M60050.001699

BECHTEL NATIONAL INC.

# CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

M60050.001699
MCAS EL TORO
SSIC # 5090.3

**Contract No. N-68711-92-D-4670** **Document Control No.:** CTO-0076/0270

File Code: 0214

TO: Commanding Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 0233.RS (O)
Building 128
1220 Pacific Highway
San Diego, CA 92132-5187

DATE: October 3, 1996
CTO #: 0076
LOCATION: MCAS El Toro

FROM: _____
Program/Project Manager

DESCRIPTION: Response to Comments Draft Phase II Remedial Investigation Report, Operable Unit 2C - Sites 3 and 5, (Various Date)

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*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*OPERABLE UNIT 2C-SITE 5*
*COMMUNICATION LANDFILL*
*MCAS EL TORO, CALIFORNIA*

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|---|---|
| **Originator:** Tayseer Mahmoud, RPM<br>DTSC<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 18 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***GENERAL COMMENTS***<br><br>**The report presents the results of the Remedial Investigation (RI) conducted at Site 5, the Perimeter Road Landfill, to support decisions regarding the need for and scope for future remediation at the site. Data to support the landfill extent includes visual mapping, surface geophysics, trenching, soil borings, topographic and base maps, aerial photograph review, and interviews with MCAS El Toro personnel. The report contains data and results from the Phase II RI. In addition, the report presented previous investigations such as the Phase I RI and Air SWAT. To determine the nature and extent of contamination, the report described the sampling activities performed in air, soil gas, soil, and groundwater as follows:** | ***RESPONSES TO GENERAL COMMENTS*** |
| **Air Sampling: Four types of air sampling were conducted: instantaneous surface sampling over the entire landfill; 25-minute integrated surface samples from the landfill surface; 24-hour ambient air samples at the landfill perimeter; and isolation flux chamber samples from the landfill surface. Fifteen air samples were collected during the Phase II RI, including three integrated air samples, six ambient air samples and six isolation flux chamber samples. In addition, instantaneous surface sampling for methane was conducted over the entire landfill. Air sampling indicated that volatile organic compounds (VOCs) and methane are being emitted from the surface of the landfill. VOCs and methane were also detected in air samples during an Air SWAT in 1990.** | **RESPONSE:** This summary is correct. |
| **Soil Gas: During a 1990 Air SWAT, five soil gas samples were collected at depths from eight to fifteen feet below ground surface (bgs) and analyzed for ten specific VOCs. Four VOCs were detected: Methylene chloride, chloroform, tetrachloroethane (PCE), and trichloroethane (TCE). During Phase II RI, twenty-one shallow soil gas samples were collected at** | **RESPONSE:** This summary is correct. |

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| **seventeen locations from depths ranging between eight and fifteen feet bgs. Three of the seventeen soil gas samples detected 1,1,2-Trichlorotrifluoroethane (F-113) at concentrations of 1,1, and 2 µg/L and TCE at concentrations of 5, 7, and 10 µg/L. Ten deep soil gas samples were obtained from three locations at depths ranging from 81 to 95 feet bgs. TCE was detected at one of the three locations and toluene was detected at two of the three locations. The maximum TCE and toluene concentrations detected was 5 and 15 µg/L, respectively.** | |
| **Perimeter Landfill Gas Migration Sampling: Three perimeter landfill gas migration samples were collected at three sampling stations inside the perimeter of the landfill during the Air SWAT. The air samples were analyzed for TOC as methane. No methane was detected in these samples. Eleven perimeter landfill soil gas samples were collected from three sampling locations during the Phase II RI. Samples were collected at depths ranging from 10 to 80 feet bgs. The samples were analyzed for VOCs and methane. The analyses of the samples detected methane in nine of the eleven samples. At one of the sample locations, TCE and Freon 113 were also detected.** | **RESPONSE:** This summary is correct. |
| **Soil Sampling: Five surface soil samples were collected from five sampling locations during the Phase I RI. Two additional samples were collected at depths of five and ten feet bgs. The analyses detected the VOC toluene, petroleum hydrocarbons, the pesticides 4,4'-DDT, and methoxychlor and the herbicides 2,4,5-TP (Silvex) and MCPP, and metals. Of the COPCs detected, MCPP exceeded the corresponding residential PRG and lead exceeded the MCAS El Toro background calculation.**<br><br>**Seventeen subsurface soil samples (samples greater than ten feet bgs) were collected from four locations during the Phase I RI. Eight additional subsurface soil samples were collected during the Phase II RI soil borings and installation of lysimeters and monitoring wells (four locations). The** | **RESPONSE:** This summary is correct. |

