MAY 2 0 1996

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

May 20, 1996

Joseph Joyce
BRAC Environmental Coordinator
Environment and Safety (Code 1AU)
MCAS El Toro
P.O. Box 95001
Santa Ana, CA 92709-5001

Dear Mr. Joyce:

EPA has reviewed the "Draft Phase II Remedial Investigation Report, Operable Unit 2B-Site 2" and the "Draft Phase II Remedial Investigation Report, Operable Unit 2B-Site 17" for MCAS El Toro, received on March 20, 1996. Overall, the reports are well written. We appreciate the high level of teamwork from the Navy/Marine Corps and contractors. Please address the enclosed comments (Enclosures) in the revised reports. If you have any questions, I can be reached at 415/744-2368.

Sincerely,

for

Bonnie Arthur
Remedial Project Manager
Federal Facilities Cleanup Office

Enclosures

cc: Mr. Tayseer Mahmoud, DTSC
Mr. Larry Vitale, RWQCB
Mr. Dante Tedaldi, Bechtel
Mr. Larry Nuzum, Southwest Div.

ENCLOSURE A

EPA COMMENTS ON THE DRAFT OU 2B - SITE 2
REMEDIAL INVESTIGATION REPORT

MAJOR COMMENTS

1) Page 4-11, Figure 4-3; The text concludes that the boundary of the landfill has been determined by the investigation. However, in the southeast portion of the landfill, near trench locations 02TR6 and 02TR12, landfill materials were encountered and there are no further trench locations outside of the landfill to establish the boundary. Please clarify.

2) Page 4-33, Figure 4-9; Please discuss with the BCT the possibility of expanding the boundary of the landfill to include soil gas location 2SG121.

3) Page 4-35, Table 4-8; The key at the end of the table indicates that all shaded sample locations were re-evaluated as part of Tier 2. If the criteria to conduct Tier 2 sampling is a total VOC concentration of 300 ug/L or greater, please clarify why the following additional sample locations were not evaluated as part of Tier 2: 2SG15S, 2SG42S, 2SG42W, 2SG53, 2SG54N?

4) Page 5-29; Elevated levels of both gross alpha and beta radioactivity were measured in surface water samples. The text discusses only a relationship of potassium and beta levels. Provide some discussion regarding possible factors contributing to elevated alpha levels.

5) Page 6-19, first paragraph; Update the discussion of PAHs to include results of recent basewide PAH reference study.

6) Page 7-8, Table 7-1; Clarify why VOCs found in soil are not included in the table as VOCs were detected in low levels. Is the discussion included elsewhere?

7) Page 8-4, Table 8-1; page 8-35, section 8.2.2; Add "cleanup groundwater to maximum contaminant levels" to list of recommended remedial action objectives. Please discuss with BCT.

8) Throughout report and Appendix G; Please refer to any ubiquitous organics as anthropogenic, instead of background.

MINOR COMMENTS

1) Page ES-10; Typographical error in question.

2) Page 2-29, 2nd paragraph; Clarify whether the "background levels" referred to are describing alpha/beta radioactivity or VOCs? Also, what is the reference for VOC background levels as

referenced in the text?

3) Page 4-3; Which map includes Zones A-G?

4) Page 4-9; It would be helpful to also include a description in the text of Trench 02TR11 shown on Figure 4-3.

5) Page 4-13; Please correct discrepancy between Figure 4-3 and Table 4-2 for trench locations 02TR07 and 02TR08. The text boxes for these trenches states that landfill wastes were encountered. However, Table 4-2 states that no landfill wastes were encountered within each of these trenches.

6) Page 4-66, Table 4-14; Typographical error for El Toro arsenic level.

7) Page 4-180, Section 4.6.3; Include a discussion of the metals, in addition to manganese, which have detections above MCLs in groundwater.

8) Page 5-9, Section 5.2; Refer to the earlier text where "Chemicals of Potential Concern" are defined or repeat the description.

9) Page 5-18, Section 5.3; Include more detailed discussion regarding the El Toro "surface water." A good discussion is included on page 5-28.

10) Page 5-28, first paragraph, last sentence; Typographical error. Magnesium instead of manganese.

11) Page 6-5, Section 6.1.2; Helpful to identify the exposure scenarios prior to discussing a "recreational child."

12) Page 6-6, 6.1.2; Typographical error. Background analysis is included in Appendix G, not Appendix S.

13) Page 6-7; Clarify that Site 2 is part of the "1,700-acre area that has been set aside as a nature conservancy."

14) Page 7-19, Section 7.5.1.1; Provide the reference for the "selected toxicity benchmark."

15) Page 8-4, Table 8-1; DQO #6 states as an answer to "risk assessment" that "risks are present at downgradient monitoring wells for offsite residents." Clarify that these are hypothetical scenarios.

16) Appendix G; Please update with recalculated numbers. Also, it may be helpful to add a short discussion of results.

ENCLOSURE B

MEMORANDUM

DATE: April 25, 1996

SUBJECT: Review Comments on Draft Phase II Remedial Investigation Report Operable Unit 2B Site 17 dated March 1996 for MCAS El Toro, California

FROM: Rachel Simons

TO: Bonnie Arthur

General Comment:

1. In general, the Navy has done a thorough job of investigating the landfill. The nature and extent of the landfill appears to be sufficiently characterized.

Specific Comments:

1. **Section 1.2.2.3 History of Site 17 Landfill Operations, page 1-18**

Aerial Photograph Review

In a 1980 aerial photograph, stained areas were observed on the northern portion of the site. Did any soil sampling target these previously stained areas?

2. **Section 3.1.4 Surface Water, page 3-9**

According to this section, surface water runoff from surrounding hill slopes can collect on flat and low depression areas resulting in localized ponding. If surface water runoff is potential pathway for contaminant migration, were the ponding areas targeted for surface soil sampling?

3. **Figure 3-4 Region Geology, page 3-13**

Please show Site 17 on this figure.

4. **Section 4.3.1 Shallow Soil Gas, page 4-32**

Please correct the typographical error for the US EPA, 1992b reference. It appears that 1991b is the correct reference.

5. Section 4.4.1 Shallow Soil, page 4-44

Please change the reference to "background" pesticides to anthropogenic.

6. Section 4.4.2 Subsurface Soil, page 4-70

The fifth paragraph on this page states that radionuclides (gross alpha and beta) were detected at 5 sample locations. What is the source of this radioactivity? Is it naturally occurring? Can the results be compared to reference values (e.g. PRGs) or background values? Please expand this discussion as radionuclides were also detected in groundwater (see Section 4.6.5, page 4-105).

7. Section 4.5 Leachate, page 4-70

Could the leachate results be affected by the time of the year the sampling was performed? The lysimeters were in the ground from Oct. 26 to Nov. 7. According to Section 3.2 Meteorology and Climatology, most of the rainfall occurs from November to April. Please discuss with the BCT.

8. Table 8-1, Site 17 Summary and Conclusions, page 8-3

DOO #5 - Determine if leachate is impacting soil or groundwater

For risk assessment, the conclusion states that risks are present at downgradient monitoring wells to off-site residents. Please clarify that no risks are currently present as the groundwater beneath MCAS El Toro is not currently utilized as drinking water.

