all located in the northeastern corner of the landfill. It is unclear why samples were collected at this specific corner only. Please provide the rationale for selecting only this area for the air SWAT sampling.
43. Figure 13: For clarity, please indicate the thickness of each layer in the figure.