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| **following COPCs were detected in one or more of the subsurface soil samples: acetone, TRPH, TPH as motor oil, TPH as diesel, bis(2-etlhexyl)phthalate, butylbenzylphthalate, butylbenzylphthalate, MCPP, and thallium. Of the COPCs, MCPP exceeded the U.S. EPA residential PRGs and thallium exceeded MCAS El Toro background concentrations. TPH as diesel was detected at concentrations as high as 21,800 mg/kg at sample location 05_DGMW67. The maximum detected activities for gross alpha and gross beta were 17.6 and 21.3 picocuries per gram (pCi/g), respectively.** | |
| **Leachate: Three lysimeters were installed, however, due to technical difficulties, no samples were collected.** | **RESPONSE:** This summary is correct. |
| **Groundwater: Groundwater contamination was identified during the Phase I RI based on samples collected from four monitoring wells. During the Phase II RI, one additional monitoring well was installed. VOCs, SVOCs, metals, petroleum hydrocarbons and gross alpha and beta activity have been detected in groundwater samples. The VOCs methylene chloride, benzene, chlorobenzene, chloromethane, PCE, toluene, and TCE were detected at concentrations below U.S. EPA MCLs. TPH as motor oil was detected at 0.22 mg/L from one sample collected from monitoring well 05_UGMW27. The SVOCs bis(2-ethylhexyl) phthalate, diethylphthalate, and di-n-butylphthalate were detected. The herbicide 2,4,5-trichlorphenoxyacetic acid (2,4,5-T) was detected, however, it was also detected at the same concentration in the blank sample. The metals manganese, nickel, and thallium were detected in one or more samples at concentrations above U.S. EPA MCLs. The maximum detected activities for gross alpha and gross beta were 24.9 and 53 picocuries per liter (pCi/L), respectively.** | **RESPONSE:** This summary is correct. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*OPERABLE UNIT 2C-SITE 5*
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| ***SPECIFIC COMMENTS:*** | ***RESPONSES TO SPECIFIC COMMENTS:*** |
| **1. Executive Summary, Conclusions, page ES-7: There is a discrepancy in the reported groundwater gradients. For example, page ES-7 and the middle of page 3-16 contain the statement that the gradient ranges from 0.005 to 0.0025 feet per foot. However, on the bottom of page 3-16, the report states that the overall gradient through the center of Site 5 is 0.05 feet per foot. Please clarify the discrepancy in the reported groundwater gradient.** | **RESPONSE 1:** The overall gradient is 0.038 feet/foot awhile near the center of the site the gradient steepens to 0.05 feet/foot. This correction will be made in the Executive Summary. |
| **2. Executive Summary, Conclusions, page ES-9: The Data Quality Objectives decision "Are landfill gases migrating out of the landfill at ground surface or in the subsurface" should include a discussion of the perimeter soil gas sample analyses. Six of eight perimeter soil gas samples detected methane and one sample detected F-113 and 1,1-DCE. Two of the samples that detected methane are listed in Table 12 of Appendix F as ambient air samples. Is there a possibility that the perimeter soil gas samples are actually within the boundary of the landfill?** | **RESPONSE 2:** The discussion that follows the DQO question is intended to provide a very brief summary of the results. These perimeter gas samples were not in the landfill. An aerial photograph history and interviews combined with geophysical surveys have located the landfill trench. |
| **3. Section 1.1.1, Guidance and Agreement, Figure 1-3: Revise Figure 1-3 to add the Remedial Design step before Remedial Action. Also, add the Certification step after Operation and Maintenance.**<br><br>**Reference to Department of Health Services now being California Environmental Protection Agency (Cal/EPA) is not accurate. The correct reference is Department of Toxic Substances Control (DTSC). Both DTSC and California Regional Water Quality Control Board (RWQCB) are under the umbrella of CAL/EPA.**<br><br>**Rewrite the sentence regarding FAA signatory agencies as follows: "The BCT consists of representatives from SWDIV, U.S. EPA, and Cal/EPA (DTSC & RWQCB)."** | **RESPONSE 3:** As per OPNAVINST 5090.1b (November 1994), three additional steps: Remedial Design, Long-Term Monitoring, and NPL Site Close-out, were added to Figure 1-3 illustrating the Installation Restoration Program Process. The DON does not recognize the Certification step.<br><br>References to DTSC and RWQCB were clarified throughout the text.<br><br>The sentence regarding the FFA signatory agencies was rewritten. |