9. Table 8-1, Site 17 Summary and Conclusions, page 8-4

DOO #6 - Determine nature and extent of groundwater contamination

Potential response actions include restricting the extent of groundwater contamination. Does this mean an action to restrict groundwater migration will be implemented in addition to capping? Please clarify.

10. Section 8.2 Conclusions, page 8-27

Conclusions # 5 and 6

Both of these conclusions reference metals in the groundwater that could be leaching from the landfill. These conclusions can not be verified until the evaluation of background metals is complete. Please discuss with the BCT.

11. Section 8.2 Conclusions, page 8-27

Conclusions # 7 and 8

Clarify why surface water runoff was not collected since this is a potential pathway for contamination migration.

ENCLOSURE C

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

May 8, 1996

MEMORANDUM

SUBJECT: Draft Phase II Remedial Investigation Report, Operable Unit 2B - Site 2, Marine Corps Air Station, El Toro, California (EPA QAMS Document Control Number H6CA005096VSF1)

FROM: Lisa Hanusiak, Chemist
Quality Assurance Management Section, P-3-2

ACTING FOR

THROUGH: Vance S. Fong, P.E., Chief
Quality Assurance Management Section, P-3-2

TO: Bonnie Arthur, Remedial Project Manager
Navy Section, H-9-2

The subject remedial investigation (RI) report, prepared by Bechtel National, Inc. (BNI) and dated March 20, 1996, was reviewed. The following documents were used for reference: "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations" (EPA QA/R-5); "Preparation of a U.S. EPA Field Sampling Plan for Private and State-EPA Lead Superfund Projects" (9QA-06-93); "Guidance for the Data Quality Objectives Process" (EPA QA/G-4); "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" (EPA-540/R-94/012); "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" (EPA-540/R-94-013); and "Final Quality Assurance Project Plan, Phase II Remedial Investigation/Feasibility Study (RI/FS), Marine Corps Air Station El Toro, California," prepared by BNI and dated July 1995.

The RI report contains an adequate evaluation of the data quality indicators, including precision, accuracy, representativeness, completeness, and comparability (PARCC). The results obtained for precision and accuracy were within the stated objectives listed in the Phase II RI/FS quality assurance project plan (QAPP).

The RI data were validated based on guidance provided in the National Functional Guidelines for organic and inorganic data review, and in accordance with the requirements specified in the Phase II RI/FS QAPP. The data validation procedures used for the RI Phase II data were consistent with Region 9 data validation

procedures. Conclusions concerning the usability of the RI Phase II data appear to be valid.

The sample collection and field measurement procedures were executed consistently with the procedures described in the QAPP. Comments on the RI report are provided below.

Concerns

1. [Section 2.16.3.1, Field Duplicates; Appendix O, Section O.1, Field Quality Control Sampling Summary and Results] The RI report contains inconsistent information regarding the collection of field duplicate samples for the soil matrix. The text in Section 2.16.3.1 states that field duplicate samples for soil were not collected. However, the text in Section O.1 of Appendix O states that field replicate samples were collected to check for soil homogeneity. The text in Sections 6.1.1 (Duplicates) and 6.2 (Field Quality Control Checks) of the Phase II RI/FS QAPP addresses the collection of field duplicate samples, but does not state whether soil field duplicate samples were planned for collection. This discrepancy should be addressed.

2. [Section 4.2.2, Integrated Surface Air Sampling] The text in Section 4.2.2 of the RI report compares the levels of volatile organic compounds (VOCs) detected in the landfill to results of a 1990 California Air Resources Board (CARB) Study which lists the median and the maximum levels of VOCs measured at landfill sites in California. The significance of VOCs present at concentrations above the median level but below the maximum detected level in the CARB Study is unclear. It is recommended that the discussion concerning the application of the CARB study to the conclusions of the RI be expanded.

3A. [Table 4-31, Compounds Detected in Surface Water - Phase I] Identical results for total metals and dissolved metals are presented in Table 4-31 of the RI report. It is unlikely that results for total and dissolved metals actually would be identical. The information presented in this table should be reviewed and verified against the source data.

3B. It is recommended that the RI report be expanded to include a discussion concerning the results for total and dissolved metals. Although the analysis of total and dissolved metals is not addressed in the Phase II RI/FS QAPP, a comparison of the total and dissolved concentrations would be appropriate since both analyses were performed.

Comments

1. [Executive Summary] Some of the text that should be included between pages ES-6 and ES-7 of the RI report appears to be missing.

2. [Section 2.5, Air Sampling; Table 2-4, Laboratory Analysis of Air Samples] The text in Section 2.5 of the RI report states that Table 2-4 presents the target list of analytes and associated analytical detection limits; Table 2-4 does not include detection limits. This discrepancy should be addressed.

3. [Table 2-6, Laboratory Analysis of Surface Soil, Subsurface Soil, and Sediment Samples] Table 2-6 of the RI report includes information for a number of analyses, including total Kjeldahl nitrogen (TKN), biochemical oxygen demand (BOD), and chemical oxygen demand (COD), that are generally performed on water samples only. Table 2-6 should be revised to include an exclusive and complete list of analyses performed on soil samples.

4. [Section 3.6.4, Site 2 General Water Quality Parameters] The units of concentration for water quality parameters discussed in Section 3.6.4 of the RI report should be revised from milligrams per kilogram (mg/kg) to milligrams per liter (mg/L).

5. [Table 4-12, Compounds Detected in Shallow Soil - Phase I] Results for metals are presented in Table 4-12 of the RI report in concentrations units of micrograms per kilogram (µg/kg). The units should be revised to mg/kg.

6. [Appendix O, Laboratory Analytical Data] According to information provided in Appendix O, dissolved silica was to be determined. However, Section 4 of the RI/FS report does not include results for silica analyses. This inconsistency should be clarified.

Questions or comments regarding this review should be referred to Lisa Hanusiak, EPA QAMS, at (415) 744-1528. Technical assistance for this review was provided by: Doug Lindelof, Environmental Services Assistance Team (ESAT) Contract No. 68D60005, Work Assignment (WA) No. 9-96-0-5, Technical Direction Form (TDF) No. 9605003.

ENCLOSURE D

COMMENTS ON THE OU 2B - SITE 17 PHASE II REMEDIAL INVESTIGATION REPORT

MCAS EL TORO

1.Technical Comments

.1. Page ES-6, 2nd paragraph

The text is inconsistent with respect to the issue of landfill leaching and the effect if any on groundwater quality.

The text states that "...elevated metals concentrations and low concentrations of organic compounds in soil and groundwater indicate that leaching of the landfill has occurred." However, in Section 5.1.3.2 the text states that "Samples taken from the monitoring wells surrounding the landfill have minimal reported concentrations of contaminants, except for manganese,. selenium, and thallium which exceed MCLs in one downgradient well and the upgradient well." Moreover, in Section 5.2.1.5 the text notes that "This exceedence is possibly due to marine siltstones and sandstones acting as water-bearing zones and as the source of the alluvial valley fill."

In addition, Section 5.1.2.3 states "Concentrations of VOCs and SVOCs were detected in downgradient wells but did not exceed their respective MCLs." However, in the next paragraph, the text states "[That for manganese. selenium, and thallium] These results are the only indication of a potential impact to groundwater in the area of the landfill..." It would seem that unless the upgradient well samples were found to contain VOCs and SVOCs, the presence of these classes of compounds at any level in the downgradient wells should be considered strong evidence of the landfill leaking.

