



**CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT**

Contract No. N-68711-92-D-4670

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Southwest Division  
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DATE: March 4, 1997  
CTO #: 0076  
LOCATION: MCAS El Toro

FROM: Craig L. Carlisle  
Craig L. Carlisle, Project Manager

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Operable Unit 2C - Sites 2 and 17 (Various Dates)

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**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY REPORT  
OU-2B, SITES 2 AND 17  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Bonnie Arthur Remedial Project Manager, U.S. EPA</p> <p><b>To:</b> Joseph Joyce BRAC Environmental Coordinator</p> <p><b>Date:</b> 7 November 1996</p>	<p><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b><u>GENERAL COMMENTS</u></b> <b><u>SITES 2 &amp; 17</u></b></p> <p>1. State Acceptance; add the RWQCB to state agencies under "State acceptance."</p>	<p><b><u>RESPONSES TO GENERAL COMMENTS</u></b> <b><u>SITES 2 &amp; 17</u></b></p> <p><b>RESPONSE 1:</b> The State Acceptance portion of the report has been revised to summarize comments that were received from state agencies on the Draft FS. Specifically, we have named the RWQCB and summarized this agencies comments on the draft document.</p>
<p>2. It appears that Alternatives 4a, 4b, 4c, 4d, 5c and 5d meet the prescriptive capping requirements of either Title 23 and/or Title 14 (see Enclosure A for clarification of which are applicable). The RWQCB's 10/29/96 letter provides recommendation to ensure that Alternative 3's selected cover design is equivalent to the prescriptive cover requirements. Additionally, Alternatives 4a, 4b, 4c, and 4d are not acceptable due to the difficulty of coastal scrub revegetation. Please discuss your proposed alternative with the BCT.</p>	<p><b>RESPONSE 2:</b> The proposed alternatives were discussed with the BCT on November 20, 1996. The BCT favors Alternative 3 provided the monolithic cap can be shown to be equivalent to the Title 23 Prescriptive Cap.</p>
<p><b><u>SITE 2</u></b></p> <p>1. <b>Page 3-14, Section 3.1.4:</b> Clarify the intent of the statement, "consider landfill gas controls in the final remedial design."</p>	<p><b><u>SITE 2</u></b></p> <p><b>RESPONSE 1:</b> Although landfill gas is present at very low levels at Site 2, we did not want to discount the possible need for landfill gas controls. This is the reason for making this statement one of the Remedial Action Objectives. Later in the FS (Section 3.4.4), landfill gas production at Site 2 is modeled using the U.S. EPA Landfill Gas Emissions Model. Modeling results confirm the low level of methane present at the site and show that this level will decrease in the future. Although landfill gas controls are thus screened out in the FS, monitoring of landfill gas will be used to ensure that concentrations remain within acceptable limits.</p>
<p><b><u>SITE 17 - MINOR</u></b></p> <p>1. <b>Pages ES-7, 2-19:</b> Please delete the word "trihalomethanes" as a</p>	<p><b><u>SITE 17 - MINOR</u></b></p> <p><b>RESPONSE 1:</b> This word has been deleted from the text.</p>

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<b>To:</b> Joseph Joyce BRAC Environmental Coordinator	<b>CTO-0076</b> File Code: 0214
<b>Date:</b> 7 November 1996	
compound category from these sentences; it is only appropriate to use this term if these compounds are derived from the reactions due to chlorination of surface water containing humus materials.	

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<p><b>Originator:</b> Bonnie Arthur Remedial Project Manager, U.S. EPA</p> <p><b>To:</b> Joseph Joyce BRAC Environmental Coordinator</p> <p><b>Date:</b> 7 November 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b><u>GENERAL COMMENTS ON ARARs</u></b></p> <p>The FS identifies both the Subtitle C (Hazardous Waste) and Subtitle D (Solid Waste) regulations of RCRA as potentially applicable ARARs. I find this approach to be confusing. DON should decide whether this landfill is a municipal solid waste landfill, which means that generally the Subtitle D regulations are the applicable ARARs or this landfill is a hazardous waste landfill, in which case Subtitle C regulations are the applicable ARARs. By choosing one over the other, DON can still use the regulations from the other as relevant and appropriate requirements but should make it clear this is what DON is doing.</p> <p>I did an analysis of the Subtitle D requirements and the following is my conclusion: Unlike Subtitle C, the approved State Subtitle D program is not in lieu of the federal Subtitle D regulations. Thus, only the state Subtitle D regulations which are more stringent than the federal Subtitle D regulations (found in Title 40, Part 258 of the CFR) are the ARARs. California's Subtitle D regulations are found in Chapter 15, Division 3, Title 23 of the CCR (Water Board regulations) and Chapter 3, Division 7, Title 14 of the CCR (Integrated Waste Management Board regulations). An additional note regarding the Integrated Waste Management Board regulations: even if this landfill is not subject to the Subtitle D regulations in Title 14 (which are in sections 17258.1 through 17258.74), if DON determines that this is a solid waste landfill, the Integrated Waste Management Board regulations in Chapters 3 (sections 17200 through 17895) and 5 of Title 14 (sections 18010 through 18413) are applicable.</p> <p>The FS also states that the DON believes that the requirements in Title 23 (the Water Board regulations) are not ARARs because they are not any more stringent than Subtitle C, the federal ARAR. However, the document is still littered with Title 23 citations. First, if in fact the specific Title 23 requirement is not any more stringent than the comparable Title 22 requirement, there should be no need to cite the Title 23 regulation as</p>	<p><b><u>RESPONSES TO GENERAL COMMENTS ON ARARs</u></b></p> <p>Subtitle C versus Subtitle D issue will be resolved by saying that Subtitle C closure design/performance standards are relevant and appropriate as opposed to applicable. Furthermore, per comments provided by Rex Callaway, a matrix has been developed and included in Section 3 which compares the various landfill capping containment requirements from CCR Titles 14, 22, and 23 and 40CFR Part 258. The table identifies the most stringent of the parallel requirements and therefore, the controlling ARARs.</p>

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OU-2B, SITE 17  
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<p><b>Originator:</b> Bonnie Arthur Remedial Project Manager, U.S. EPA</p> <p><b>To:</b> Joseph Joyce BRAC Environmental Coordinator</p> <p><b>Date:</b> 7 November 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p>an ARAR. If the DON wants to cite a Title 23 regulation nevertheless, the document should make it clear that the Title 23 regulation is only being considered as relevant and appropriate.</p>	
<p><b><u>SPECIFIC COMMENTS ON ARARs/ARARs TABLES</u></b></p>	<p><b><u>RESPONSES TO SPECIFIC COMMENTS ON ARARs/ARARs TABLES</u></b></p>
<p>1. In various places, the document states that the no action alternative (alternative 1) does not comply with ARARs. ARARs are triggered only when an action is taken. Therefore, this statement regarding ARARs and alternative 1 should be deleted.</p>	<p><b>RESPONSE 1:</b> Agreed. However, since the Navy intends to take action to close the landfill, we have noted that Alternative 1 will not meet the requirements for landfill closure.</p>
<p>2. SIP regulations are cited as federal ARARs. Only authorized programs are considered federal requirements. Therefore, citations to SIP requirements should be in the State ARARs.</p>	<p><b>RESPONSE 2:</b> Citations to SIP requirements have been moved to the State ARARs.</p>
<p>3. <u>P.A2-13, Control Plan for the Santa Ana Basin:</u> States that DON accepts the provisions of Chapters 2 through 4 of the WQCP as potential ARARs. If Chapter 4 contains guidances, recommendation, considerations for the Regional Board (as it does in other Basin Plans), which can be characterized as not being specific standards, requirements or criteria or limitations, then these are not ARARs but TBCs.</p>	<p><b>RESPONSE 3:</b> The discussion has been modified to indicate which portions of the Basin Plan contain substantive provisions (i.e., potential ARARs) versus TBC requirements.</p>
<p>4. <u>P.A2-14, Res. 92-49:</u> States that this resolution also requires conformance to 68-16 and Chapter 15. It is EPA's position that applicability of 68-16 and Chapter 15 is determined independently, through the ARARs process, not because 92-49 requires it.</p>	<p><b>RESPONSE 4:</b> The text has been modified to indicate that 68.16 and Chapter 15 have also been reviewed as stand-alone ARARs.</p>
<p>5. <u>P.A2-17, Groundwater ARARs:</u> Second paragraph refers to containment of the source areas. It is my understanding that there will be no source of control, i.e., no collection/treatment. Therefore, why are these potential ARARs? Also, this section cites the State primary mcls as potential ARARs. Please clarify that these are only ARARs if they are more stringent than the federal mcls.</p>	<p><b>RESPONSE 5:</b> This paragraph has been removed.  Language has been added to clarify that State primary MCLs are only ARARs if they are more stringent than federal ARARs.</p>
<p>6. <u>P.A4-1, State:</u> I cannot find the requirement being cited here as</p>	<p><b>RESPONSE 6:</b> This reference was incorrect. The correct citation is Article 8</p>

