



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

September 3, 1997

Mr. Joseph Joyce
BRAC Environmental Coordinator
AC/S Environment (1AU)
MCAS El Toro
P. O. Box 95001
Santa Ana, CA 92709-5001

Re: EPA Technical Comments on Draft Phase II Feasibility Study OU3-A Sites, Marine Corps
Air Station El Toro, CA, and Extension Request

Dear Mr. Joyce:

The United States Environmental Protection Agency (EPA) has reviewed the above referenced document. Please find EPA's technical comments attached to this cover letter.

In addition, EPA is hereby requesting an extension under Section 9.2 (g) of the Federal Facilities Agreement to submit it's remaining comments by September 24, 1997. EPA anticipates these comments to relate mainly to ARARs.

If you have any questions, please feel free to call me at (415) 744-2210.

Sincerely,

A handwritten signature in cursive script that reads "Glenn R. Kistner".

Glenn R. Kistner
Remedial Project Manager
Federal Facilities Cleanup Branch

cc: Tayseer Mahmoud, DTSC
Larry Vitale, RWQCB
Andy Piszkin, SWDIV
John Scholfield, Bechtel

received
9/9/97

**COMMENTS ON THE DRAFT PHASE II
FEASIBILITY STUDY
OU-3A SITES
MARINE CORPS AIR STATION
EL TORO, CALIFORNIA**

GENERAL COMMENT

1. This document was difficult for even an experienced technical reviewer to follow; a reader from the general public will likely have an even more difficult time. There are many points of confusion:
 - The presence of both Attachments A, B, and C and Appendices A, B, and C is confusing.
 - The logic behind the text is nonlinear. For example, the text in Section 2 of the main text refers to the attachments, but the attachments refer back to Section 2 of the main text. This is circular logic.
 - Some tables reference themselves. Another table references a non-existent table.
 - New material is presented in the Executive Summary.
 - It is unclear how the document should be read because the main text and attachments are not complete in and of themselves. Please explain whether the attachments should be read before the main text, or whether it was intended that the main text and all three attachments be read in parallel.

Please either revise the text so that it flows linearly without circular references or provide the reader with a "road map" that explains how the document should be read.

Executive Summary

1. The summary is too extensive and should not include new information; the new information includes the comparative analysis of alternatives which should be presented in Section 5 and referenced or summarized in the Executive Summary.
2. **Figure ES-2.** The identifier at each location (i.e., 08B201) should be included and defined in the legend. Currently, only the symbol is shown.
3. **Table ES-2, p. ES-13, Footnote "d".** Please verify that the cancer risk for an adult is really "higher" than the cancer risk for a child.
4. **Tables ES-3, ES-4, and ES-5 starting on p. ES-23.** The relative terms of "high, moderate and low" need to be defined.

5. **Table ES-5, p. ES-28.** Please explain why the ratings for the long-term effectiveness are the reverse of those for that of short term-effectiveness (i.e., does the no action alternative really have a high short-term effectiveness?).

Section 1

Specific Comments

1. **Section 1.2.3.1, p. 1-20, paragraph 1, third sentence.** Please include a reference citation for the "moderate permeability" of the soil.
2. **Section 1.2.3.1, p. 1-20, paragraph 3, second sentence.** The infiltration rate is given as 5 inches per year. Please clarify whether this is a yearly average. Please discuss whether the instantaneous infiltration rate and its implications need to be determined. Also, please include the depth to groundwater in this paragraph.
3. **Section 1.2.3.1, p. 1-23, paragraph 4, first sentence.** Please specify the "other information" used to evaluate the need for further action.
4. **Section 1.3, p. 1-24, bullet 3.** Section 5 does not currently consist of "the condensed results of the comparative analysis of all of the alternatives..." as described in this bullet; this information was placed in the Executive Summary and referenced in Section 5. Section 5 should be revised to contain the information described in this bullet. (Also see Executive Summary Comment 1.)

