



# Bechtel

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CLEAN II Program  
Bechtel Job No. 22214  
Contract No. N68711-92-D-4670  
File Code: 0218.1/0222  
**IN REPLY REFERENCE: CTO-0080/0156**

October 8, 1996

Mr. Joseph Joyce  
BRAC Environmental Coordinator  
MCAS El Toro and Navy  
Building T-2006  
P.O. Box 95004  
Santa Ana, CA 92709-5001

**Subject: Submittal of Internal Review Comments by Environmental Management for MCAS El Toro, CTO-0080 on Draft Feasibility Study Report OU-2C Sites 3 and 5 prepared by CLEAN II CTO-073.**

Dear Mr. Joyce:

Comments on the draft document identified above are included with the CLEAN II Team response. This review was comprehensive for the main document and appendices. The page numbers referred to in the commentary may not match those in the most recent version of the feasibility study since editorial changes have occurred since the commentary was submitted. We believe that this new approach towards internal review provides an improved product which should facilitate review by others.

I will be out of the office between October 4 and October 21. During this time you may contact Dr. Robert Tait for assistance at (619) 687-8840.

Sincerely,



Dante J. Tedaldi, Ph.D., P.E.  
Technical Quality Assurance MCAS El Toro

DT/sp

Attachment: Comments on Draft Feasibility Study Report OU-2C Sites 3 and 5



**Bechtel National, Inc.** Systems Engineers-Constructors

**PROPOSED RESOLUTION TO CTO-080 COMMENTS  
DRAFT FEASIBILITY STUDY SITE 3 OU-2C  
MCAS El Toro, California**

<p><b>Originator:</b> Dante J. Tedaldi Bechtel National, Inc.</p> <p><b>To:</b> Tim Latas Bechtel National, Inc.</p> <p><b>Date:</b> 30 September, 1996</p>	<p><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 <b>CTO-0080</b> File Code: 0222</p>
<p><b><u>SPECIFIC COMMENTS</u></b></p> <ol style="list-style-type: none"> <li>1. Page 2-41, last paragraph. Include the text: "several PAHs and phthalates." at the end of the first sentence.</li> <li>2. Page 2-38, Inorganics subsection. The discussion is not entirely supported by Figures 2-8, 2-10 and other figures since they do not list all the TAL metals results for water samples.</li> <li>3. Page 2-44, third paragraph. The text appears to be incorrect in its reference to "...metals transport beyond the mouth of the canyon..." There is no canyon at Site 3.</li> <li>4. Page 2-48, second paragraph. The text notes that low levels of SVOCs were reported in groundwater. However, in the last sentence of the same paragraph the text indicates that "No SVOCs were detected in the December 1995/January 1996 sampling event, indicating that SVOCs are not leaching from the landfill due to surface water infiltration." What is the correct description of the groundwater situation?</li> <li>5. Page 2-48, third paragraph. This paragraph is unnecessary and should be deleted.</li> <li>6. Page 2-48, fourth paragraph. Please clarify the statement "Metal exceedances in shallow soil occurred in samples taken at the surface." Were not the shallow samples considered equivalent to surface samples?</li> <li>7. Page 2-48, fifth paragraph. Correct the text as follows (with additional text underlined and removed text struck out): "...thallium, and zinc <u>exceeded background</u> <del>were found</del> in shallow soil..."</li> <li>8. Page 2-48, fifth paragraph. In the last sentence the hypothesis is that motor oil containing metals is the cause of the soil metals levels in excess of background. This may be true for some waste oils for some of the metals reported. However, the presence of thallium, selenium,</li> </ol>	<p><b><u>RESPONSES TO SPECIFIC COMMENTS</u></b></p> <p>This comment was incorporated.</p> <p>These figures illustrate the metals results for each sample location. the metals listed at each location were those metals detected in the samples.</p> <p>This has been corrected to read "beyond the transition zone".</p> <p>This statement was revised to read "currently" being released from the landfill.</p> <p>This paragraph was deleted.</p> <p>The reference to surface indicates that shallow soil samples were those collected at the surface.</p> <p>This comment was incorporated.</p> <p>This sentence includes a reference to motor oil and waste oil. Agree that some of metals may be derived from waste oil and this will need to be corrected in the draft final FS.</p>