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<p><b>“Article 7.8 of Title 23 CCR.”</b></p>	<p>of Title 23 CCR. The text has been corrected accordingly.</p>
<p><b>7. <u>P.A4-2, State:</u> Why are the citations here to Title 23 and not Title 22?</b></p>	<p><b>RESPONSE 7:</b> See discussion above re: Subtitle C versus Subtitle D.</p>
<p><b>8. <u>P.A4-3:</u> Record keeping is not considered substantive.</b></p>	<p><b>RESPONSE 8:</b> Comment noted. This has been corrected.</p>
<p><b>9. <u>P.A4-5:</u> First row, in Comments, refers to solid waste. This should be hazardous waste as this section is analyzing the Subtitle C requirements.</b></p>	<p><b>RESPONSE 9:</b> This sentence has been modified to refer to disposition of hazardous waste.</p>
<p><b>10. <u>P.A4-7:</u> Cites to 40 CFR 257.3-4. Why are these potential ARARs? Are these requirements different from the Subtitle D municipal waste landfills and why would they be potential ARARs in this instance?</b></p>	<p><b>RESPONSE 10:</b> This section has been modified to note that 40 CFR 257 does not apply to landfill units which are subject to the revised criteria contained in 40 CFR 258.</p>
<p><b>11. <u>P.A4-9:</u> First row refers to discharge to groundwater. There is no discharge being contemplated in any of the alternatives.</b></p>	<p><b>RESPONSE 11:</b> The word “discharge” as used in this instance applies to the potential for leachate to migrate to groundwater.</p>
<p><b>12. <u>P.A4-11, 12, 13:</u> These requirements are considered offsite requirements and are therefore not ARARs. The facility is required to comply with these but not because they have been identified as ARARs.</b></p>	<p><b>RESPONSE 12:</b> DON has taken the position that the noted hazardous materials transportation requirements are relevant and appropriate for on-site transport of hazardous materials. The text has been modified to indicate which requirements are potentially relevant and appropriate versus those which apply specifically to off-site transport.</p>
<p><b>13. <u>P.A4-13, 14, 15:</u> Please see my comment 10.</b></p>	<p><b>RESPONSE 13:</b> The ARARs determination states that 40 CFR 257.3-4 are not ARARs.</p>
<p><b>14. <u>P.A4-18:</u> It is my understanding that the Regional Board Order No. 91-10 only applies to petroleum cleanups.</b></p>	<p><b>RESPONSE 14:</b> The reference to 91-10 has been removed.</p>
<p><b>15. <u>P.A4-22, 23, 24, 25:</u> Please review my general comment above regarding the applicability of Title 14. The requirements being cited here may be applicable (and the other requirements in Chapters 3 and 5 of Title 14 as well), not just relevant and appropriate.</b></p>	<p><b>RESPONSE 15:</b> Per discussions between Rex Callaway and Thelma Estrada concerning the determination of applicable versus relevant and appropriate for 14 CCR requirements, at most the requirements will be relevant and appropriate.</p>

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<p><b><u>OTHER COMMENTS</u></b></p> <p>16. <b><u>P.3-8 - Last paragraph:</u></b> Please see my comment above regarding Subtitle D.</p>	<p><b><u>RESPONSES TO OTHER COMMENTS</u></b></p> <p><b>RESPONSE 16:</b> See discussion above re: Subtitle C vs. Subtitle D.</p>
<p>17. <b><u>P.3-24:</u></b> The various monitoring being discussed in this section does not indicate the frequency of the monitoring.</p>	<p><b>RESPONSE 17:</b> The text has been revised to define the frequency of monitoring.</p>
<p>18. <b><u>P.5-10:</u></b> Last paragraph in Compliance with ARARs, refers to Title 23 CCR prescriptive capping requirements. Elsewhere in the document (for instance p. 7-1), I believe the citation is to Title 14. [Page 6-4 cites both.] Which prescriptive capping requirement will not be complied with?</p>	<p><b>RESPONSE 18:</b> Prescriptive cap requirements refer to Title 23 as included by reference under Title 14.</p>

**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY  
OU-2B, SITE 2  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Peter M. Janicki DTSC</p> <p><b>To:</b> Tayseer Mahmoud DTSC</p> <p><b>Date:</b> 30 September 1996</p>	<p><b>CLEAN II Program</b> <b>Contract No. N68-711-92-D-4670</b> <b>CTO-0076</b> <b>File Code: 0214</b></p>
<p><b><u>GENERAL COMMENTS</u></b></p> <p>1. For ease of review, we request that the landfill gas monitoring results retain consistent units throughout the text.</p>	<p><b><u>RESPONSES TO GENERAL COMMENTS</u></b></p> <p><b>RESPONSE 1:</b> Due to the differences in sampling devices, analytical methods, and laboratory reports, the results for instantaneous, integrated, flux chamber, and soil gas samples do have different units which cannot be directly compared (e.g., flux and integrated).</p>
<p>2. Since the previously reviewed Remedial Investigation Report did not include an adequate lateral/vertical waste extent investigation, it is unclear if the past gas surveys are fully representative of landfill gas concentrations at the site or how the depths of the proposed landfill gas monitoring probes have been chosen.</p>	<p><b>RESPONSE 2:</b> Wastes were adequately characterized laterally by trenching air photo review, mapping, geophysics, and interviews. In the vertical extent, waste extent has been estimated by reviewing historical topographical maps. It is assumed that wastes were placed in the canyon areas at Sites 2 and 17 at grade and have been built up to their current level. The vertical extent of the landfill was determined by subtracting the elevation shown in historical topographical maps from the current elevation of the landfill materials. Monitoring gas probes are required to be drilled to the maximum depth of the landfill within 1,000 feet of the probe. At Site 2, the probes will be installed to a maximum depth of 30 feet bgs. At Site 17, probe depths are estimated to be approximately 30, 105, 70, and 133 feet bgs because of the slopes present at the site. An explanation of how the probe depths were determined has been added to the cost estimating appendix.</p>
<p>3. For the analyses of costs associated with each of the final cover alternatives, it should be clarified that the postclosure maintenance costs are provided on a per year basis.</p>	<p><b>RESPONSE 3:</b> Postclosure maintenance costs are not presented on a yearly basis. They are presented on a net present worth basis for the entire 30-year postclosure maintenance period.</p>
<p>4. The analyses of the proposed final cover alternatives do not account for soil loss resulting from surface erosion. Specifically, soil loss analyses should be conducted for the proposed final site configuration. A commonly used method to evaluate soil losses is the Universal Soil Loss Equation with acceptable soil loss not exceeding two tons per acre per year.</p>	<p><b>RESPONSE 4:</b> Soil loss will be calculated at the time of final design once the preferred alternative is selected.</p>