Section 2

General Comments

1. A reader from the general public will have a great deal of trouble following the logic and flow of this document. The references to attachments and then from the attachments back to Section 2 is confusing.
2. The list of treatment technologies can be extended beyond what is described in this FS. This should be done to show that a greater range of options were considered at the beginning of the selection process even if they were eventually screened out.
3. Please clarify whether innovative technologies were considered, and whether the criterion of "commercial availability" excluded these innovative technologies.
4. Please discuss whether the risk for wind blown dust from the soil to be used as cover at the onsite landfill has been evaluated. (Receptor: onsite worker at landfill. Pathway: Inhalation, skin adsorption.)

Specific Comments

1. **Section 2.4.1, p. 2-17 Institutional controls.** Please clarify why the location and current use of the sites precludes the use of signs.
2. **Section 2.4.1, p. 2-17 Containment.** The cap descriptions should address surface controls such as grading and drainage to promote runoff and prevent run-on.

The nomenclature "vegetative cap" should reflect the fact that a soil layer will be included (i.e., Vegetative/soil Cap).

It should be mentioned that the materials for the "multilayered cap" can include soils or geosynthetics. The cost of this cap is highly dependent upon the materials used.

3. **Section 2.4.1, p. 2-18 Treatment.** Please discuss whether the following options were considered.

In-situ:

- Electrical separation.
- Pneumatic fracturing with SVE
- Hydrolysis

Ex-situ:

- UV photolysis

4. **Table 2-2, p. 2-19.** In general, define the terms of "expensive, inexpensive and very expensive". Please clarify whether the terms are applicable relative to all the options when compared with one another across GRAs or within the categories defined by the technologies.

Please discuss why the Screening Result of "potentially applicable" is necessary, since "not applicable" is the result that precludes a technology from further consideration.

Containment: Capping. Please discuss whether vegetation can be sustained on the cap without irrigation. If not, this technology should be screened out because irrigation would contribute to infiltration into the subsurface.

5. **Table 2-2, continued p. 2-21. Collection/Treatment, In-situ Treatment, Effectiveness.** Describe the ineffective options and the goals that cannot be met.

Collection/Treatment, Ex-situ Treatment, Effectiveness. Describe the ineffective options and the goals that cannot be met.

Collection/Treatment, Ex-situ Treatment, Implementability. Describe the options that are impacted by site conditions. Describe the physical conditions that impact implementability.

6. **Table 2-2, continued p. 2-23. Collection/Recycling, Cost.** Please discuss whether cost is also dependent upon the amount of treatment required.
7. **Section 2.4.1, p. 2-27, paragraph 1.** SVE was already described as an in-situ technology and is not normally considered an ex-situ technology.
8. **Table 2-3, p. 2-31.** This table appears to be unfinished because it was not filled out. This is an important table, but it was not adequately discussed in the text.

The Preliminary Screening Codes should be fully explained so the decision to screen a process is clearly given and documented.

These options need to be screened according to Effectiveness, Implementability and Cost, but much of the screening listed is appropriate for screening of alternatives rather than the screening of technologies.

Section 5

1. The information found in the Executive Summary should be included in this section. It is inappropriate to include new information in the Executive Summary and reference it in Section 5.

Attachment A

General Comments

1. The text and the corresponding tables need to be correlated. The text should explain and help the reader through the tables, but the text necessary lacks detail to support the tables. For example, the screening of technologies shown in the Table 2-4 needs to be strengthened and supported by the text.

Specific Comments

1. **Section 1.3.2, p. A1-20, bullet 5.** Please replace the word "evapotranspiration," which includes both evaporation and transpiration from plants, with "evaporation" because there is no significant plant cover at Site 8.
2. **Table 2-3, p. A2-17.** This table references itself, which is confusing. Please replace the phrase "See Table 2-3 in this section" with a more appropriate reference or the full information.
3. **Table 2-4, p. A2-21.** It should be made clear that these options were screened according to Effectiveness, Implementability and Cost. Alternatively, revise the title to "Comparison of Treatment Technology Process Options at Site 8" or something similar.

Under the heading "Site Contaminant Treatable" it should be shown that the bioventing, soil washing and low temperature thermal desorption are effective for the treatment for PAHs. Indicate that soil washing, dehalogenation, high temperature thermal desorption and incineration are effective for PCBs.