.2. Page 1-21, Section 1.2.3.1

Clarify that the PRGs used represented residential exposure conditions. This is of considerable interest because the subsequent baseline risk assessment did not consider residential on-site exposures. Rather, residential exposures were to groundwater via ingestion and dermal contact and inhalation of vapors from groundwater.

.3. Page 2-30, Table 2-6

The analyses biochemical oxygen demand and chemical oxygen demand were apparently not performed for the soil samples. This would be expected since these

analyses are not used for solids such as dry soil. The total organic carbon measurement for soil should have been adequate. Confirm that these analyses were not performed or provide the data with interpretation.

.4. Page 4-43, Section 4.4.1

The discussion and presentation of data; specifically with respect to the term contaminants of potential concern, are inconsistent with the complementary discussions in the Human Health Risk Assessment in Section 6.

The text states that "All organic compounds detected in shallow soil with concentrations that exceed U.S. EPA residential soil PRGs are considered COPCs." However, in Section 6 the text indicates that a very different process was used to identify COPCs, see page 6-2, all of section 6.1.1. A notable example of the inconsistency is that iron, calcium, and sodium are identified in Section 4 as a COPC and efforts have been expended to track these analytes in the text and figures; however, these same essential nutritional elements are excluded from the baseline human health risk assessment.

Note that the text indicates that the distributions of COPCs in soil are presented on numerous figures in Section 4. These figures seem to perpetuate the inconsistency between the COPC listing in Section 6.

.5. Page 4-91, Figure 4-20

See previous comment.

The figure includes iron, sodium, calcium and magnesium which are essential nutritional elements. This leads the reader to believe that there is a justified level of concern with these elements when in fact there is not.

.6. Page 4-105, Section 4.6.4

There is negligible benefit if any to the assessment of nature and extent based on comparisons with Secondary MCLs. Secondary MCLs are regulations set by U.S. EPA that estimate desirable levels for drinking water that may adversely affect the aesthetic value of drinking water. They are not enforceable by the federal government.

.7. Page 4-107, 3rd paragraph

See previous comment.

.8. Page 5-7, Figure 5-2

The indicated groundwater flow direction appears to be different than the apparent flow direction shown on Figure 3-8 of the RI.

.9. Page 5-8, Figure 5-2

Based on the cross-sections in Figure 3-7 of the RI the waste (landfill) is not present to extent indicated on Figure 5-2. However, the trenching performed in this area seems to confirm some landfill in the area. Confirm and correct if necessary.

.10. Page 5-10, Table 5-1

As noted in preceding comments the COPCs listed in this table are not consistent with those presented in the Baseline Human Health Risk Assessment.

Page 5-14, Section 5.2.1.3

The text states that there are no VOCs at concentrations of concern at Site 17. It is not clear what is the intent of the term "...concentration of concern..." Is this a conclusion based on a screening against PRGs and MCLs or is it based on the baseline risk assessment results? The issue is further confounded by the statement two sentences later, "While trace concentrations of VOCs were detected in both media none were reported at levels that exceed the regulatory or established risk criteria for the Site."

.12. Page 5-15, Section 5.2.1.5

Considering the numerous statements in this RI regarding the leaching of metals from the landfill to groundwater it seems that the discussion of the presence of apparently elevated levels of metals in groundwater is insufficient. The authors should expand upon the single sentence which provides a very cursory explanation for the presence of selected metals. Moreover, the statement on page 5-15 seems to conflict with the statements about the leaching of metals from the landfill to the groundwater.

.13. Page 5-15, Section 5.2.1.6

The text does not attempt to relate site-specific results for pesticides and herbicides to the generic fate and transport discussion provided. The authors should avoid making broad-based statements without providing site-specific analytical support. For example, they might indicate the types of pesticides and herbicides detected and the relative levels; and then indicate if they are found at the surface or at depth or in groundwater. Is the fate and transport analysis for these compounds intended to address agricultural application, or does it address the possibility that the materials were disposed of in the landfill as waste? It is possible that the mobility and fate may be different under these circumstances.

.14. Page 5-21, Section 5.3.2

The text includes the sentences, "There are dissolved metals in groundwater in a downgradient monitoring well. No significant additional impact is expected in the future..." This statement requires revision. First, there is nothing particularly unusual about the presence of dissolved metals in groundwater, it is a completely normal occurrence and certainly samples collected upgradient support this (see last sentence on page 5-5). Second, the implication is made that the presence of dissolved metals is considered to be an "...impact..."; however, "No significant additional impact is expected in the future...". The authors seem to be implying that (1) the landfill has caused a degradation of groundwater quality; and yet (2) the same impact could not continue in the future even though all current and past conditions would tend to remain the same. This is a conflicting argument which should be corrected.

Section 6, General Issues Related to the Human Health Risk Assessment

.15.1. The text does not provide an adequate discussion of the relationship of the primary risk drivers to their occurrence and magnitude in the vicinity of Site 17. For example, the primary USEPA carcinogenic risk driver for groundwater is arsenic; however, the unfiltered value of 12.9 micrograms/liter is questionable as representative of groundwater conditions. This is evidenced by the maximum detected filtered concentration of 5 micrograms per liter which is barely above the detection limit and thus suspect itself. Of additional interest is the fact that the MCL is about four time greater than the highest measured arsenic concentration. It therefore appears that the risk managers would benefit from additional interpretation of the data presented in this RI. The authors should attempt to provide greater perspective on the relativism of the risk values presented. For organic compounds the primary risk drivers for groundwater were chloroform and bromodichloromethane; their detected levels were 0.9J and 0.4J microgram/L, respectively. Since these concentrations, as indicated by the "J" qualifier, are estimated and below the detection limit of 1 microgram/L; the final discussion should highlight this point as well as the fact that the MCLs for the compounds are one hundred times greater than the reported levels.

.15.2. The text does not appear to adequately address the issue of incremental cancer risk; defined as the cancer risk presented by the difference between the total and the background/ambient levels of a carcinogenic analyte. When the difference is calculated, both concentrations must be the same statistic. Risk assessment guidelines recommend using the 95 percent UCL on the mean concentration to calculate risk under the RME scenario. This draft RI report uses the 95 percent UTL of the background/ambient data set to identify the reference concentration. An analyte is considered a contaminant when a measured concentration exceeds the 95 percent UTL and this approach is

appropriate for screening risk assessments. However, for baseline risk assessments the UTL value should not be compared to the UCL for decision-making on background risk. For these purposes, the 95 percent UCL on the mean should be estimated for the background/ambient data set. This suggestion was explicity made by CTO-080 at a meeting between CLEAN I, CLEAN II and SWDIV in early December at CH2M-Hill's office in Santa Ana. At that time it was agreed that CLEAN II would recalculate the background inorganic levels using the 95 percent UCL on the mean. However, the draft RI report does not indicate that the calculations were completed.

.16. Page 6-8, Section 6.2.3

Include a table which lists the exposure point concentrations for each analyte under each exposure scenario.

Page 6-17, 2nd paragraph

The text does not indicate if total or hexavalent chromium values were used to calculate risk. This is significant considering that, according to the text, "Chromium was the sole contributor to the risk [for inhalation]."