**RESPONSE AND COMMENTS  
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OU-2B, SITE 2  
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<p><b>5. Similarly, the drainage system design considered for this project must be supported by appropriate drainage calculations yielding channel sizing and validating energy dissipating features (if present). In addition, the issue of flow capacity of the downstream facilities should be included. Sediment load must be included in channel sizing calculations.</b></p>	<p><b>RESPONSE 5:</b> A drainage calculation has been prepared to support the channel sizing and to validate the energy dissipating features.</p> <p>The downstream facility for Site 2 Borrego Canyon Wash. This wash has adequate capacity for the flow from Site 2. The highest run-off peak discharge from the landfill is 78 cfs. The 100-year flood in the Wash is estimated to be 5,000 cfs.</p> <p>A safety margin has been included in the channel sizing to accommodate such issues as sediment load. However, sediment load will be addressed in more detail during the remedial design phase.</p>
<p><b>6. When analyzing final cover costs, the costs related to construction of a final cover test pad should be included when applicable.</b></p>	<p><b>RESPONSE 6:</b> Costs related to the construction of a final cover test pad have been added into the cost estimates for Alternatives 3 through 5.</p>
<p><b>7. The Feasibility Study Report does not include a description of the long-term plan for postclosure land use for both the landfill and the surrounding areas. Certain postclosure land uses may potentially affect the performance of some low permeability materials.</b></p>	<p><b>RESPONSE 7:</b> According to the draft reuse plan for MCAS El Toro, Sites 2 and 17 are part of an area proposed as a habitat reserve. Residential, industrial, and commercial use of this land will be prohibited under this reuse scenario.</p>
<p><b>8. For the alternatives proposing the use of synthetic or geocomposite low permeability materials, the need for a drainage layer should be discussed.</b></p>	<p><b>RESPONSE 8:</b> For simplicity, the landfill cap alternatives are presented in the FS without a drainage layer. The need for such a layer will depend upon the preferred alternative and will be evaluated during the detailed design phase of this project.</p>
<p><b>9. If waste consolidation is to be considered as a part of the landfill closure, more specific information about the volume and type of waste to be relocated must be provided. Also, the proposed grading plan must account for the additional waste when developing the landfill configuration.</b></p>	<p><b>RESPONSE 9:</b> The grading plan as shown in Section 3 accounts for the additional waste that will be placed in the landfill due to consolidation.</p>

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<p><b>Originator:</b> Peter M. Janicki DTSC</p> <p><b>To:</b> Tayseer Mahmoud DTSC</p> <p><b>Date:</b> 30 September 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b><u>SPECIFIC COMMENTS</u></b></p> <p>10. <b>Figure 4-3.</b> Typical Drainage Cross Sections should include final cover materials on the drainage system cross-sections. Specifically, anchoring points for the synthetic and geocomposite materials, and keying locations for earth materials should be shown.</p>	<p><b><u>RESPONSES TO SPECIFIC COMMENTS</u></b></p> <p><b>RESPONSE 10:</b> This information will be provided at the detailed design phase.</p>
<p>11. <b>Section B.2.3.</b> Landfill Gas Monitoring and Reporting Frequency, states that the perimeter landfill gas monitoring will be conducted semiannually for the first five years following landfill closure. In accordance with 14 CCR, 17783.11, these inspections should be conducted quarterly, at least until the landfill gas situation stabilizes and monitoring results become consistent.</p>	<p><b>RESPONSE 11:</b> The proposed monitoring plan has been revised to indicate that perimeter gas monitoring will be performed quarterly until the landfill gas situation stabilizes and monitoring results become consistent.</p>
<p>12. <b>Section B.5.1.</b> Landfill Cap Inspection states that the final cover will be inspected monthly for the first six months after site capping and then semiannually for the next four and one-half years, and annually for the remaining 25 years. Cap inspections should be conducted on a quarterly frequency and following major storm events until full site revegetation occurs. Upon site condition stabilization, a lesser frequency may be proposed.</p>	<p><b>RESPONSE 12:</b> The proposed monitoring plan has been revised to indicate that the final cover will be inspected on a quarterly basis and following major storm events until full site revegetation occurs.</p>
<p>13. <b>Section B.5.2.</b> Drainage System Inspection should state that the drainage system will be monitored quarterly and after major storm events, until site conditions stabilize: upon approval, a lesser frequency may be then allowed. Also, it should be stated that repairs and maintenance of the drainage system will be conducted prior to the next storm event.</p>	<p><b>RESPONSE 13:</b> The proposed monitoring plan has been revised to indicate that the drainage system will be inspected on a quarterly basis and following major storm events until site conditions stabilize. A statement has also been added to indicate that repairs and maintenance of the drainage system will be conducted prior to the next storm event.</p>

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OU-2B, SITE 2  
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<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 1 November 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b><u>GENERAL COMMENTS</u></b></p> <p>1. <b><u>Executive Summary, Remedial Action Objectives, page ES-11, last sentence:</u></b> Please reference the decision document that supports the statement that BRAC Cleanup Team has agreed that treatment of the groundwater contamination is not necessary. This comment also applies to Section 3.1.4.</p>	<p><b><u>RESPONSES TO GENERAL COMMENTS</u></b></p> <p><b>RESPONSE 1:</b> The BCT agreed that treatment of groundwater is not necessary at their 22 May 1996 weekly meeting. However, we have deleted the reference to the BCT decision in favor of a discussion of groundwater remediation alternatives. Active remediation of groundwater is screened out in Section 3 of the FS because metals, which are the chemicals of concern in groundwater at Site 17, are expected to precipitate out of groundwater before they leave the transition zone downgradient of the site. Monitoring and institutional controls will be used to ensure protection of human health.</p>
<p>2. <b><u>Section 2.2.1.3, Geology and Hydrogeology, Figures 2-3 and 2-4:</u></b> Typographical error, change B' to B shown on the index legend.</p> <p>Provide a symbol and explanation in the legend for the lithology symbol on the cross-section illustrated with solid black circles.</p>	<p><b>RESPONSE 2:</b> B' has been changed to B as noted. We have also clarified the solid black circle lithology symbol. This was already referenced in the legend as gravely sand, but the symbol used in the cross section did not look like the symbol in the legend.</p>
<p>3. <b><u>Section 2.2.2.6, Groundwater, page 2-35:</u></b> As previously stated in the review of the remedial investigation at Site 2, DTSC still suggests it be necessary to generate background values for gross alpha and beta activity to determine if the values detected in groundwater samples collected from landfill monitoring wells are impacted as a result of leachate or similar values are detected throughout the Station.</p> <p>Another acceptable approach to handle this issue is to conduct isotopic analysis because gross alpha does not help too much in determining whether or not there is an actual release from the landfill. The Navy's response to RI comments #11 for Sites 3 and 5, prepared by Bechtel, indicates that isotopic analysis is planned to be incorporated into the groundwater monitoring plan for MCAS El Toro. Please ensure that isotopic analysis is performed when the next round of groundwater monitoring takes place.</p>	<p><b>RESPONSE 3:</b> At this time, isotopic analysis of groundwater is being conducted as part of the current round of groundwater monitoring.</p> <p>Isotopic analysis of groundwater is being included in the proposed monitoring plan which is an appendix to the Site 2 FS report (Appendix E).</p>