4. **Section 2.4.2.3, p. A2-23.** Please discuss whether there are known or unknown underground utilities. The removal process should include the clearance of utilities at depth before excavation.
5. **Section 2.4.2.4, p. A2-24, paragraph 1, 3rd sentence.** Explain what the potential reuse limitations of the treated soil are, or refer to a section that discusses these limitations. Explain the factors controlling the cost range of \$300 to \$600, and clarify which cost will be assumed for the cost analysis.
6. **Section 2.4.2.5, p. A2-24, paragraph 2, 2nd sentence.** Explain the factors controlling the cost range of \$50 to \$200, and clarify which cost will be assumed for the cost analysis.
7. **Section 3.2.1.1, p. A3-3, last sentence.** Please discuss the extent to which natural biodegradation is occurring at this site, including the half-life of the risk drivers under conditions comparable to site conditions. Generally, natural degradation of PCBs is extremely slow, particularly under the aerobic conditions found in shallow soil. High molecular weight PAHs like benzo(a)pyrene do not degrade.
8. **Section 3.2.1.2, p. A3-3, paragraph 2, 2nd sentence.** Please explain why soil conditions were described using the terms "stability" and "compacted nature." Clarify whether this is based on visual observation or whether geotechnical laboratory data are available to reference and describe soil stability at this site.
9. **Section 3.2.1.2, p. A3-3, paragraph 2, 3rd sentence.** Since provisions for infiltration control in the cap design are not necessary (paragraph 2, 1st sentence), it is unclear why a gravel layer was included for drainage. Also, drainage will not occur unless grading is provided before the gravel is installed (refer to Figure 3-2, p. A3-4). It might be better to state that the gravel is a bedding layer rather than a drainage layer.
10. **Section 3.2.1.2, p. A3-3, paragraph 2, 4th sentence.** Please specify the soil type described as "bare soil" (e.g., sand, silt, or clay).
11. **Section 3.2.1.3, p. A3-5, paragraph 1, 2nd sentence.** Please clarify how the 1:1 (45° angle) slope was determined. If a 2(H):1(V) slope is assumed, the soil volume will increase.
12. **Section 3.2.1.4, p. A3-6, paragraph 3, 2nd sentence.** Please specify the metals that are anticipated to be concentrated in the ash.

13. **Section 3.2.2.1, p. A3-11, paragraph 1, last sentence.** Please discuss the extent to which natural biodegradation is occurring at this site including the half-lives of the risk drivers under conditions comparable to site conditions. Natural degradation of PCBs is extremely slow, particularly under the aerobic conditions found in shallow soil. High molecular weight PAHs like benzo(b)fluoranthene and ideno(1,2,3-c,d)pyrene also do not degrade under site conditions.
14. **Section 3.2.2.2, p. A3-11, paragraph 2, 2nd sentence.** Please explain why soil conditions were described using the phrases "stability" and "compacted nature." Clarify whether this is based on a visual observation or whether there is geotechnical laboratory data to reference to support soil stability at this site.
15. **Section 3.2.2.2, p. A3-11, paragraph 2, 3rd sentence.** Since provisions for infiltration control in the cap design are not necessary (paragraph 2, 1st sentence), it is unclear why a gravel layer was included for drainage. Also, drainage will not occur unless grading is provided before the gravel is installed (refer to Figure 3-2, p. A3-4). It might be more appropriate to describe the gravel layer as a bedding layer rather than a drainage layer.
16. **Section 3.2.2.3, p. A3-11, paragraph 1, 3rd sentence.** Please explain how the 1:1 (45° angle) slope was determined. If a 2(H):1(V) slope is assumed, the soil volume will increase.
17. **Section 4, Short-term Effectiveness, All Alternatives.** The evaluation of the alternatives for the criterion of "Short-term Effectiveness" lacks descriptive text for: Effectiveness and reliability of protective measures; effectiveness and reliability of mitigative measures during implementation; and time until the cleanup objectives are achieved (Section 4.1.5, p. 4-4, of the main body of the report). The summary tables (e.g., Table ES-3, p. ES-23 should then show the ranking of the alternatives, according to short-term effectiveness, in the reverse order relative to each other, (i.e., Alternative 1 will be "Low" [or not applicable] and alternative 5 will be "High").
18. **Section 4, Short-term Effectiveness, All Alternatives Except "No Action."** Please specify the source of the investigation-derived material wastes that are mentioned in the text. Please discuss whether monitoring of airborne particulate matter will be implemented during handling of contaminated soil.
19. **Section 4, Short-term Effectiveness, All Alternatives Except "No Action."** Please clarify whether construction barriers will be used to control the site.
20. **Section 4.2.2.7, p. A4-5, paragraph 2, 3rd sentence.** This alternative should include the operation and maintenance cost for necessary inspections. Minor repair costs should be included to ensure the 30-year service life is achieved.
21. **Section 4.2.3.5, p. A4-9, paragraph 2 and Section 4.3.3.5, p. A4-29, paragraph 2.** Because contaminated soil that is to be recycled as cover material at the landfill is