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<p>cobalt, and manganese are not supportive of this hypothesis.</p>	
<p>9. Page 2-49, first paragraph. The last sentence states that "The presence of landfill wastes at Unit 4 suggests possible leaching of low concentrations of thallium from Unit 4." The mere presence of landfill wastes does not suggest leaching; moreover, since the thallium levels in groundwater did not differ from upgradient levels the statement seems to be baseless.</p>	<p>This sentence has been deleted .</p>
<p>10. Page 2-49, fourth paragraph. The first sentence indicates that dioxins and furans were <i>not</i> detected in lysimeter soil samples from Units 1 and 3. Yet later in the same sentence the following appears, "...indicating the these chemicals have leached from Units 1 of 3." Please explain the discrepancy.</p>	<p>The dioxins and furans detected were in Unit 4, not in Units 1 or 3. The paragraph was modified to reflect this.</p>
<p>11. Page 2-50, third paragraph. Please remove the reference to the "...alluvial aquifer below the canyon..."</p>	<p>Comment incorporated.</p>
<p>12. Page 2-50, fourth paragraph. Please remove the reference to samples collected at Site 17.</p>	<p>Site 17 was changed to Site 3.</p>
<p>13. Page 2-56, first paragraph. The presence of chloroform seems suspect. It may be a lab contaminant or have been introduced with potable water that contained trihalomethanes.</p>	<p>The analytical results have been validated and the chloroform was not a laboratory contaminant. More than likely it was a contaminant in water used to install the monitoring well (Phase I RI).</p>
<p>14. Page 3-5, first bullet item, last sentence. Add the reason that metal migration is expected to be very restricted beyond the landfill.</p>	<p>This reason (redox conditions) has been added.</p>
<p>15. Page 3-5, third bullet item, last sentence. Provide the basis for the statement that "...contaminants do not appear to have originated in the landfill."</p>	<p>This will be added to the draft final FS. The explanation for sediment contaminants appears to surface runoff from roadways.</p>
<p>16. Page 5-4, Overall Protection of Human Health and the Environment. The baseline risk is only slightly greater than 1E-6 and yet the text notes that "This alternative is not considered protective of human health and the environment." Please explain the basis for the statement.</p>	<p>The protection of human health and environment in this case is not exclusively based on risk estimates but also on the physical conditions of the site. Failure to control erosion in Agua Chionon Wash and prevention of ponding could lead to releases of contaminants by flooding or leaching, respectively.</p>

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<p><b>17. Page 5-6, Overall Protection of Human Health and the Environment. Text similar to Alternative 1 is absent from this discussion. However, it seems that many of the reasons which make Alternative 1 unprotective would also make Alternative 2 unprotective.</b></p>	<p>This is true and the same explanation applies.</p>
<p><b>18. Page 5-8, last sentence. The text provides a single risk value yet implies that two difference values were calculated: one for state toxicity criteria and one for EPA criteria. Please clarify.</b></p>	<p>The estimates from the U.S. EPA and Cal-EPA criteria are now included.</p>
<p><b>19. Page 6-1 Overall Protection of Human Health and the Environment. The statement is made that Alternatives 1 and 2 are not protective of human health and the environment. The reasons stated focus on pathways and resultant risk which do not seem to out of line with respect to NCP criteria. Please clarify.</b></p>	<p>Risks that would be associated with wastes that could be exposed by erosion or from possible leaching cannot be calculated. However, the potential erosion and leaching if no remedial action is taken are apparent. This may not be in strict accordance with NCP, but if these processes are unchecked, they have a potential to create a risk to human health and the environment.</p>
<p><b>20. Table 6-1. The infiltration for Alternatives 5a and 5b seem incorrect. Please verify the calculations and confirm that the rates are as high as noted in the table.</b></p>	<p>These infiltration rates are currently being discussed internally with CLEAN II and the Navy.</p>
<p><b>21. Table 6-4. See the previous comments with respect to effectiveness in protecting overall protection of human health and the environment.</b></p>	<p>See response to comment #19.</p>
<p><b>22. Table 6-4. For Alternative 5a,b and 6a,b under the row Overall Protection of Human Health and the Environment. Correct the garbled text: "Reduces risk by severing soil contact pathing."</b></p>	<p>This has been revised to reflect the elimination of an exposure pathway to surface soils.</p>
<p><b>23. Table 6-4. It seems curious that Alternatives 4c, 4d, 6a, and 6b all claim to offer the "Greatest reduction in infiltration..."</b></p>	<p>The reference to "greatest" is a relative term that applies to only those alternatives presented in the FS.</p>
<p><b>24. Page 7-1, first bullet. The text notes that there is currently six feet of cover over the landfill materials at Site 3. If this is the case then it would seem that a significant amount of inhalation and direct contact risk would be eliminated. Why then are Alternatives 1 and 2 not considered protective of human health and the environment?</b></p>	<p>See response to comment #19.</p>