**RESPONSE TO COMMENTS**  
**DRAFT PHASE II FEASIBILITY STUDY REPORT**  
**OU-2B, SITE 2**  
**MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 1 November 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b>  <b>Contract No. N68-711-92-D-4670</b>  <b>CTO-0076</b>  <b>File Code: 0214</b></p>
<p>4. <u>Section 2.2.3.1, Contaminant Persistence (Persistence of Metals), second paragraph, page 2-42:</u> Provide the necessary data and discussion to support statements regarding metals concentration and correlation, or lack of correlation, to turbidity (unfiltered samples?). It is confusing as to the purpose of such a limited discussion.</p>	<p><b>RESPONSE 4:</b> This paragraph has been removed because it does not have a bearing on metals persistence in groundwater. A complete discussion of the apparent relation of turbidity to dissolved (filtered) and total (unfiltered) metal concentrations can be found in the RI for Site 2.</p>
<p>5. <u>Section 2.2.3.1, Contaminant Persistence (Persistence of Metals), third paragraph, page 2-42:</u> While the Eh - pH diagram shown in Figure 2-15 suggest that chromium detected in groundwater samples may only be present in the trivalent state, the assumption is that the system is in equilibrium and the Eh values are accurate. Reality is that hexavalent chromium is often detected in groundwater samples from impacted sites that exhibit a geochemical profile that would suggest hexavalent chromium should not be detected. In fact, given the higher solubility of hexavalent chromium with respect to trivalent, if dissolved chromium is present, a significant portion is probably in the hexavalent state. Furthermore, given the weight hexavalent chromium carries with respect to a risk assessment as compared with trivalent chromium, to resolve this issue, water-quality samples should be analyzed for hexavalent chromium. Please note that any such samples need to be analyzed within 24 hours of collection.</p>	<p><b>RESPONSE 5:</b> Sampling for hexavalent chromium is being performed as part of the current round of groundwater sampling at MCAS El Toro. Results are expected to be published at the end of March, 1997. Based on a review of the method used to analyze for hexavalent chromium, this method tends to exhibit a relative high percentage of false positives when hexavalent chromium is not present. In fact, the dissolved hexavalent chromium can exceed the concentration of total dissolved chromium, suggesting that the hexavalent chromium analysis is not a reliable method.</p>
<p>6. <u>Section 2.2.3.1, Contaminant Persistence (Persistence of Metals), fourth paragraph, page 2-44:</u> What is the significance of the discussion concerning nickel?</p>	<p><b>RESPONSE 6:</b> Nickel is included because downgradient concentrations exceeded upgradient concentrations (background) and because nickel is one of the most mobile metals analyzed.</p>
<p>7. <u>Section 2.2.3.1, Contaminant Persistence, Figure 2-16:</u> The title of this figure should include a descriptor that reflects the uncertainty of the oxidation - reduction zone boundaries.</p>	<p><b>RESPONSE 7:</b> We prefer to leave the title of this figure unchanged, but have added a note to indicate how the boundaries of the zones were developed.</p>
<p>8. <u>Section 2.2.3.2, Contaminant Migration (infiltration), page 2-47:</u> This section states that leaching of VOCs from the landfill appears to</p>	<p><b>RESPONSE 8:</b> A discussion of the fate and transport of the VOCs has been added from the RI which indicates that natural attenuation and low</p>

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DRAFT PHASE II FEASIBILITY STUDY REPORT  
OU-2B, SITE 2  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 1 November 1996</p>	<p><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p>be relatively insignificant, however, elevated concentrations of TCE and PCE in groundwater have been detected. Provide further explanation and data to support this section.</p>	<p>permeability of bedrock will restrict migration of TCE.</p>
<p><b>9. <u>Section 2.2.3.2, Contaminant Migration (infiltration), page 2-48:</u> Are there other indicators, additional field data, or further evaluation that may be used to determine if metals are leaching from the landfill? As the discussion stands, it is unclear as to the groundwater impact from metals.</b></p>	<p><b>RESPONSE 9:</b> There are no data that we have gathered that will definitively decide the issue of whether the metals are leaching from the landfill, especially when the difference between upgradient and downgradient total and dissolved concentrations are small. Conditions beneath the landfill may have mobilized metals but no sampling events have indicated that disposal of wastes have included significant metal sources. Continued periodic monitoring has been recommended as a means to evaluate metals in groundwater.</p>
<p><b>10. <u>Section 4.3, Alternative 3, Single -Layer Cap, Figure 4-1:</u> Show location of cross section I-I' on figure 4-1.</b></p>	<p><b>RESPONSE 10:</b> The location of cross section I-I' has been added to Figure 4-1.</p>
<p><b>11. <u>Tables 5-1 through 5-10, Cost-Estimate Summary:</u> The 20-percent contingency has not been applied to operation and maintenance costs. This is inconsistent with Appendix E, Section E4.1, page E4-1 which states that the contingencies are 20-percent of direct and indirect capital cost and operation and maintenance costs.</b></p>	<p><b>RESPONSE 11:</b> The text is correct. A 20 percent contingency was added to the O&amp;M costs, but this was not made clear on the tables in the cost appendix. The contingency is now shown as "included" in the total O&amp;M costs in each cost table.</p>
<p><b>12. <u>Section 5.2.1.2, Evaluation, State and Community Acceptance, page 5-5:</u> Please change the text from California DTSC to Cal/EPA. Cal/EPA includes DTSC, RWQCB, CIWMB, etc. Please make the changes throughout the document.</b></p>	<p><b>RESPONSE 12:</b> This change has been made throughout the FS.</p>
<p><b>13. <u>Section 5.2.5, Alternative 5, Short-Term Effectiveness, page 5-34, 1st paragraph:</u> Delete reference to an additional 2-foot-thick vegetative soil layer because we are not comparing Alternative 5 with Alternative 4. The statement would be appropriate in Section 5, Comparative Analysis of Alternatives. This comment also applies to Alternatives 5-b and 5-c.</b></p>	<p><b>RESPONSE 13:</b> The first sentence on Page 5-34 has been revised to eliminate the comparison with Alternative 4. The text has also been modified in a similar manner for Alternatives 5b and 5c.</p>