- contaminated, it appears that the risk for exposure should be determined and discussed for stock-piling of the soil until it is used in the cover; exposure due to moving, placing and grading the soil during construction; and soil vulnerable to movement by wind action until the soil placed in the landfill is capped by the final cover.
22. **Section 4.2.3.7, p. A4-26, paragraph 1, 4th sentence.** This alternative should include the annual operation and maintenance cost for necessary inspections. Minor repair costs should be included to ensure the 30-year service life is achieved.
 23. **Section 5.** The section makes better use of tables because the text is more relevant to the tables than in previous sections.
 24. **Section 5. Short-term Effectiveness, All Alternatives.** The evaluation of the alternatives for the criterion of "Short-term Effectiveness" lacks descriptive text for effectiveness and reliability of protective measures; effectiveness and reliability of mitigative measures during implementation; and time until the cleanup objectives are achieved (Section 4.1.5, p. 4-4 of the main body of the report). The summary tables (e.g., Table 5-1, p. A5-2 should then show the ranking of the alternatives, according to short-term effectiveness, in the reverse order relative to each other, (i.e., Alternative 1 will be "Low" [or not applicable] and alternative 5 will be "High").
 25. **Tables 5-1 and 5-3.** A rating method with more options than high, moderate, low should be used. This would allow differentiation between alternatives. For example, an alternative that resulted in a reduction of volume and toxicity could then be rated higher than an alternative that only reduced contaminant volume; currently both alternatives would be rated "high."
 26. **Section 5.2, p. A5-5, Table 5-2 and Section 5.3, p. A5-14, Table 5-4.** This alternative should include the annual operation and maintenance cost for annual inspections. Minor repair costs should be included to ensure the 30-year service life is achieved.
 27. **Sections 5.2.3 and 5.2.4, p. A5-6 and Sections 5.3.3 and 5.3.4, pp. A5-14 and A5-15.** It is unlikely that much if any natural biodegradation is occurring (see Comment 7). Please revise or delete the statements about natural biodegradation.
 28. **Section 5.2.5, p. A5-7, paragraph 2.** Please discuss the source of the investigation-derived wastes. Also discuss whether monitoring of airborne particulate matter would be implemented during handling of contaminated soil.
 30. **Section 5.2.5, p. A5-7, paragraph 2.** Because the soil that is to be recycled as cover material at the landfill is contaminated, it appears that the risk of exposure should be determined and discussed for stock-piling of the soil until it is used in the cover; exposure due to moving, placing and grading the soil during construction; and soil vulnerable to movement by wind action until the soil placed in the landfill is capped by the final cover.

Attachment B

General Comment

1. The text and the corresponding tables need to be correlated. The text should explain and help the reader through the tables, but lacks the necessary detail to support the tables.