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<b>25. Page B3-2, Table B3-1. What use is envisioned for the TDS data? It may not be a needed measurement for the lysimeter samples.</b>	If soil moisture samples can ever be collected, the TDS may assist with an understanding of TAL metals in the soil moisture.
<b>26. Page B4-2, Corrective Action. You may want to note that the definition of "...significant change..." will be estimated as part of the remedial design.</b>	Agreed and the amount of change considered to be significant will be included in the final design.
<b>27. Figure for REACH 1 UPSTREAM SECTION 3.52. Here and for all subsequent figures, please define the units of the upper x-axis and increase the line weight of the items listed in the legend. Also, include a definition of the legend terms somewhere on the illustration or in the text.</b>	This will be corrected in the draft final FS.
<b>28. Figure for REACH 1 UPSTREAM INSIDE IRVINE BLVD. CULVERT 3.30. Define the shading shown on the figure.</b>	This will be corrected in the draft final FS.
<b>29. Figure for REACH 1 D/S END OF IRVINE BLVD. CULVERT 3.28. Please define the significance of the cross hatched regions shown on the illustration.</b>	This will be corrected in the draft final FS.

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<p><b><u>SPECIFIC COMMENTS</u></b></p>	<p><b><u>RESPONSES TO SPECIFIC COMMENTS</u></b></p>
<p>1. Page ES-1, 3rd paragraph. Define “designated wastes” as California designated wastes.</p>	<p>The term California was added to the term designated wastes.</p>
<p>2. Page ES-1, 3rd paragraph. Specify if the nonhazardous waste is RCRA nonhazardous waste.</p>	<p>The nonhazardous wastes are California nonhazardous wastes.</p>
<p>3. Page ES-2. Change the term “Compounds” to analytes.</p>	<p>The change was incorporated.</p>
<p>4. Figure ES-2. Define the Unit 1 boundary and the site boundaries.</p>	<p>The Unit 1 boundary is defined as the principal body of the landfill. The site consists of both Units 1 and 2 where unit 2 is the bermed investigation-derived waste area.</p>
<p>5. Page ES-7. Specify the exposure scenarios described in the second paragraph.</p>	<p>In the fourth paragraph where the excess cancer risk for elementary/high-school-age children are discussed, the phrase “playing at the site” has been added.</p>
<p>6. Page ES-7, last paragraph. Identify the specific metals which are risk drivers.</p>	<p>The primary risk drivers of arsenic and chromium have been added.</p>
<p>7. Page ES-7, last paragraph. Consider modification of text as follows (with additional text underlined): “...probable reduction in <u>soluble metals concentrations due to precipitation</u> as groundwater moves...”</p>	<p>These statements have been added.</p>
<p>8. Page ES-7, last paragraph. Consider noting that groundwater below Site 5 is not currently used.</p>	<p>This statement has been added.</p>
<p>9. Page ES-8, last paragraph before Remedial Action Objectives. The text notes that the risk assessment is of a “...conservative nature...” All risk assessments are conservative in nature. This document should explain what was so special about this risk assessment that we may tend to discount certain calculated hazard indices.</p>	<p>The conservative nature of ecological risk assessment have been added which assumes 100 percent uptake of chemicals.</p>
<p>10. Page ES-9, last sentence before Presumptive Remedies section. The text states that the BCT has agreed that treatment for groundwater contamination in not necessary for Site 5. Is the term “treatment” or is it “remedial action” in this instance?</p>	<p>This sentence has been removed because no BCT discussions have occurred and agreement reached on groundwater remediation at Site 5.</p>