**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY REPORT  
OU-2B, SITE 2  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 1 November 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b>14. <u>Appendix A, Applicable or Relevant and Appropriate Requirements (ARARs):</u></b> The Tables of ARARs and the written sections are well organized making the ARARs analysis easy. We have the following general comments that could apply to all the landfill sites:</p>	
<p><b>A.</b> The reason(s) that an ARAR was determined to be “not an ARAR” should be written in the column headed “Comments”. We note that few citations determined “not an ARAR” without a reason provided in the “Comments” column.</p>	<p><b>RESPONSE 14(A):</b> The reasons have been added throughout Appendix A.</p>
<p><b>B.</b> The Navy did not address all the submitted potential ARARs that DTSC solicited from the agencies. The Navy should analyze all the submitted ARARs using the same format used for the appendices tables.</p>	<p><b>RESPONSE 14(B):</b> This is correct. The ARARs were not received early enough to allow them to be incorporated into the draft FS. All ARARs have now been analyzed and are incorporated into the draft final document.</p>
<p><b>C.</b> In the section “Resource Conservation and Recovery Act Requirements”, the Navy discussed the issue whether or not California RCRA authorized program made Title 22 regulations federal regulations. Please see the attached in-house memorandum dated August 25, 1995, from DTSC’s Staff Counsel which disagrees with the assertion that DTSC’s regulations are federal ARARs.</p>	<p><b>RESPONSE 14(C):</b> The Navy maintains its position that federally-authorized state programs are considered potential federal ARARs.</p>
<p><b>15. <u>Appendix B, Proposed Monitoring Plan, Section B2.3, Monitoring and Reporting Frequency, page B2-2:</u></b> As a signatory to the Record of Decision for the landfill, we expect the Navy to submit the reporting requirements to DTSC. Please add DTSC as a recipient to all monitoring and reporting requirements due to all other agencies. DTSC is the designated one voice for Cal/EPA that will coordinate comments and approval of reports. This comment also applies to Sections B2.4, B3.3, B3.4, B4.3, B4.4, B4.5, and B5.1.</p>	<p><b>RESPONSE 15:</b> The text of the Proposed Monitoring Plan has been revised to add DTSC as a recipient to all monitoring and report requirements due to all other state agencies.</p>
<p><b>16. <u>Appendix B, Proposed Monitoring Plan, Section B4.3, Groundwater Monitoring and Reporting Frequency, page B4-1:</u></b> For the purposed</p>	<p><b>RESPONSE 16:</b> A fully developed groundwater monitoring plan will be prepared at the remedial design phase of this project.</p>

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OU-2B, SITE 2  
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<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 1 November 1996</p>	<p><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p>of the Site 2 FS, the groundwater monitoring plan and reporting frequency are acceptable. However, the operation and maintenance plan and/or remedial phase should include reporting procedures and a fully developed groundwater monitoring plan.</p>	
<p><b>17. <u>Appendix B, Proposed Monitoring Plan, Section 4.4, Corrective Action, page B4-2:</u></b> Include in this section further discussion detailing the elements that would lead toward corrective action. A clearly outlined contingency plan should be included in the FS. The Navy should provide information such as the following: Define what is meant by “significant change from conditions presented in the RP”. What procedure would be followed if “significant change” does occur? How soon after a significant change will a validation groundwater sample be collected? What if the second groundwater sample does not validate the first sample collected? What if it does? Answers to these and other related questions need to be clearly outlined in the FS.</p>	<p><b>RESPONSE 17:</b> This details of criteria for implementing a corrective action will be provided at the detail design stage. Once the preferred option has been selected and appropriate monitoring of the various media is approved then criteria can be set for corrective actions.</p>
<p><b>18. <u>Appendix B, Proposed Monitoring Plan, Section B5.5, Site Security Inspection, page B5-3:</u></b> Inspection and maintenance of the bench mark for the landfill should be added to the list of signs to be inspected during postclosure.</p>	<p><b>RESPONSE 18:</b> Inspection and maintenance of the bench mark for the landfill has been added to the list of signs to be inspected during closure.</p>

**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY  
OU 2B - SITES 2 AND 17  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Lawrence Vitale CRWQCB</p> <p><b>To:</b> Tayseer Mahmoud DTSC</p> <p><b>Date:</b> 29 October 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b><u>GENERAL COMMENTS</u></b></p> <p>1. Besides providing a cap for the landfill, no other corrective action measures to remediate metal and VOCs contaminated groundwater are identified in the draft feasibility study. Will there be other corrective action measures such as the installation of passive gas venting systems or an active gas collection system, pump and treat system, etc. for groundwater remediation:</p> <p><b>Note:</b> Groundwater beneath Site 17 landfill contains metals such as manganese, selenium, and thallium above U.S. EPA MCLs; VOCs are detected but are below MCLs. For Site 2 Landfill, PCE and TCE in the groundwater are detected above MCLs. Since the beneficial uses of the groundwater basin (Irvine Forebay I) beneath the site include municipal and domestic supply, groundwater contaminated by VOCs and metals above MCLs should be remediated. Capping the landfills will minimize further groundwater degradation but may not remediate the groundwater. However, if metals/VOCs in groundwater are contained and monitored, groundwater remediation may not be necessary. Installing a passive gas venting system and capping the landfill may be sufficient.</p>	<p><b><u>RESPONSES TO GENERAL COMMENTS</u></b></p> <p><b>RESPONSE 1:</b> No, there are no other measures proposed. Landfill gas is present in low concentrations that does not appear to warrant installation of a landfill gas control system.</p> <p>For Site 2, we have added a discussion of potential groundwater remediation technologies, including natural attenuation, to the FS. Because the VOC groundwater plume at this site is very limited in extent and is not expected to migrate away from the site, all groundwater remediation technologies except for natural attenuation are screened out in Section 3.</p> <p>For Site 17, metals comprise the contaminants in groundwater. These metals are not expected to migrate off-site past the anaerobic zone shown in Figure 2-13 based on an evaluation of groundwater geochemistry.</p> <p>Groundwater monitoring will be used to confirm the continued containment of contaminants or alert us to their migration so that action can be taken.</p>
<p>2. Cover design alternatives such as Alternatives 4a, 4b, 4c, 4d, 5c, and 5d are acceptable to us. Criteria used for acceptance: The selected cover design must offer equivalent waste containment capability to the Title 23 prescriptive cover. Alternatives 4a, 4b, 4c, 4d, 5c, and 5d meet this performance criteria.</p> <p>We recommend a monolithic cover (4-6' of silty sand material with <math>10^{-5}</math> cm/s permeability, depending on the depth of the root systems of the vegetation selected) in semi-arid/arid region. If El Toro MCAS is designated as semi-arid climate, then a monolithic cover (Alternative 3) is a good idea. Even though the HELP model run result shows</p>	<p><b>RESPONSE 2:</b> In response to the RWQCB's preference for a monolithic cap in semi-arid regions such as MCAS El Toro, we have carefully reviewed the assumptions made in the HELP model to determine if it is possible to demonstrate equivalence of the monolithic soil cap and the Title 23 Prescriptive Cap. In particular we have determined that the hydraulic conductivity value assumed for soil at the borrow source is overly conservative. Actual lab results show that soils taken from borings at Sites 2 and 17 have hydraulic conductivities in the range of <math>10^{-6}</math>. The hydraulic conductivity used in the HELP model was <math>5 \times 10^{-4}</math>. This value appears to be overly conservative. Using a more reasonable value of <math>2 \times 10^{-5}</math> (and leaving all</p>