.18. Page 6-17, Last sentence on the page

Similar to previous comment. Identify whether speciated chromium values were used.

The sentence indicates that chromium contributed to over 70 percent of CAL-EPA risk from ingestion of drinking water.

.19. Page 8-3, Table 8-1

The text presents conclusions about landfill leaching and the effect on groundwater quality which are unsupported by the discussions in the RI.

The text states that VOCs, metals, petroleum hydrocarbons, and general water quality parameters indicate that landfill contents have been leached to groundwater. There is limited (see comments regarding page ES-6) if any discussion of the basis for such a statement for these parameters.

.20. Page 8-14, Section 8.1.4

This subsection should include an enhanced discussion of relative risk, as described in the comments above.

For example, the text notes that the majority of the groundwater risk is due to arsenic but fails to mention that all arsenic values were well below the MCL.

.21. Page G-19, Figure 1

The text associated with this figure does not include an adequate discussion of the flow chart items which extend out past the "yes" following the "Proportion of Non-Detect Data _15%." Include an explanation as to why an adjustment to the mean and standard deviation would be required and how it would be performed. In addition, explain why an adjustment is only required for data sets with percentage non-detects _15 percent but _ 50 percent.

.22. Page S-9, Table S-15

There is no explanation for the use of identical values for all subsurface concentrations of PAHs. A 95 percent UCL is presented in the table for what is apparently (though not labeled as such) the surface concentrations; however, no complementary UCL is provided for the subsurface soil. Maximum and minimum and other basic statistics are provided; however, the data set (surface or subsurface) to which they apply is not indicated.

ENCLOSURE E

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

May 13, 1996

MEMORANDUM

SUBJECT: Review of El Toro Draft Site 2 Ecological Risk Assessment

FROM: Clarence A. Callahan, Ph.D.
Biologist, Technical Support Section

TO: Bonnie Arthur, Remedial Project Manager
Navy Section

Overall, the Navy and their contractor should be complimented for the professional effort that is presented in the documents for the ecological risk assessment for El Toro MCAS. I have a few questions and comments that should be easily addressed. Please call me if you have any questions about my comments.

1. Section T.1.1, Chemicals of Potential Ecological Concern. When applying the second "rule" for elimination of chemicals, what was the consideration for concentration for those contaminants below the 5 percent level? For instance, even at less than 5 percent, a chemical could be at a concentration level that would be considered a "hot spot" and an ecological risk especially if the contaminant bioaccumulates. Please provide the page number and location in the document for the contaminants and concentrations for all locations where this rule was applied.

2. Same par, second bullet, what was 2-methyl-4-chlorophenoxyproprionic acid (MCPP) used for and in what process at the ETMCAS?

3. Bottom of page T-2, With soil representing 100 percent of a rat or a mouse's diet, why was an estimate used for contact rate (CM) for chemicals when estimating the exposure dose? If the strategy is to be as conservative as possible, then 100 percent contact rate should be used to predict the potential impact. Confirmation or validation samples can be performed to reduce the uncertainty in these predictions.

4. pT-6, Receptor Exposure Intake Factors, second paragraph, The portion of

the home range for the coyote not attributed to the site should be compared to the remaining area of the location of the base for the purpose of defining the forage area of this receptor outside of Site 2 to estimate the concentration of exposure for ingestion of incidental soil. The ingestion term for estimating the total dose must contain a concentration term for soil related to Site 2 concentrations and concentrations other than Site 2. The easiest choice for this concentration is to select the reference site concentration and to calculate the loading rate for the off-site portion of the total daily dose.

5. Table T-4, Screening Criteria for Soil COPECs. There is insufficient details provided to fully assess the adequacy of this step in the process. Table T-4 shows several column headings including the COPECs, the modifier, the test species, the toxicity endpoint, the screen criteria and the reference indicator. The citations as provided are inadequate because the critical data are not provided, for instance, "Jacobs Engineering" does not indicate the source of these data nor how they were derived; "Opresko et al, 1995" does not provide any page numbers to direct the reader to how these data were derived. The same is true for "Stevens and Sumner, 1991"; "HSDB, 1996"; "Topping et al, 1994"; and "ACGIH, 1991" all of which should be referenced by page numbers for each data entry. Please provide page numbers for each data entry from the citations as stated above.

6. p7-23, Uncertainty Analysis, There are a couple of statements made that need clarifying, for instance, 1) "However, in some cases the nature of the uncertainty is such that the impact of the assumptions made in the risk assessment cannot be determined." Where in this risk assessment does this statement apply?
2) "In particular, the amount of uncertainty in an ecological risk assessment cannot be easily quantified." Where in this risk assessment does this statement apply?

7. Tables T-11,12,13 and 14, The formula shown for estimating the daily dose for each receptor should not use any "modifiers" in the calculations so that the estimate will be the most conservative. For instance, the deer mouse at the reference site does not have any modifiers whereas the potentially impacted site has modifiers for surface soil, subsurface soil and water portions of the diet. To get the most conservative estimate, the highest concentration in either the surface or subsurface soil should be used for these predictions. This should be done for all receptors and all chemicals.

Another issue with the dose estimates includes the contribution from on-site versus off-site i.e., reference site that is reflected in the dose estimation formula

shown in Tables 14 and 15 (See No. 4 above). For instance, the incidental soil ingested for the coyote should have a component from the on-site contribution and the off-site contribution. This is also true for all other components of the ingestion pathway. The grand total is the addition of both the contribution from off-site and on-site which should then be compared to a critical toxicity level.

8. Section 7, p7-19, Hazard Quotient discussions for various receptors. It appears that the hazard quotient for several contaminants at Site 2 for all of the receptors are above one indicating a potential problem. The fact that these estimates are above one strongly suggest that the input data needs to be validated and verified to reduce the uncertainty in order to obtain the best estimate of the impact to these receptors.

The strategy used i.e., comparing the estimated HQ for each receptor at Site 2 to an estimated HQ at the reference site to determine the potential "risk" for the selected receptors is not acceptable because it does not provide adequate logic and is not based on any strategy that EPA has seen in print or is aware of. Because the hazard quotient for several contaminants at the reference site for all of the receptors are above one indicate that the reference site is not really a valid reference site. A strategy that provides more logic is one where the contribution of contaminants from Site 2 is added to that contributed by the background to arrive at a "total" background makes more sense than the comparison presented.

9. One area that is certainly missing and already mentioned by the Navy in other correspondence is the assessment of the potential risk to the California gnatchatcher. This important receptor should be addressed in the risk assessment.

10. I would request that the Navy provide a strategy for reducing the uncertainty at Site 2 for the estimate of ecological risk. This strategy should include techniques and methods for more direct estimates for impact assessment rather than relying on the hazard quotient.