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<p>11. Page ES-11. Within Table ES-1 the infiltration rate for Alternative 5b seems high. Please check the value since infiltration with a cap should not be greater than under a no action scenario.</p>	<p>The infiltration was too high using the original assumptions and was decreased to 3.8. However, this value appears to be too high as well and additional research will be conducted so a more reasonable infiltration for both concrete and asphalt concrete can be used.</p>
<p>12. Within Table ES-3 the infiltration rate of 9.9 inches for Alternative 5b is presented and appears to be in error. Please confirm the calculations.</p>	<p>See response to comment #11.</p>
<p>13. Within Table ES-2 the accuracy of the construction estimates is apparently one week. Wouldn't it be reasonable to simply say that construction is estimated to last 3 to 4 months?</p>	<p>The schedule estimates were prepared to an accuracy of one week. These schedule estimates will be left in place for comparative purposes only. The actual construction will be considered more fully at the detail design stage.</p>
<p>14. Page 1-7, last paragraph. The text states that the groundwater velocity was between 240 to 3,100 ft/year. Based on this information I would conclude that either: groundwater contamination at the site is due to a continuing source since a release which had ceased would have been swept away quite quickly; or alternatively, metals exceedances of background are simply local hydrogeologic peculiarities and are not evidence of a release.</p>	<p>This velocity estimate is based on slug tests and pump tests conducted in the Phase I RI. The high velocity appears to be related to characteristics of thin gravel layers at the site and does not represent the overall groundwater velocity of the site.</p>
<p>15. Figure 2-1. The boundary of Site 5 is missing from this figure.</p>	<p>This has been added.</p>
<p>16. Figure 2-2. Could this figure be deleted since Figure 2-1 seems to provided the same and more information?</p>	<p>This figure was deleted.</p>
<p>17. Page 1-33, last sentence of the second paragraph. Consider modification of text as follows (with additional text underlined and removed text struck out): "<del>The VOCs</del> <u>Trace concentrations of PCE</u> in groundwater were detected upgradient and in the monitoring well north of the site, <del>indicating which suggests</del> that the source of groundwater <del>VOCs</del> <u>PCE</u> is upgradient from Site 5."</p>	<p>These comments have been incorporated.</p>
<p>18. Page 1-33, fourth paragraph. The text should note that the copper, lead and zinc concentrations referred to were measured in soil.</p>	<p>This comment has been incorporated.</p>

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<p>19. Page 1-33, fifth paragraph. The first sentence seems garbled. It may be best to delete some of the descriptors.</p>	<p>This sentence has been rewritten to clarify that chromium, manganese, and nickel are higher in downgradient wells than upgradient wells.</p>
<p>20. Page 1-33, fifth paragraph. The last sentence indicates that metals concentrations downgradient which were greater than upgradient concentrations may not be indicative of a release. Consider inclusion of a sentence which would explain that this issue will be clarified over time as the long-term monitoring data establish definitive trends?</p>	<p>A sentence was added stating that long-term monitoring of the groundwater may be used to resolve this issue.</p>
<p>21. Page 1-34, first paragraph. The text suggests that cross contamination from surface soils may be the reason furans were found at 86.2 feet bgs. However, there is no mention of furans in samples collected at any location at any of the shallower depths. Please clarify the logic here.</p>	<p>No samples from the boring for the lysimeter were analyzed for furans above the sample with furans. Six other surface samples from Phase I RI were analyzed for dioxins and furans, and no furans or dioxins were detected. A possible explanation for this occurrence is cross contamination from shallow soils at the site.</p>
<p>23. Page 1-34, fourth paragraph. Consider the following change: "...actually higher..." to "...somewhat higher..."</p>	<p>This comment was incorporated.</p>
<p>24. Page 1-34, fourth paragraph. Consider the following change (with additional text underlined and removed text struck out): <del>Therefore,</del> <u>This suggests that the source of the groundwater VOC PCE contamination appears to be</u> <del>was</del> <u>upgradient</u> of the Site 5 landfill.</p>	<p>This comment was incorporated.</p>
<p>25. Page 1-34, fifth paragraph. Consider insertion of "recent" within "...that no <u>recent</u> releases have occurred.." (Additional text underlined.)</p>	<p>This comment was incorporated.</p>
<p>26. Page 1-38, third paragraph. The text states that the risk estimates suggest that arsenic and chromium may be site related. This seems to be an overstatement. The investigation and analytical results are the principal data for decision-making with respect to whether or not a site related release has occurred. The risk assessment is simply a use of these suggestive data. See also page 5-4, last paragraph.</p>	<p>This sentence was changed to read "Although the higher concentrations in downgradient wells suggest that arsenic and chromium may be site related".</p>