**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY  
OU 2B - SITES 2 AND 17  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Lawrence Vitale CRWQCB</p> <p><b>To:</b> Tayseer Mahmoud DTSC</p> <p><b>Date:</b> 29 October 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p>that Alternative 3 does not offer equivalent water quality protection when compared to the prescriptive cover, we believe that the equivalency can be demonstrated by selecting the appropriate vegetation type and thickness for the cover, maintaining a certain moisture level within the cover (if necessary, an irrigation system may be installed), and selecting the appropriate unsaturated flow model to predict the amount of flow through the cover. Because of many variables that will affect the moisture content of the cover, moisture monitoring of the monolithic cover may be necessary to effectively minimize water flow through the unsaturated zone.</p>	<p>other assumptions the same) we have been able to demonstrate that the monolithic cap will inhibit infiltration into the landfill as well as the Title 23 Prescriptive Cap (0.50 inches/year for the monolithic cap versus 0.46 inches/year for the Title 23 cap). This calculation does not consider the deeper evaporative zone that it would be possible to achieve by revegetating the monolithic cap with coastal sage or the degradation that is likely to occur due to desiccation cracking of the clay barrier, factors that would increase the desirability of the monolithic cap over the Title 23 Prescriptive Cap. References have been added which indicate that clay barriers are less desirable than a monolithic cover due to desiccation cracking. The FS has been revised to reflect the salient points of the monolithic caps versus the Title 23 Cap.</p>
<p>3. The draft FS mentioned that GCL barrier is more likely than clay to be penetrated by burrowing animals or by root systems of grasses or shrubs, and that GCL when dry is not impermeable to gas. The type of GCL that may be used is not identified in the draft FS. Is the GCL going to be a layer of clay bound by upper and lower geotextiles (e.g., Claymax, Bentomat, Bentofix) or a layer of clay bound to a geomembrane (e.g., Gundseal)? Will the use of Gundseal minimize penetration by burrowing animals or by root systems of grass, and create an impermeable surface to gas flow?</p>	<p><b>RESPONSE 3:</b> The GCL discussed in Alternative 4c and 5c is a layer of clay bound by upper and lower geotextiles. This is described on Pages 4-11 and 4-14 of the FS. There are several products such as Buntomat or Claymax that can be used to decrease the permeability of GCL. Gundseal is basically an FML with small granules of bentonite attached. The bentonite hydrates and expands to seal small cracks or holes in the GCL. Like FML, Gundseal would create an impervious surface to gas, but it would also represent a more costly alternative which we do not believe is necessary to evaluate at this time in light of the acceptable performance of the GCL and FML barriers.</p> <p>We have discussed the issue of permeability to gas. At landfills such as Sites 2 and 17 where gas concentrations are low enough that landfill gas controls are not needed, the permeability of the cap can be an advantage in that the cap will allow the landfill gases to pass through to the atmosphere above the landfill at concentrations that are not likely to exceed SCAQMD thresholds, rather than restricting vertical migration of the gases and causing them to migrate laterally to the sides of the landfill cap. Therefore, we do not believe that it is necessary to choose a cap which limits the migration of landfill gas for these sites.</p>

**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY REPORT  
OU-2B, SITE 17  
MCAS EL TORO, CALIFORNIA**

<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 4 November 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b><u>GENERAL COMMENTS</u></b></p> <p>1. <b><u>Executive Summary, Remedial Action Objectives, page ES-9, last sentence:</u></b> Please reference the decision document that supports the statement that BRAC Cleanup Team has agreed that treatment of the groundwater contamination is not necessary. This comment also applies to Section 3.1.4.</p>	<p><b><u>RESPONSES TO GENERAL COMMENTS</u></b></p> <p><b>RESPONSE 1:</b> The reference will be deleted. The FS has been revised to evaluate technologies for groundwater remediation.</p>
<p>2. <b><u>Section 2.2.1.3, Geology and Hydrogeology, page 2-7:</u></b> How was the gradient of 0.15 feet per foot determined?</p> <p>Are there adequate lithologic data to support the statement that the physical characteristics for sediments at Site 17 are similar to Site 2, and where can the results be found that support permeability and effective porosity to determine average linear flow velocities under the Site 17 landfill?</p>	<p><b>RESPONSE 2:</b> The gradient was determined from groundwater contours shown on Figure 2-3. The gradient has been revised to 0.14 to match the Draft Final RI for Site 17.</p> <p>The last paragraph in Section 2.2.1.3 has been rewritten to eliminate the comparison between Site 2 and Site 17 physical characteristics. The Draft RI used values from Site 2 for permeability and effective porosity rather than Site 17 values. This has been corrected in the Draft Final RI.</p>
<p>3. <b><u>Section 2.2.2.1, Extent of Landfill Wastes, page 2-8:</u></b> The text states that "The boundary of the landfill wastes is shown on Figure 2-1", however, the title of Figure 2-1 is "Site Topography and Surface Features". This discrepancy is misleading and should be reconciled.</p> <p>If the actual landfill boundaries are to be shown on a figure, question marks should be included on the boundary lines where there is uncertainty.</p>	<p><b>RESPONSE 3:</b> Figure 2-1 has been added to show the landfill boundary and references to this figure and to Figure 2-2 have been corrected.</p> <p>We have added question marks to indicate where we are uncertain about the landfill boundary.</p>
<p>4. <b><u>Section 2.2.2.6, Groundwater, page 2-20:</u></b> The text states that "...total and dissolve arsenic, chromium, and nickel concentrations were generally found to be higher downgradient of the landfill." According to Appendix K of the Draft RI for Site 17, monitoring wells 17NEW1 and 17NEW 2 are screened in different geologic formations, therefore it is not appropriate to compare constituent concentration.</p>	<p><b>RESPONSE 4:</b> The positioning of monitoring wells was approved by the BCT in the Work Plan and BCT meetings during the RI field work. We agree that the bedrock upgradient conditions may be different than downgradient alluvial conditions, however, the bedrock groundwater is a source for recharging the alluvial groundwater. The basis of this comparison is presented in the RI which the DTSC has approved.</p>

**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY REPORT  
OU-2B, SITE 17  
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<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 4 November 1996</p>	<p style="text-align: right;"><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b>Does total and dissolved refer to unfiltered and filtered groundwater samples, and if so, please state it in the text?</b></p> <p>The text states that gross beta activity has been reported in groundwater samples. This statement is vague, therefore, provide clarification as to the implications of gross beta activity.</p>	<p>Total and dissolved refer to unfiltered and filtered groundwater samples, respectively. This notation has been added to the text.</p> <p>We have also revised the text on Page 2-20 to clarify that gross beta activity was only detected in one of three monitoring wells. This well was upgradient of Site 17. Therefore, the activity is not attributable to the landfill.</p>
<p><b>5. <u>Section 2.2.3.1 Contaminant Persistence (Persistence of Metals), page 2-27:</u> There is not enough data to correlate dissolved and total metals concentration to turbidity.</b></p> <p>While the Eh - pH diagram shown in Figure 2-12 suggests that chromium detected in groundwater samples may only be present in the trivalent state, the assumption is that the system is in equilibrium and the Eh values are accurate. Reality is that hexavalent chromium is often detected in groundwater samples from impacted sites that exhibit a water-quality profile that would suggest hexavalent chromium should not be detected. Furthermore, given the weight hexavalent chromium carries with respect to a risk assessment as compared with trivalent chromium, to resolve this issue, water-quality samples should be analyzed for hexavalent chromium.</p> <p>What is the significance of the discussion concerning nickel?</p>	<p><b>RESPONSE 5:</b> The discussion of the apparent relationship between dissolved and total metals concentration to turbidity has been removed from the FS. This discussion does not pertain to persistence of metals.</p> <p>Sampling for hexavalent chromium will be done as part of the current groundwater sampling program at MCAS El Toro. Based on a review of the method used to analyze for hexavalent chromium, this method tends to exhibit a relative high percentage of false positives when hexavalent chromium is not present. In fact, the dissolved hexavalent chromium can exceed the concentration of total dissolved chromium, suggesting that the hexavalent chromium analysis is not a reliable method.</p> <p>Nickel is included because downgradient concentrations exceeded upgradient concentrations (background) and because nickel is one of the most mobile metals analyzed.</p>
<p><b>6. <u>Section 2.2.3.2, Contaminate Migration, page 2-35:</u> Please provide reference to the evidence to support values for gradient and linear groundwater velocities.</b></p> <p>There are three monitoring wells screened in two different formations located at Site 17. What evidence was collected to support the conceptual model of aerobic and anaerobic groundwater conditions as shown on Figure 2-13?</p> <p>Provide further information to support that the migration of nickel is due to the reduction and oxidation conditions and logic as to why</p>	<p><b>RESPONSE 6:</b> The RI presents the methods for determining gradient and linear velocities.</p> <p>The aerobic and anaerobic conditions on Figure 2-13 are based on the ratio of iron to manganese. In addition, the role of cations and anions (bicarbonate, sulfates, nitrates, etc.) in evaluating the aerobic and anaerobic conditions has been included from the RI.</p> <p>Nickel appears to be the metal most easily mobilized by redox conditions, while the other metals detected are not as mobile.</p> <p>In regard to Section 2.2.26, arsenic and chromium concentrations</p>