ENCLOSURE F

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

MEMORANDUM

TO: Bonnie Arthur
Remedial Project Manager
Federal Facilities Cleanup Office

FROM: Jeffrey M. Paull, MS HYG, MPH, CIH
Regional Toxicologist
Superfund Technical Support Section

DATE: May 14, 1996

SUBJECT: Review of "Draft Phase II Remedial Investigation Report, Operable Unit 2B, Sites 2 and 17," Marine Corps Air Station (MCAS) El Toro, California

Background

Remedial Investigation (RI) reports for Site 2, the Magazine Road Landfill, and Site 17, the Communication Station Landfill, were prepared by Bechtel National Inc. (BNI) on behalf of U.S. Department of the Navy, Southwest Division Naval Facilities Engineering Command (SWDIV), under the Comprehensive Long-Term Environmental Action Navy (CLEAN) II Program. The documents are dated March 13, and 14, 1996. The overall goal of the RIs was to collect sufficient data to support decisions regarding the need for, and scope of future remediation at these two sites, based upon USEPA presumptive remedies for municipal landfills, and federal, state, and local requirements for landfill closure.

We previously reviewed the Phase II RI/FS Risk Assessment Work Plan (January 20, 1995), the Revised Draft Work Plan (May 24, 1995), and the Final Work Plan (September 28, 1995). We also previously reviewed and commented upon the risk assessment- related portions of the draft Phase II RI/FS, dated March 17, 1995, for Site 2--the Magazine Road Landfill.

Scope of Review

We reviewed the sections of the above-referenced documents pertaining to human health risk assessment, principally Sections 6, and Appendices R and S. The documents were reviewed for scientific and technical accuracy, and for conformance with USEPA Region IX risk assessment guidelines, policies, and procedures. The RI documents were nearly identical with respect to methodology, organization, and format, therefore unless otherwise specified, our comments, and page citations apply to both documents.

We assume that sampling of environmental media, analytical chemistry and QA/QC procedures or data, and the assessment of contamination described and summarized in the RIs, have been adequately reviewed by appropriate USEPA Region IX and Cal/EPA staff. In addition, minor editorial and grammatical errors that do not affect the interpretation of the risk assessment are not addressed. We request that future changes in the document made in response to these comments be clearly identified.

Summary

The information and data presented in the RIs is comprehensive, logically structured, well-organized, and professionally presented. In general, the human health risk assessment sections of the RIs were consistent with USEPA Region IX risk assessment guidelines for conducting human health risk assessments, and no *major* methodological problems were evident. However, several procedural deficiencies were identified in the RI documents which could affect the quantification of health risks. Due to the nature of the deficiencies, it is unlikely that potential risks to human health for OU-2B, Sites 2 and 17 were underestimated, and, in fact, they may have been overestimated. These remaining technical issues, presented in our specific comment below, will need to be addressed, before USEPA Region IX can issue final approval of the RI documents.

Specific Comments

Executive Summary, Human Health Risk Assessment, p. ES-5: For the Site 2 RI, the sentence which reads "Several metal concentrations exceeded the background concentrations for MCAS El Toro; however, only two metal concentrations exceeded residential PRGs," should be followed by an explanatory sentence identifying which two metals these were.

Executive Summary, Human Health Risk Assessment, p. ES-7: For the Site 2 RI, there is text missing from the sentence ending with the phrase (e.g., dermal) at the top of the page. Judging from the sentence which appears in the same location for the Site 17 RI, the missing text involves a description of the exposure pathways which were assessed for the receptors identified on the previous page.

COPCs in Soil and Sediment, § 6.1.2, p. 6-5: It is stated in this section of the RIs that "Surface soil (0 to 2 feet bgs) is the soil of concern in the human-health risk assessment because a recreational child will come into contact with this media." Although it is true that surface soil is the primary media of concern for evaluating the direct soil contact exposure pathway, soil samples at depth are also important for evaluating health risks to on site-workers, and for evaluating potential contaminant migration to groundwater.

Since the groundwater beneath both Sites 2 and 17 show the presence of multiple contaminants, the lack of subsurface soil data is a shortcoming in the RIs that may hamper the effective evaluation of remedial alternatives. The uncertainty introduced in the risk assessment by this data gap, and the consequences for the evaluation of presumptive remedies involving the possible containment of groundwater migration, should therefore be discussed in the RIs.

COPCs in Soil and Sediment, § 6.1.2, p. 6-6: Many of the organic COPCs identified at Sites 2 and 17 are PAHs. It is stated in the Site 2 RI that, "These chemicals were not analyzed for in background samples because they are ubiquitous in an urban environment, and their presence at Site 2 may be unrelated to past practices."

This statement does not provide adequate justification for not identifying anthropogenic background concentrations for these contaminants. Similarly, no justification was presented for not assessing background concentrations of PAHs at Site 17.

We agree that PAHs from anthropogenic sources are widely distributed in the environment. However, this is precisely the reason that USEPA guidance recommends taking background samples--to distinguish between concentrations of contaminant attributable to past hazardous waste practices, and concentrations that are normally present in the environment.

If it can be demonstrated that PAH soil concentrations at Sites 2 and 17 are no different than background soil concentrations of these substances in uncontaminated locations at MCAS El Toro, then they would be eliminated as COPCs in the risk assessment. Elimination of PAHs as COPCs would significantly reduce the estimate of human health risk, since three PAHs-- benzo(a)pyrene, benzo(a)anthracene, and dibenzo(a,h)anthracene--were identified as risk drivers, accounting for greater than 70 percent of the soil risk at Site 2, and 50 percent of the soil risk at Site 17.

It is our understanding that a study to determine PAH reference levels has been recently completed at MCAS El Toro. We are uncertain why this study was not cited or referenced in the RI documents, but we anticipate the incorporation of the results of this reference study in the Revised Final RIs. Additionally, please note the distinction between use of the term "PAH" and "PAHs" in both documents.

Receptor Analysis, § 6.2.1, p. 6-7 to 6-8: Although children playing on the site, and people building homes near the site may be considered more of a possibility than someone repairing underground utilities, the risks to this potential receptor should still be quantitatively, rather than qualitatively assessed.

Exposure Point Concentration, § 6.2.3, p. 6-8 to 6-11: Under various conditions, listed in Appendices R and S, it is both reasonable, and appropriate to use the maximum concentration (Cmax) instead of the 95-percent upper confidence limit (95% UCL) as the exposure point concentration (EPC). However, the use of the maximum concentation as the EPC for all the COPCs detected in groundwater for both Sites 2 and 17 does not appear to be adequately explained, or justified by these criteria. Where sample size is adequate, and detection limits are acceptable, the use of C_{max} rather than the 95% UCL will tend to overestimate risk. Additional justification is required for the use of C_{max} for all COPCs detected in groundwater.

Toxicity Criteria for Dermal Exposure, § 6.3.4, p. 6-14 to 6-15: It is stated in this section, that when RfDs and CSFs are adjusted for gastrointestinal absorption, "oral toxicity criteria causes the dermal risk to exceed the oral risk by a considerable margin." This statement is followed by the editorial remark, "Toxicologically, this is rarely possible, and suggests that the standard procedure for estimating dermal risk needs further refinement."

However, adjusting RfDs and CSFs for gastrointestinal absorption, does *not* always result in the dermal risk exceeding the oral risk "by a considerable margin." In a paper prepared by this commentor, and recently submitted to a scientific journal for publication, adjusting toxicity factors for gastrointestinal absorption caused dermal risks to exceed oral risks for only twelve of twenty substances, and for five of these twelve substances, the dermal risk was within a factor of *two* of the oral risk. Other exposure factors, such as the skin surface area exposed, the duration of exposure, the skin absorption factor, and the ingestion rate, often determines which exposure route will predominate, and drive the risk.