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| **4. <u>Section 1.1.2, Remedial Investigation Approach</u>: Reference to Cal/EPA should be changed to DTSC.** | **RESPONSE 4:** Reference to Cal/EPA was changed to DTSC. |
| **5. <u>Section 1.2.2.2, Recent Station Operations, page 1-17</u>: Revise the first sentence in the second paragraph to read as follows: Currently, hazardous materials/wastes are managed under appropriate Federal, State, local, and DoN requirements.**<br><br>**Also, reference to on-Station RCRA-Interim-Status Storage Facility is not accurate because the term Interim-Status refers to temporary authorization until a final permit is received from the regulatory agencies. Please note that MCAS El Toro was issued a RCRA Hazardous Waste Storage Permit in August 1993. DTSC terminated the permit on March 8, 1996 after we accepted the closure certification for Building 673-T3. MCAS El Toro is allowed to store hazardous waste at generator accumulation areas for periods less than ninety (90) days.** | **RESPONSE 5:** This sentence was revised to indicate that the DON manages hazardous wastes/materials under the appropriate requirements.<br><br>Reference to MCAS El Toro as a RCRA-Interim-Status Storage Facility has been changed to generator-only status. |
| **6. <u>Section 1.2.3.1, Phase I Remedial Investigation Results, Page 1-21</u>: Please clarify whether the metal concentrations were compared to residential or industrial PRGs.** | **RESPONSE 6:** In this section of the report, the concentrations were compared to residential PRGs which was completed as part of the Phase II RI/FS Work Plan to identify preliminary chemicals of potential concern targeted for the Phase II RI. |
| **7. <u>Section 1.2.3.1, Phase I Remedial Investigation Results, Page 1-23</u>: The fourth bulleted item under the subsection titled "Subsurface Soil," states that the concentration of TPH-diesel is less than 12.7 to 21.8 mg/kg. However, on page 4-51, the report states that "TPH as diesel was reported in one sample at concentrations of 17,800 mg/kg and 21,800 mg/kg in two samples collected at sample location 05_DGMW67." Please explain this discrepancy.** | **RESPONSE 7:** The report of 17,800 mg/kg and 21,800 mg/kg was an error in unit conversion. It will be revised to read 17.8 mg/kg and 21.8 mg/kg. |

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| **8. <u>Section 4.4.1, Shallow Soil, page 4-42</u>**<br><br>**a. In the first paragraph of page 4-42, the report states that the detected concentration of TRPH at sampling location 05_UGS was 877 mg/kg. Sample location 05_UGS is located outside the Phase II study area and represents an "upgradient" sampling site for soil and groundwater (05_UGMW27) samples. The report should discuss the possible origin of the petroleum hydrocarbon. The detected TRPH may indicate a newly discovered release or that the boundary of Site 5 extends out to the sampling point.** | **RESPONSE 8a:** The boundary of Site will not be extended. The text will reflect that this higher concentration of TRPH is probably a local source at the surface (this sample was collected at the surface). |
| **b. Also in the first paragraph is the statement, "TPH-gasoline was detected using a different analytical method in one of the eight samples ...." Please explain why a different analytical method was used for that one sample.** | **RESPONSE 8b:** This statement refers to use of the Cal LUFT method for gasoline as opposed to the EPA Method 418.1 for TRPH in the preceding sentence. This reference to a different analytical method will be deleted. |
| **9. <u>Section 4.4.2, Subsurface Soil, page 4-51</u>: In the fourth paragraph on page 4-51 is the statement that TPH as diesel was reported at concentrations of 17,800 mg/kg and 21,800 mg/kg in two soil samples collected in 1992 from 05_DGMW67 at a depth of 185 feet bgs. Figure 3-7 on page 3-22 shows that the groundwater level has been rising during the last three years. On page ES-7, the report mentions that the depth to groundwater is currently 160 to 170 feet bgs. This indicates that the soil samples collected at 185 feet bgs are now beneath the groundwater table. Table 4-19 and 4-20 indicate that groundwater samples were analyzed for TPH-motor oil. Did the 8015-M analysis detect diesel in the groundwater sample, or was the analysis speciated only for motor oil?** | **RESPONSE 9:** The values should read 17.8 mg/kg and 21.8 mg/kg.<br><br>The groundwater collected from this well was analyzed for TPH using EPA Method 8015 with a gasoline standard, diesel standard, and motor oil standard. The only detectable concentration using these different standards occurred with motor oil. Tables reported only detected analytes with their concentrations. Appendix Q provides all analytical results from the Phase II RI.<br><br>We agree that the groundwater appears to be affected by the soil TPH. |