**RESPONSE TO COMMENTS  
DRAFT PHASE II FEASIBILITY STUDY REPORT  
OU-2B, SITE 17  
MCAS EL TORO, CALIFORNIA**

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<p>metals with similar chemical characteristics are not affected. It is reported in Section 2.2.2.6 that arsenic and chromium concentrations increased downgradient. The discussion in Section 2.2.3.2 and Section 2.2.2.6 should be consistent.</p>	<p>downgradient are higher than upgradient is the basis on this interpretation. The discussion of arsenic from the RI has been added to Section 2.2.3.2. The discussion of the chromium and geochemical modeling for chromium was included in Section 2.2.3.2.</p>
<p>7. <u>Tables 5-1 through 5-10, Cost-Estimate Summary:</u> The 20-percent contingency has not been applied to operation and maintenance costs. This is inconsistent with Appendix E, Section E4.1, page E4-1 which states that the contingencies are 20-percent of direct and indirect capital cost and operation and maintenance costs.</p>	<p><b>RESPONSE 7:</b> A 20-percent contingency is part of the O&amp;M costs. This contingency shown as "included" in the revised cost tables.</p>
<p>8. <u>Section 5.2.1.2, Evaluation, State and Community Acceptance, page 5-5:</u> Please change the text from California DTSC to Cal/EPA. Cal/EPA includes DTSC, RWQCB, CIWMB, etc. Please make the changes throughout the document.</p>	<p><b>RESPONSE 8:</b> This change has been made throughout the document as requested.</p>
<p>9. <u>Section 5.2.5, Alternative 5, Short-Term Effectiveness, page 5-33, 1st paragraph:</u> Delete reference to an additional 2-foot-thick vegetative soil layer because we are not comparing Alternative 5 with Alternative 4. The statement would be appropriate in Section 5, Comparative Analysis of Alternatives. This comment also applies to Alternatives 5-b and 5-c.</p>	<p><b>RESPONSE 9:</b> The reference to additional 2-foot thick vegetative cover has been deleted as requested.</p>
<p>10. <u>Appendix A, Applicable or Relevant and Appropriate Requirements (ARARs):</u> The Tables of ARARs and the written sections are well organized making the ARARs analysis easy. We have the following general comments that could apply to all the landfill sites:</p>	
<p>A. The reason(s) that an ARAR was determined to be "not an ARAR" should be written in the column headed "Comments". We note that few citations determined "not an ARAR" without a reason provided in the "Comments" column.</p>	<p><b>RESPONSE 10(A):</b> We have added a reason why an ARAR is "not an ARAR" to the comment column as requested.</p>

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<p><b>Originator:</b> Tayseer Mahmoud DTSC</p> <p><b>To:</b> Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro</p> <p><b>Date:</b> 4 November 1996</p>	<p><b>CLEAN II Program</b> Contract No. N68-711-92-D-4670 CTO-0076 File Code: 0214</p>
<p><b>B.</b> The Navy did not address all the submitted potential ARARs that DTSC solicited from the agencies. The Navy should analyze all the submitted ARARs using the same format used for the appendices tables.</p>	<p><b>RESPONSE 10(B):</b> Agency ARAR comments were received too late to incorporate into the draft feasibility study, but are now incorporated into the draft final FS.</p>
<p><b>C.</b> In the section "Resource Conservation and Recovery Act Requirements", the Navy discussed the issue whether or not California RCRA authorized program made Title 22 regulations federal regulations. Please see the attached in-house memorandum dated August 25, 1995, from DTSC's Staff Counsel which disagrees with the assertion that DTSC's regulations are federal ARARs.</p>	<p><b>RESPONSE 10(C):</b> The Navy maintains its position that federally-authorized state programs are considered potential federal ARARs.</p>
<p><b>11.</b> <u>Appendix B, Proposed Monitoring Plan, Section B2.3, Monitoring and Reporting Frequency, page B2-2:</u> As a signatory to the Record of Decision for the landfill, we expect the Navy to submit the reporting requirements to DTSC. Please add DTSC as a recipient to all monitoring and reporting requirements due to all other agencies. DTSC is the designated one voice for Cal/EPA that will coordinate comments and approval of reports. This comment also applies to Sections B2.5, B3.3, B3.4, B4.3, B4.4, B4.5, and B5.1.</p>	<p><b>RESPONSE 11:</b> DTSC has been added as a recipient to all monitoring and reporting requirements throughout the proposed monitoring plan.</p>
<p><b>12.</b> <u>Appendix B, Proposed Monitoring Plan, Section B3.2, Proposed Vadose Zone Monitoring Network, page B3-2:</u> This section states that "Soil-pore liquid within the vadose zone will be monitored by collecting liquid samples from the existing lysimeters." However, the draft Final Phase II RI (Vol. 1, Page 4-74, Section 4.5 Leachate) and the Draft FS (Page 2-19, Section 2.2.2.5) states that purging of the lysimeters was unsuccessful, and therefore, no moisture (or leachate) samples were collected. Has any attempt been made to determine whether represented samples can be obtained from the lysimeters?</p>	<p><b>RESPONSE 12:</b> No attempt has been tried since the RI field work to purge the lysimeters. One of the problems with purging and sampling the lysimeters was that not enough volume was collected at one time to fill the sample containers for all of the analyses. Should purging during routine monitoring become a problem perhaps by reducing the number of analyses to just metals, then an appropriate purge volume can be achieved. VOCs can be monitored using the soil gas probes. These details will be addressed at the remedial design stage.</p>

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<p><b>13. <u>Appendix B, Proposed Monitoring Plan, Section B4.3, Groundwater Monitoring and Reporting Frequency, page B4-1:</u> For the purpose of the Site 17 FS, the groundwater monitoring plan and reporting frequency are acceptable. However, the operation and maintenance plan and/or remedial phase should include reporting procedures and a fully developed groundwater monitoring plan.</b></p>	<p><b>RESPONSE 13:</b> Reporting procedures and a fully developed groundwater monitoring plan will be developed during the remedial design phase.</p>
<p><b>14. <u>Appendix B, Proposed Monitoring Plan, Section 4.4, Corrective Action, page B4-2:</u> Include in this section further discussion detailing the elements that would lead toward corrective action. A clearly outlined contingency plan should be included in the FS. The Navy should provide information such as the following: Define what is meant by "significant change from conditions presented in the RI". What procedure will be followed if "significant change" does occur? How soon after a significant change will a validation groundwater sample be collected? What if the second groundwater sample does not validate the first sample collected? What if it does? Answers to these and other related questions need to be clearly outlined in the FS.</b></p>	<p><b>RESPONSE 14:</b> Detailed criteria for implementing a corrective action will be provided at the detail design stage. Once the preferred option has been selected and appropriate monitoring of the various media is approved then criteria can be set for corrective actions.</p>
<p><b>15. <u>Appendix B, Proposed Monitoring Plan, Section B5.5, Site Security Inspection, page B5-3:</u> Inspection and maintenance of the bench mark for the landfill should be added to the list of signs to be inspected during postclosure.</b></p>	<p><b>RESPONSE 15:</b> Inspection and maintenance of the bench mark has been added to the list of signs to be inspected during postclosure.</p>