Although we are not specifically objecting to the practice of not adjusting toxicity factors for gastrointestinal absorption when evaluating dermal risk, we think that the rationale presented for not considering adjustment may overstate the case, and recommend that the editorial remark which includes the phrase, "Toxicologically, this is rarely possible..." be omitted from the RI documents.

On-Site Recreational Use, § 6.4.1.1, p. 6-15 to 6-19: Justification should be provided for the selection of the elementary/high school age child as the potential receptor for the on-site recreational use scenario, the selection of two hours/day as the exposure frequency, and the elimination of the younger child as a potential receptor.

On-Site Recreational Use, § 6.4.1.1, p. 6-15 to 6-19: With respect to dermal contact pathway for exposure to PAHs, we request clarification of the statement, "A background cancer risk of 1.4×10^{-7} (for Site 2) and 1.7×10^{-6} (for Site 17) was estimated for the soil medium for the same type of exposures." This statement appears to contradict the statement made in § 6.1.2, and again in this section of the Site 2 RI, that, "PAH[s] were not included in the analyses of background samples, and the background risks for these chemicals are unknown at this time."

Off-Site Residents, § 6.4.1.2, p. 6-17 to 6-19: For Site 2, greater than 60 percent of the groundwater ingestion risk is due to heptachlor, identified in only two of three samples. For Site 17, arsenic, detected in only 2 of 2 samples, is the sole contributor to USEPA-quantified risk. The risk assessments should discuss the uncertainties inherent in basing conclusions regarding the quantification of human health risk on such small sample sets. In addition to the obvious statistical limitations of the data, this uncertainty discussion should include when these groundwater samples were taken, and the uncertainties associated with the possibility of migration of the groundwater plume, as well as with the possibility of natural attenuation over time, degradation rates and products (for organics such as heptachlor), and related factors.

On-Site Recreational Use, § 6.4.2.1, p. 6-23: For Site 2, on-site dermal contact with MCPP in the soil is responsible for greater than 90 percent of the hazard index estimated at 0.99 (essentially 1) for recreational use by children. Similar to the comment above, the uncertainty in this risk characterization should be discussed in light of the fact that the estimated half-life for MCPP ranges from 168 to 240 hours.

On-Site Recreational Use, § 6.4.2.1, p. 6-23: For Site 2, the risk for lead exposure is considered negligible, based on a comparison of the USEPA Region IX PRG. The document states that, "the maximum concentration at Site 2 of 121 mg/kg is below the residential PRG for lead of 130 mg/kg." This statement incorrectly cites the Cal-EPA PRG rather than the USEPA PRG for lead, which is currently 400 mg/kg for residential soil. It is also unclear why a comparison with PRGs is used to assess lead risk at Site 2, rather than the Cal-EPA pharmacokinetic model (Leadspread, Version 6), which is the more appropriate method, and which was employed at Site 17.

Off-Site Residents, § 6.4.2.2, p. 6-24 to 6-26: In general, the explanation of the health effects for arsenic, chromium, fluoride, manganese, nickel, thallium, and vanadium, which appear in this section of the RIs are too brief, incomplete, and lacking in balance to be of much practical value. For instance, for Site 2, the document states, "It is important to note that the maximum concentration of fluoride measure[d] in the groundwater of 1.2 mg/L is less than half the drinking water standard of 4 mg/L. However, it could also be mentioned that cited cases of fluorosis have been associated with 2-5 ppm fluoride in water supplies. Although the document mentions manganese's low acute toxicity, it does not mention that it is also a chronic neurotoxin. With respect to nickel, the document emphasizes nickel itch, a type of skin sensitization not generally associated with exposure via drinking water, but fails to mention nickel's demonstrated carcinogenicity.

Although Appendices R and S contain the IRIS files for the COPCs which are the risk drivers for the health risk assessments, a more complete and balanced description of their health effects should be summarized in the body of the RI documents as well.

Risk to Utility Maintenance Worker, § 6.4.3, p. 6-24 to 6-26: The rationale presented in this section for not quantifying the utility maintenance worker's health risk is that the exposure time associated with typical repairs is usually short and infrequent, that with short exposure times acute systemic toxicity is more of a concern than chronic toxicity, and that chemical concentrations in the surface soil are not high enough to cause acute systemic toxicity.

All of these statements may in fact be correct, but they should nonetheless be demonstrated through a quantification of health risk for this particular receptor, employing appropriate exposure assumptions (e.g., a soil ingestion rate of 480 mg/day). In order to quantify health risk, however, surface soil concentrations may have to be used as surrogate data, since the contaminant concentrations in the subsurface soil are not known for either site.

Toxicity Assessment, § 6.5.3, p. 6-29 to 6-31: In this section, the following statements are made: "The rate and extent of chemical absorption via the stomach and intestines are higher than via the skin. Therefore, the dose and risk associated with ingested chemicals should be higher than those associated with contact of chemicals with the skin." The first of these statements is generally true. However, the second statement does not follow from the first, but rather, is dependent upon the relative degree of exposure via the two routes.

Conclusion and Recommendations

The human health risk assessments conducted as Part of the Remedial Investigations for OU-2B, Sites 2 and 17 are consistent with USEPA Region IX guidelines, and are generally comprehensive and thorough. However, several procedural deficiencies were identified in the RI documents which could affect the quantification of health risks. Due to the nature of the these deficiencies, the potential risks to human health for Sites 2 and 17 are probably overestimated, rather than underestimated. The RIs can be made acceptable to USEPA Region IX, upon adequate response to the specific comments above.

cc: Doug Steele, USEPA Region IX
John Christopher, CAL-EPA/DTSC

jmp/eltoro7.mem

ENCLOSURE G

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 9

75 Hawthorne Street
San Francisco, CA 94105-3901

May 17, 1996

MEMORANDUM

SUBJECT: Comments of Draft Remedial Investigation Report for Site 2

FROM: Herbert Levine, Hydrogeologist
FFCO, Technical Support Section

TO: Bonnie Arthur, RPM
FFCO, Navy Section

Per your request I have reviewed the draft RI report for Site 2. In general there is a significant problem with the development of a conceptual hydrogeological model. The Navy interpreted water levels in alluvium and bedrock as occurring within one interconnected aquifer. It is more likely that there are multiple saturated zones adjacent to each other. The lack of a consistent conceptual model renders the numerical model inappropriate.

Specific Comments

1. Section 3.6.1 Site 2 Occurrence and Movement of Groundwater. The cross-section Figure 3-7 argues against the statement that there is a single shallow aquifer. There is no reason to assume that the water table in the alluvium has to correlate to the water level in bedrock. For the Section A-A'-A" there appears to be three saturated zones, saturated alluvium between A-A', saturated bedrock under A' and another saturated alluvium between A'-A". The same observation is appropriate for the B-B' section. It would be more appropriate to draw the static water level lines within each lithologic unit.

2. Section 3.6.2 Site 2 Aquifer Hydraulic Properties. The statement that well 02NEW2 is screened in bedrock is not verified by the as built construction log in Appendix J. The construction log clearly shows that this well is screened in the sand overlying the bedrock. Since there is some confusion it would be appropriate to add the screened intervals to the cross-sections. The hydrologic properties could then be added which would allow for visualization of hydrologic properties with associated lithologies. The data presented should be evaluated as the bedrock having at least an order of magnitude difference in hydraulic

conductivity and transmissivity. This is an important with regards to interpreting groundwater flow.