Specific Comments

1. **Section 1.3.2, p. B1-8, bullet 3.** Please replace the word "evapotranspiration," which includes both evaporation and transpiration from plants, with "evaporation" because there is no significant plant cover at Site 8.
2. **Table 2-3, p. B2-15.** This table refers to Table 2-4 which was not included in Section 2 of this attachment. To parallel other attachments, Table 2-4 should be used to justify screening processes to select the representative option for treatment. Other comments about similar tables in other attachments would also apply to this table.
3. **Section 2.4.2.3, p. B2-12.** Please discuss whether there are known or unknown underground utilities. The removal process should include the clearance of utilities at depth before excavation.
4. **Section 2.4.2.4, p. B2-17, paragraph 1, 6th sentence.** Explain what the potential reuse limitations of the treated soil are, or refer to a section that discusses these limitations. Explain the factors controlling the cost range of \$200 to \$600, and clarify which cost will be assumed for the cost analysis.
5. **Section 3.1, p. B3-1, last sentence.** Please discuss the extent to which natural biodegradation is occurring. Generally, natural degradation of PCBs is extremely slow particularly under the aerobic conditions found in shallow soil.
6. **Section 3.2, p. B3-1, paragraph 2, 2nd sentence.** Please explain why soil conditions were described using the phrases "stability" and "compacted nature." Clarify whether this is based on a visual observation or whether geotechnical laboratory data are available to reference to describe soil stability at this site.
7. **Section 3.2, p. B3-1, paragraph 2, 3rd sentence.** Since provisions for infiltration control in the cap design are not necessary (paragraph 2, 1st sentence), it is unclear why a gravel layer was included for drainage. Also, drainage will not occur unless grading is provided before the gravel is installed (refer to Figure 3-2, p. B3-3). It might be more appropriate to describe the gravel layer as a bedding layer rather than a drainage layer.
8. **Section 3.2, p. B3-1, paragraph 2, 4th sentence.** Please include the specific soil type that was described as "bare soil" (e.g., sand, silt, or clay).

9. **Section 3.3, p. B3-4, paragraph 2.** A discussion of embankment slopes for an excavation depth of 6 ft should be included.
10. **Section 3.4, p. B3-5, paragraph 3, 2nd sentence.** Please specify the metals that are anticipated to be concentrated in the ash.
11. **Section 4, Short-term Effectiveness, All Alternatives.** The evaluation of the alternatives according to the criterion of "Short-term Effectiveness" lacks descriptive text for: Effectiveness and reliability of protective measures; effectiveness and reliability of mitigative measures during implementation; and time until the cleanup objectives are achieved (Section 4.1.5, p. 4-4, of the main body of the report). The summary tables (e.g., Table ES-3, p. ES-23 should then show the ranking of the alternatives, according to short-term effectiveness, in the reverse order relative to each other, (i.e., Alternative 1 will be "Low" [or not applicable] and alternative 5 will be "High").
12. **Section 4, Short-term Effectiveness, All Alternatives Except "No Action."** Please specify the source of the investigation-derived material wastes that are mentioned in the text. Please discuss whether monitoring of airborne particulate matter will be implemented during handling of contaminated soil.
13. **Section 4, Short-term Effectiveness, All Alternatives Except "No Action."** Please clarify whether construction barriers will be used to control the site.
14. **Section 4.3.7, p. B4-5, paragraph 2, 3rd sentence.** This alternative should include the annual operation and maintenance cost for necessary inspections. Minor repair costs should be included to ensure the 30-year service life is achieved.
15. **Section 4.4.5, p. A4-8, paragraph 2.** Because the soil that is to be recycled as cover material at the landfill is contaminated, it appears that the risk for exposure should be determined and discussed for stock-piling of the soil until it is used in the cover; exposure due to moving, placing and grading the soil during construction; and soil vulnerable to movement by wind action until the soil placed in the landfill is capped by the final cover.
16. **Section 5.** The section makes better use of the tables because the text is more relevant to the tables than in previous sections.
17. **Section 5, Short-term Effectiveness, All Alternatives.** The evaluation of the alternatives for the criterion of "Short-term Effectiveness" lacks descriptive text for effectiveness and reliability of protective measures; effectiveness and reliability of mitigative measures during implementation; and time until the cleanup objectives are achieved (Section 4.1.5, p. 4-4 of the main body of the report). The summary tables (e.g., Table 5-1, p. B5-2) should then show the ranking of the alternatives, according to short-term effectiveness, in the reverse order relative to each other, (i.e., Alternative 1 will be "Low" [or not applicable] and alternative 5 will be "High").