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<p><b><u>GENERAL COMMENTS</u></b></p>	<p><b><u>RESPONSES TO GENERAL COMMENTS</u></b></p>
<p>1. Landfill areas "C" and "D" do not appear on all appropriate drawings.</p>	<p><b>RESPONSE 1:</b> Landfill areas "C" and "D" have been added to Figures 2-1 (topography) and 2-4 (vegetation communities).</p>
<p>2. A more accurate estimate of waste quantities contained in areas "C" and "D" should be provided in order to validate the proposed grading plan. Also, the text must discuss an action plan for waste removal, underlying soil verification testing, and regrading activities.</p>	<p><b>RESPONSE 2:</b> An estimate of volumes in these areas has been included in the cost appendix of the Sites 2 and 17 FSs.</p>
<p>3. Since the previously reviewed Remedial Investigation Report did not include an adequate lateral/vertical waste extent investigation, it is unclear how the depths of the landfill gas monitoring probes have been chosen.</p>	<p><b>RESPONSE 3:</b> We believe that wastes were adequately characterized laterally by trenching air photo review, mapping, geophysics, and interviews. In the vertical extent, waste extent has been estimated by reviewing historical topographical maps. It is assumed that wastes were placed in the canyon areas at Sites 2 and 17 at grade and have been built up to their current level. The vertical extent of the landfill was determined by subtracting the elevation shown in historical topographical maps from the current elevation of the landfill materials. Monitoring gas probes are required to be drilled to the maximum depth of the landfill within 1,000 feet of the probe. At Site 2, the probes will be installed to a maximum depth of 30 feet bgs. At Site 17, probe depths are estimated to be approximately 30, 105, 70, and 133 feet bgs because of the slopes present at the site. An explanation of how the probe depths were determined has been added to the cost estimating appendix.</p>
<p>4. For the analyses of costs associated with each of the final cover alternatives, it should be clarified that the postclosure maintenance costs are provided on a per year basis.</p>	<p><b>RESPONSE 4:</b> Postclosure maintenance costs are not provided on a per year basis. They are presented on a net present worth basis for the 30 year duration of monitoring/maintenance.</p>
<p>5. The analyses of the proposed final cover alternatives do not account for soil loss resulting from surface erosion. Specifically, soil loss analyses should be conducted for the proposed final site configuration. A commonly used method to evaluate soil losses is the Universal Soil Loss Equation with acceptable soil loss not exceeding two tons per acre per year.</p>	<p><b>RESPONSE 5:</b> We plan to perform this calculation as part of the final remedial design.</p>

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<p><b>6. Similarly, the drainage system design considered for this project must be supported by appropriate drainage calculations yielding channel sizing and validating energy dissipating features (if present). In addition, the issue of flow capacity of the downstream facilities should be included. Sediment load must be included in channel sizing calculations.</b></p>	<p><b>RESPONSE 6:</b> A drainage calculation has been prepared to support the channel sizing and to validate the energy dissipating features.</p> <p>The following has been added to Page 4-9 of the FS: "The estimated discharge at the upper end of the landfill is 64 cubic feet per second (cfs) and the estimated discharge at the lower end is 128 cfs. The existing drainage channel, along the east toe of the landfill, will be improved with riprap protection as shown in cross sections C-C' and D-D' and will be designed to carry the 100-year storm event without eroding the landfill. The surface features proposed in this FS will not increase the drainage area to the channel downstream of the landfill and the graded slopes will remain approximately the same. Therefore the existing channel downstream of the landfill is not expected be adversely affected and no additional protection of this area is planned."</p> <p>A safety margin has been included in the channel sizing to accommodate such issues as sediment load. However, sediment load will be addressed in more detail during the remedial design phase.</p>
<p><b>7. When analyzing final cover costs, the costs related to construction of a final cover test pad should be included when applicable.</b></p>	<p><b>RESPONSE 7:</b> The costs associated with construction of a final cover test pad have been added to the cost appendix as a fixed-price line item.</p>
<p><b>8. The Feasibility Study Report does not include a description of the long-term plan for postclosure land use for both the landfill and the surrounding areas. Certain postclosure land uses may potentially affect the performance of some low permeability materials.</b></p>	<p><b>RESPONSE 8:</b> Site 2 is part of an area proposed as a habitat reserve according to the draft reuse plan. Residential, industrial, and commercial use of this land will be prohibited.</p>
<p><b>9. For the alternatives proposing the use of synthetic or geocomposite low permeability materials, the need for a drainage layer should be discussed.</b></p>	<p><b>RESPONSE 9:</b> For simplicity, the landfill cap alternatives are presented in the FS without a drainage layer. The need for such a layer will depend upon the preferred alternative and will be evaluated during the detailed design phase of this project.</p>
<p><b><u>SPECIFIC COMMENTS</u></b></p> <p><b>10. Figure 4-3. Typical Drainage Cross Sections should include final cover materials on the drainage system cross-sections. Specifically,</b></p>	<p><b><u>RESPONSES TO SPECIFIC COMMENTS</u></b></p> <p><b>RESPONSE 10:</b> This information will be provided at the detailed design phase.</p>

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<p>anchoring points for the synthetic and geocomposite materials, and keying locations for earth materials should be shown.</p>	
<p>11. <b>Section A.4.1.2</b> cites Article 7.8 of Title 23 CCR which should be changed to Article 7.8 of Title 14 CCR.</p>	<p><b>RESPONSE 11:</b> This section has been removed. No correction is necessary.</p>
<p>12. <b>Section B.2.3.</b> Landfill Gas Monitoring and Reporting Frequency, states that the perimeter landfill gas monitoring will be conducted semiannually for the first five years following landfill closure. In accordance with 14 CCR, 17783.11, these inspections should be conducted quarterly, at least until the landfill gas situation stabilizes and monitoring results become consistent.</p>	<p><b>RESPONSE 12:</b> The frequency of monitoring has been changed to quarterly. For the purpose of estimating costs, it is assumed that the monitoring frequency is quarterly for 5 years, then annually thereafter.</p>
<p>13. <b>Section B.5.1.</b> Landfill Cap Inspection states that the final cover will be inspected monthly for the first six months after site capping and then semiannually for the next four and one-half years, and annually for the remaining 25 years. Cap inspections should be conducted on a quarterly frequency and following major storm events until full site revegetation occurs. Upon site condition stabilization, a lesser frequency may be proposed.</p>	<p><b>RESPONSE 13:</b> The frequency of inspection has been changed to quarterly. For the purpose of estimating costs, it is assumed that the inspection frequency is quarterly for 5 years, then annually thereafter.</p>
<p>14. <b>Section B.5.2.</b> Drainage System Inspection should state that the drainage system will be monitored quarterly and after major storm events, until site conditions stabilize: upon approval, a lesser frequency may be then allowed. Also, it should be stated that repairs and maintenance of the drainage system will be conducted prior to the next storm event.</p>	<p><b>RESPONSE 14:</b> The frequency of inspection has been changed to quarterly. For the purpose of estimating costs, it is assumed that the inspection frequency is quarterly for 5 years, then annually thereafter.</p>