3. Section 4.6.1.2 Monitoring Well Groundwater Samples. The premise of well 02_DGMW60 being downgradient of the landfill as a correlation to TCE concentrations might not be valid. It appears, from Figure 3-7, that landfill occurs above this well. Since there is no measurable TCE elsewhere and given the conductivity contrast between the alluvium and bedrock it might be more appropriate to consider the fill material above this well as the source of TCE. Figure 4-23 is missing.

4. Section 5.3.2 Groundwater Transport, the calculation of flow velocity is inaccurate. The data set is far too limited to define groundwater flow in the vicinity of this landfill. There are not sufficient number of wells in the alluvium to determine how water moves within these units. It is incorrect to assume an average porosity for alluvium and bedrock and assume that groundwater will flow from alluvium to bedrock and continue to flow in bedrock at the same rate. The hydraulic gradient presented here probably does not reflect reality. It is far more realistic to evaluate flow in each hydrologic unit.

5. Section 5.3.2.1 VOCS in Groundwater, no basis is presented for the statement that the TCE plume is 600 by 1,000 feet. Figure 4-22 does not show the areal extent of TCE in groundwater (assume the text is referring to Figure 4-20). The data presented (in Figure 4-20) show that TCE occurs in well 02_DGMW60 only. The extent of TCE should be shown (in Figure 4-20) as occurring adjacent to this well. Agree with the statement that the TCE found in this well (in the bedrock unit) is attributable to a release in the area of this well. An effective porosity of 0.30 for the bedrock is greater than expected for bedrock. The value calculated for effective porosity is representative of well graded sand. Agree with the interpretation that the bedrock is a low flow zone and contaminants which may enter the alluvium (from the bedrock) disperse and dilute below regulatory limits. This is sufficient for the purpose of this document. There is not sufficient data for a conceptual model for groundwater flow, therefore there is not sufficient data for a numerical model. The model domain does not incorporate hydraulic conductivity data presented in the text.

6. Appendix R,R.2 Conceptual Groundwater Model, Agree with the interpretation that preferential flow will occur in the alluvium and not the bedrock. This should be incorporated in the cross-section 3-7.

7. Appendix R,R.3.4 Hydraulic conductivity, Figure R-3 does not correctly incorporate hydraulic conductivities. Wells 02NEW1 and 02_DGMW60 are screened in bedrock and have conductivities less than 1ft/day. Well 02NEW8A is screened in bedrock and should not be included in the same hydraulic conductivity field as the alluvial wells. Since the model domain does not accurately incorporate hydraulic conductivities the model should not be viewed as valid.

8. Appendix R,R.3.8 Effective Porosity, agree that choosing an effective porosity of 0.2 is conservative, however assigning the same value to bedrock and alluvium is not a realistic

representation. The calculated value of 0.3 for siltstone is likely to be spurious.

9. Appendix R, R.4 Model Calibration, it is standard practice to compare simulated with calculated heads in an x-y plot. This permits rapid analysis for all data points. Figure R-5 shows that head values do not match throughout the model domain. The text states that hydraulic conductivities were adjusted to match simulated with observed heads. It is standard practice to report the model parameters.

10. Appendix R, R.5 Transport Simulations, given the significance of the comments regarding the groundwater flow in both the conceptual model and the numeric model it is premature to evaluate numeric transport. The statements in the RI text that a small point source near well 02_DGMW60 is the likely source of contamination and that the contaminants leak from a low velocity flow field to a high velocity flow field and are subsequently reduced in concentration due to dispersion and dilution are appropriate and sufficient.

Recommendations

1. It is not necessary to collect more data to support the numeric model. There is sufficient field data to construct a conceptual model of flow and transport. I recommend that the Navy re-evaluate the field data and refine the conceptual model.

2. The numeric model is weak and does not aid this project. I recommend that it be dropped from the RI.

3. The field data shows an area of TCE adjacent to the well 02_DGMW60. The FS should consider what benefit might be attained by pumping this well.

TECHNICAL MEMORANDUM

Date: May 24, 1996
From: Virginia Garelick (Code 1852.VG)
To: Andy Piszkin (Code 1831.AP)

Subj: **Technical Review of Draft Phase II Remedial Investigation Reports, Operable Unit 2B - Site 2 (Magazine Road Landfill and Site 17 (Communication Station Landfill), MCAS El Toro, dated March 1996**

Ref: (a) U.S. EPA, Guidance for Conducting Remedial Investigations and feasibility Studies under CERCLA, Interim Final, (EPA/540/G-89/004), October 1988)
(b) U.S. EPA, Conducting Remedial Investigations/ Feasibility Studies for CERCLA Municipal Landfill Sites, (EPA/540/P-91/001)
(c) U.S. EPA, Presumptive Remedy for CERCLA Municipal Landfill Sites, dated September 1993

Attachment A: Memorandum dated 4 May 1996 from Lynn Hornecker, Code 1831.LH to Ginny Garelick, Code 1852.VG.

1. Per references (a) - (c), I have reviewed the draft RI reports for OU2B - Site 2 and Site 17, MCAS El Toro, dated March 1996. This document was prepared by Bechtel National under Contract No. N68711-92-D-4670, CTO 76/128.

2. **General Impression:**

The overall contents are:	Good
The document is:	Substantially Complete
Document quality is:	Good

3. **Comments:**

The following comments supplement those which have been provided by Lynn Hornecker, Code 1831; DTSC; CLEAN II; RWQCB; and the Integrated Waste Management Board:

General Comments:

a. The subject documents address Site 2 (Magazine Road Landfill) and Site 17 (Communication Station Landfill). The objective of an RI is to collect sufficient data to adequately characterize a site. The information generated from this activity will be used to develop and evaluate effective remedial alternatives. The reports were well written and substantially complete. The majority of my comments address the need for editorial revisions and/or clarification to enhance document quality. The reports complied with U.S. EPA guidelines for the preparation of RI/FS reports.

b. Site 2: From the site maps that were provided, it appears that we have not adequately characterized the entire landfill. The investigation of the off-site portion of the landfill involved the drilling of one monitoring well and one trench (and no soil samples were collected from the trench). Given the history of this site (e.g., an Emergency Removal Action was conducted in 1993 in the vicinity of the currently planned emergency removal action) recommend that additional sampling be conducted to characterize this portion of the landfill and to determine DON's potential liability. The sampling results could be included as an addendum to this RI report. The feasibility study should address the entire landfill, including the off-site portion.

c. The boundary of Site 2 is not clearly defined in the RI report. Please verify the site boundary as it relates to the MCAS El Toro property boundary. Per Attachment A, recommend that the property boundaries, utility easements and the Alton Parkway extension be addressed in the IRP Site 2 Feasibility Study.

d. Regarding the data validation reports for both sites, I noted that hundreds of non-detected compounds have "R" data qualifiers. This means that the associated non-detected results are not useable for any purpose. The "R" qualifiers were assigned because acceptance criteria was often exceeded with respect to the following: (a) initial and continuing calibration factors; (b) surrogate percent recoveries; (c) matrix spike/duplicate recovery and RPD limits; (d) laboratory control sample analyses percent recoveries; and (e) internal standard areas and retention times. In some cases the retention times were grossly exceeded (e.g., by more than three weeks for semi-volatiles). This is unacceptable. Please see me for specific examples.

e. Regarding the format of the reports, some of the appendices include information for all five landfills at MCAS El Toro, whereas other appendices provide site specific data. As a result, an enormous amount of non-relevant information is contained in the RI reports I reviewed. This is a waste of paper and renders the review of information difficult. Recommend tailoring the reports to include only site specific information. At a minimum, recommend highlighting the information that relates to the site, rendering the document more "user friendly." This can be accomplished by providing a dark band on the pages that contain site specific information.