18. **Table 5-1.** A rating method with more options than high, moderate, low should be used. This would allow differentiation between alternatives. For example, an alternative that resulted in a reduction of volume and toxicity could then be rated higher than an alternative that only reduced contaminant volume; currently both alternatives would be rated "high."
19. **Sections 5.4 and 5.5.** It is unlikely that much, if any, natural biodegradation is occurring in soil at Site 11 (see Comment 5). Please revise or delete the statements about natural biodegradation.
20. **Section 5, Table 5-2, p. B5-5.** This alternative should include an annual operation and maintenance cost for annual inspections. Minor repair costs should be included to ensure the 30-year service life is achieved.
21. **Section 5.6, p. B5-7, paragraph 2.** Please discuss the source of the investigation-derived wastes. Also discuss whether monitoring of airborne particulate matter would be implemented during handling of contaminated soil.
22. **Section 5.6, p. B5-7, paragraph 2.** Because the soil that is to be recycled as cover material at the landfill is contaminated, it appears that the risk of exposure should be determined and discussed for stock-piling of the soil until it is used in the cover; exposure due to moving, placing and grading the soil during construction; and soil vulnerable to movement by wind action until the soil placed in the landfill is capped by the final cover.

Attachment C

General Comments

1. The text and the corresponding tables need to be correlated. The text should explain and help the reader through the tables, but the text lacks the necessary detail to support the tables. For example, the screening of technologies shown in Table 2-4 needs to be strengthened and supported by the text.

Specific Comments

1. **Section 1.3.2, p. C1-27, bullet 4.** Please verify that this information is correct for Unit 3 at Site 12. It is likely that evaporation and infiltration along the drainage ditch are higher than at most of the other sites at El Toro.
2. **Table 2-3, p. C2-19.** This table is confusing because some entries say "see Table 2-3," but this is Table 2-3. Please replace this statement with a more appropriate reference or include the full information.

4. **Table 2-4, p. C2-21.** It should be made clear that these options were screened according to Effectiveness, Implementability and Cost. Alternatively, revise the title to "Comparison of Treatment Technology Process Options at Site 8 or something similar.

Under the heading "Site Contaminant Treatable" include footnotes to the effect that bioventing, soil washing and low temperature thermal desorption are effective for the treatment for PAHs. Indicate soil washing, dehalogenation, high temperature thermal desorption and incineration are effective for PCBs.

4. **Section 2.4.2.3, p. C2-16.** Please discuss whether there are known or unknown underground utilities. The removal process should include the clearance of utilities at depth before excavation.
5. **Section 2.4.2.4, p. C2-22, paragraph 1, 7th sentence.** Explain what the potential reuse limitations of the treated soil are, or refer to a section that discusses these limitations. Explain the factors controlling the cost range of \$300 to \$600, and clarify which cost will be assumed for the cost analysis.
6. **Section 2.4.2.5, p. C2-23, paragraph 2, 2nd sentence.** Explain the factors controlling the cost range of \$50 to \$200, and clarify which cost will be assumed for the cost analysis.
7. **Section 3.1, p. C3-1, last sentence.** Please discuss the extent to which natural biodegradation is occurring, including the half-life for degradation under conditions comparable to those found at the site for each of the contaminant groups or for the individual contaminants found at this site. Generally, natural degradation of PCBs is extremely slow particularly under the aerobic conditions found in shallow soil. High molecular weight PAHs like benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and fluoranthene also do not degrade. 4,4-DDT and Dieldrin degrade only with direct exposure to sunlight (photolysis) which effects only the top fraction of a millimeter.
8. **Section 3.2, p. C3-1, paragraph 1, 1st sentence.** Please clarify whether irrigation is required to support the vegetation. If irrigation is necessary, infiltration may become more significant.
9. **Section 3.3, p. C3-5, paragraph 1, 1st sentence.** Please explain how the 1:1 (45° angle) slope was determined. If a 2(H):1(V) slope is assumed, the soil volume will increase.
10. **Section 3.4, p. C3-6, paragraph 2, and Section 3.5, p. C3-8, paragraph 2, 1st sentence.** A discussion of embankment slopes for the excavation should be included.
11. **Section 3.4, p. C3-8, paragraph 2, 2nd sentence.** Please specify the metals that are anticipated to be concentrated in the ash.