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<p><b>27. Page 3-2, first bullet item. The dimensions given here (250'x450') appear to differ from those provided on page 3-1 (200'x200' on each side of two square areas) c.f. also last bullet item on page 3-14.</b></p>	<p>The bermed area is approximately 200 by 400 feet and the change was made to this page and on other pages where this discussion occurs.</p>
<p><b>28. Page 3-13, first paragraph. The text refers to nondetect values for metals in groundwater as equivalent to background. This is a bit of an overstatement since many metals are commonly encountered in groundwater at detectable levels.</b></p>	<p>The reference to "nondetect" as background in groundwater was removed.</p>
<p><b>29. Page 3-17, first paragraph of Section 3.4.1. Consider including the following text (with additional text underlined and removed text struck out):: "...to protect humans <del>and</del> animals <u>and vegetation</u> from exposure to the..."</b></p>	<p>Plants was inserted into this phrase.</p>
<p><b>30. Page 4-1. Within this section be sure to address regulatory agency concerns regarding the net effect of the remedial actions on the reduction of baseline risk values.</b></p>	<p>Remedial alternatives which include capping eliminate the exposure pathway to surface soils, therefore, the risks estimated from existing surface soils are eliminated.</p>
<p><b>31. Page 4-6, Figure 4-2. The figure indicates that the monolithic layer would be placed directly on the waste. However, the subsequent illustrations for other alternatives include an existing landfill cap layer between the two. Please clarify the logic.</b></p>	<p>This existing soil cover layer has been added to the drawing.</p>
<p><b>32. Page 5-11, Cost subsection. The text notes that costs are intended for comparative purposes and not for budgetary or planning purposes. However, the costs for Alternative 2 were not qualified in a similar manner. Please clarify the reason for the difference.</b></p>	<p>This caveat has been added.</p>
<p><b>33. Page 5-12, Figure 5-1. Add the note here and elsewhere that the horizontal scale represents activity duration in months with weekly increments.</b></p>	<p>This comment has been incorporated.</p>
<p><b>34. Page 5-33. Here and elsewhere there appears to be an error related to the calculated infiltration rate under Alternative 5b. The estimated rate seems unreasonably high. Please reexamine the calculations.</b></p>	<p>For the draft FS, the infiltration rate for concrete and asphalt concrete are assumed to be the same (3.8 inches per year). However, this infiltration rate appears to be high. Additional research will be conducted between the draft and draft final FS to evaluate the infiltration of concrete and asphalt concrete.</p>

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<p><b>35. Table 6-1. The primary column heading “Prevent Contact” would seem to only apply to “Total Thickness of Cap” and “Barrier Layer” columns. Please adjust the layout accordingly.</b></p>	<p>The heading has been changed to “Technical Specifications” which applies to cap thickness, barrier layer, infiltration, revegetation, and drainage controls.</p>
<p><b>36. Table 6-2. The table is missing a discussion of the relative advantages and disadvantages of asphalt and concrete caps. Please add to final copy.</b></p>	<p>The advantages of concrete and asphalt have been added to this table.</p>
<p><b>37. Page 7-1. Within this section do not forget to make a statement about relative risk reduction projected for each alternative.</b></p>	<p>A bullet has been added which indicates that capping alternatives will reduce risks by eliminating the exposure pathway to surface soils.</p>