Specific Comments:

Although the majority of my comments focus on Site 17, please make similar revisions to the Site 2 RI report where applicable.

Site 2: Magazine Road Landfill

a. Executive Summary:

(i) Background, fourth paragraph. Please cross-check this description with that provided in the draft Action Memo for the Emergency Removal Action that was accomplished in 1993.

(ii) Page ES-2, figure ES-1: Please provide a better figure. The southwestern boundary of the landfill is cut off.

(iii) Page ES-5, first paragraph: Clarify that this report summarizes the results of Phase I and Phase II investigations. Fourth paragraph: According to the Phase I RI report, mercury exceeded ecological criteria. Revise paragraph accordingly. Fifth paragraph: State the maximum levels of COCs (where MCLs were exceeded). Additionally, please ensure that this paragraph is consistent with the information contained in Section 4.6.1.2 (page 4-162). Sixth paragraph: Clarify that "residential" PRGs were exceeded. Seventh paragraph: Clarify which constituents exceeded ecological criteria (see Phase I report).

(iv) Page ES-6, third paragraph. The leachability finding is not consistent with the information presented on page ES-10. Please correct.

b. Chapter 1 - Introduction

(i) page 1-5, third paragraph. DTSC and RWQCB are both part of CalEPA. Make this change throughout the document.

c. Chapter 2 - Study Area Investigation

(i) Figure 2-7: There is a discrepancy between the total number of samples collected during Phase II versus the number of samples analyzed. Please revise.

(ii) Page 2-59, Data Validation Qualifiers. Mention the significance of "J" qualifiers, too.

d. Chapter 3 - Physical Characteristics

(i) Page 3-9, Stream Bank Erosion: Mention the removal action that was accomplished in 1993.

(ii) Page 3-5, Table 3-5 (Geotechnical Soil Test Results): Were soil measurements such as plasticity index taken? If so, provide this information.

(iii) Page 3-40, Vegetation Communities: Was any sign of vegetative stress observed during the RI? If so, this should be stated here.

e. Chapter 4 - Nature and Extent of Contamination

(i) Page 4-9, Trenching, sixth paragraph: What was the nature of the exposed waste? Provide description.

(ii) Figure 4-4: Provide the following title for the figure: "Ground water Monitoring Well Locations".

(iii) Page 4-55, second paragraph. Define "tentatively identified compounds".

(iv) Table 4-17 "Compounds Detected in Subsurface Soil": Revise the table legend to indicate when analyses were not performed. (For consistency with the other tables, use "--" to indicate this.)

(v) Page 4-121, third paragraph: Confirm that monitoring wells installed during the Phase I RI have been sampled four separate times. (I don't think this is the case.)

(vi) Page 4-161, second paragraph: Provide levels of contamination detected.

(vii) Page 4-183, third paragraph: The discussion regarding gross alpha and gross beta particle activity in groundwater is confusing. Describe the typical range of these constituents in areas where shales and siltstone are prevalent.

f. Chapter 8 - Conclusions and Recommendations

(i) Page 8-15: Add levels of contamination (highest hits).

g. Chapter 9 - References

(i) Add the Removal Action Memorandum that was prepared by Southwest Division Naval Facilities Engineering Command in 1993.

Site 17 - Communications Station Landfill

Specific Comments:

a. Executive Summary:

(i) Page ES-1, third paragraph: Mention that the landfill covers approximately 20 acres.

(ii) Page ES-6, Human Health Risk Assessment, third paragraph: Explain that very conservative technical assumptions were used to derive the risk calculations. Fourth paragraph: there appears to be a discrepancy between the level of risk discussed and the information presented in Chapter 4 (e.g., the maximum level of arsenic detected was below background level). Please address.

b. Chapter 1 - Introduction:

(i) Page 1-6, Figure 1-3 (IRP program process): Add a box entitled "Remedial Design".

(ii) Page 1-27, According to Phase I report, MCPA was a risk driver. Please include the analytical results for MCPA detected in shallow soil.

c. Chapter 2 - Study Area Investigation:

(i) Page 2-7, Figure 2-1 (Surface Geophysical Survey and Trench Locations): Revise the figure to indicate the areas where the geophysical survey was restricted.

(ii) Page 2-12, Meteorological Monitoring: Qualify the first sentence. The meteorological monitoring was conducted at Site 2, not Site 17.

(iii) Page 2-31, Figure 2-7 (Quantity of Soil Samples Collected): The quantity of soil samples collected versus quantity of soil samples field screened and analyzed do not add up. Please correct.

d. Chapter 5 - Fate and Transport:

(i) page 5-9, Contaminant Persistence: Clarify that Table 5-1 only includes COCs that exceeded residential PRGs.

g. Chapter 6 - Human Health Risk Assessment:

j. Appendix A (Field Change Notices). Add a sentence to the introduction to inform the reader that field change notices apply to all of the landfill sites.

k. Appendix C (Geophysics Report). This appendix includes a description of electromagnetic surveys and maps for all of the landfill's at El Toro. Recommend eliminating all data that does not relate to Site 17.

l. Appendix E (Air Sampling Information). This appendix includes air sampling information for all of the landfills at El Toro. Recommend eliminating all data that does not relate to Site 17.

Additionally, it does not appear that Attachment C (Lab Results) included the volatile organics analysis data sheets for Site 17 samples. Please provide.

m. Appendix F (Soil Gas Survey Report). Table B-1 (Halogenated and Aromatic Hydrocarbons Field Analytical Results for Soil Gas Samples) is incomplete. Please provide analytical results for sample 76Q2028. (Note that Table 12 Summary of Field

Analyses) indicates hits of 1,1 DCE and 1.1.2 trichloro trifluoroethane at this sample location.)

n. Appendix G (Background and Reference Level Calculations: This appendix was reviewed by Dennis Askvig.

(i) Page G-2, parametric approach: What is the α level (.05,.10,.20)? Note: at this time, DTSC will **not** accept UTL level.

(ii) Page G-20, nonparametric approach: Which nonparametric method was used? Revise last sentence in the first paragraph to read "One of the advantages of the nonparametric procedure is that it is often easier to deal with non-detects."

o. Appendix M (Meteorology and Climate). This appendix documents weather patterns, including windspeed, wind direction at Site 2. Are these conditions expected to be the same at Site 17? Please clarify.

4. **Recommendation:**

Accept draft and incorporate comments as appropriate.

5. If you have questions, please call me at 532-2967.

Virginia Garelick
Remedial Technical Manager

Copies to:

Code 185, 185.MA
Code 1852, 1852.JC, 1852.MP, 1852.CK, 1852.DA
Code 1831, 1831.JJ, 1831.LH
Code 09C.RC
Code 185.C2