12. **Section 4, Short-term Effectiveness, All Alternatives.** The evaluation of the alternatives for the criterion of "Short-term Effectiveness" lacks descriptive text for: Effectiveness and reliability of protective measures; effectiveness and reliability of mitigative measures during implementation; and time until the cleanup objectives are achieved (Section 4.1.5, p. 4-4, of the main body of the report). The summary tables (e.g., Table ES-3, p. ES-23 should then show the ranking of the alternatives, according to short-term effectiveness, in the reverse order relative to each other, (i.e., Alternative 1 will be "Low" [or not applicable] and alternative 5 will be "High").
13. **Section 4, Short-term Effectiveness, All Alternatives Except "No Action."** Please specify the source of the investigation-derived material wastes that are mentioned in the text. Please discuss whether monitoring of airborne particulate matter will be implemented during handling of contaminated soil.
14. **Section 4, Short-term Effectiveness, All Alternatives Except "No Action."** Please clarify whether construction barriers will be used to control the site.
16. **Section 4.4.5, p. C4-9, paragraph 2.** Because the soil that is to be recycled as cover material at the landfill is contaminated, it appears that the risk for exposure should be determined and discussed for stock-piling of the soil until it is used in the cover; exposure due to moving, placing and grading the soil during construction; and soil vulnerable to movement by wind action until the soil placed in the landfill is capped by the final cover.
17. **Section 5.** The section makes better use of the tables because the text is more relevant to the tables than in previous sections.
18. **Section 5, Short-term Effectiveness, All Alternatives.** The evaluation of the alternatives for the criterion of "Short-term Effectiveness" lacks descriptive text for effectiveness and reliability of protective measures; effectiveness and reliability of mitigative measures during implementation; and time until the cleanup objectives are achieved (Section 4.1.5, p. 4-4 of the main body of the report). The summary tables (e.g., Table 5-1, p. C5-2) should then show the ranking of the alternatives, according to short-term effectiveness, in the reverse order relative to each other, (i.e., Alternative 1 will be "Low" [or not applicable] and alternative 5 will be "High").
19. **Table 5-1.** A rating method with more options than high, moderate, low should be used. This would allow differentiation between alternatives. For example, an alternative that resulted in a reduction of volume and toxicity could then be rated higher than an alternative that only reduced contaminant volume; currently both alternatives would be rated "high."
20. **Sections 5.4 and 5.5, p. C5-6.** It is unlikely that much, if any, natural biodegradation is occurring in Unit 3 soil (see Comment 7). Please revise or delete the statements about natural biodegradation.

21. **Section 5.6, p. C5-7, paragraph 2.** Please discuss the source of the investigation-derived wastes. Also discuss whether monitoring of airborne particulate matter would be implemented during handling of contaminated soil.
22. **Section 5.6, p. C5-7, paragraph 2.** Because the soil that is to be recycled as cover material at the landfill is contaminated, the risk of exposure should be determined and discussed for stock-piling of the soil until it is used in the cover; exposure due to moving, placing and grading the soil during construction; and soil vulnerable to movement by wind action until the soil placed in the landfill is capped by the final cover.

Appendix C - Cost Estimates

General Comments

1. A cost for maintenance of the asphalt cap needs to be estimated and included even if RACER will not provide it (Section C4, p. C4-1, Assumptions).
2. Unit costs should be shown in all tables.
3. The basis for the contractor's rates for the categories of "indirect, overhead and profit" should be given.
4. Please clarify whether the cost of professional labor was based on hours or a percentage of other costs.
5. Please specify the quantities for sampling and analysis.
6. Please clarify whether cost estimates are precise to the nearest \$100 or whether they should be rounded to the nearest \$1,000.