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| **10. <u>Section 4.5.2, Total Petroleum Hydrocarbons, page 4-68</u>**<br>**a. The report states that TPH as motor oil was detected in a groundwater sample at a concentration of .22 mg/L in monitoring well 05_UGMW27, which is upgradient of Site 5. The report speculated that the source of the TPH in the groundwater may have originated in the agricultural area northeast of the site. Please elaborate on the type of activity that may have contributed to the petroleum hydrocarbon.** | **RESPONSE 10a:** Because the landfill is not the apparent source of the TPH and this investigation was targeted to implement municipal landfill presumptive remedies, no further information or elaboration of the source of petroleum hydrocarbons can be made. |
| **b. As noted in comment number 9 above, soils that had detectable concentrations of diesel are now in the saturated zone. According to Table 4-20, all the groundwater samples, including 05_DGMW67 were analyzed for TPH as motor oil. Since gasoline and diesel were detected in soil samples, were the groundwater samples also analyzed for gasoline and diesel?** | **RESPONSE 10b:** Yes. See response to comment 9. |
| **11. <u>Section 4.5.7, Radionuclides, page 4-83</u>: The total gross alpha measured in four of the eleven downgradient groundwater samples collected during the RI exceeded the U.S. EPA MCL of 15 pCi/L. The maximum gross alpha activity reported was 27 pCi/L. The total gross alpha does not provide sufficient information for determining whether or not there is an actual release from the landfill. I suggest that you conduct isotopic analysis for Radium-226, Radium-228, etc. Compare the numbers to background to determine what is responsible for the higher reading. When you generate the information, please send an additional copy of the findings to:** | **RESPONSE 11:** The isotopic analysis will be conducted as part of the Groundwater Monitoring for MCAS El Toro.<br>However, the values for gross alpha activity do not show an apparent increase from upgradient wells to downgradient wells. Comparison of gross beta activity in upgradient and downgradient wells shows that immediately downgradient wells (05NEW1 and 05_DGMW68 ) are similar or lower than the upgradient well 05_UGMW27. Gross beta activities are higher in the wells 05_DBMW41 and 05_DGMW67 than the upgradient well but are not significantly higher (less than an order of magnitude). The differences possibly reflect natural variations in gross beta activity. |

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| **Ms. Darice Bailey**<br>**California Department of Health Services**<br>**Environmental Management Branch**<br>**601 North 7th Street, MS 396**<br>**P.O. Box 942732**<br>**Sacramento, California 94234-7320**<br>**(916) 324-2209** | |
| **12. <u>Section 5, Fate and Transport</u>: The report fails to mention the potential for TPH to leach into the groundwater. As mentioned in comment number 9, subsurface soil samples (05_DGMW67) that contained measurable concentrations of TPH are now in the saturated zone. TPH is leaching into the groundwater as been migrating downward and the groundwater table has been rising. The fate and transport of TPH leaching into the groundwater should be discussed.** | **RESPONSE 12:** This discussion of TPH leaching is not relevant to the landfill because the source of the TPH is not related to the landfill. |
| **13. <u>Section 6, Human Health Risk Assessment</u>: Please see attached memo from Mr. John Christopher regarding the human health risk assessment.** | **RESPONSE 13:** The risk assessor has provide responses to Dr. Christopher's comments. |

*RESPONSE TO COMMENTS*
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*FOR SITE 3, OU-2C*
*MCAS EL TORO, CALIFORNIA*

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| ***SPECIFIC COMMENTS*** | ***RESPONSES TO SPECIFIC COMMENTS*** |
| **1. Executive Summary, Remedial Investigation Scope, Figure ES-1: Show location of Unit 3, solvent spill area on Figure ES-1.** | **RESPONSE 1**: Unit 3 will be shown on Figure ES-1 and the text will mention that no further action is required at this unit because of the very low soil gas concentrations found and the absence of landfilled wastes. |
| **2. Executive Summary, Nature and Extent of Contamination, page ES-6, last paragraph: It is mentioned in the report that exceedance of drinking water maximum contaminant levels (MCLs) for benzene appears to be derived from Tank Farm No. 5. Please show location of Tank Farm No. 5 on Figure ES-1.**<br><br>**Top of page ES-7: Provide a statement that gross alpha and beta exceed MCLs if so.** | **RESPONSE 2:** Tank farm No. 5 will be shown on Figure ES-1.<br><br>A statement will be added on the gross alpha and beta that discusses the upgradient and downgradient concentrations and whether the downgradient exceeds upgradient concentrations. |
| **3. Executive Summary, Conclusions, page ES-10: For groundwater contamination decision, it is mentioned that the remedial design will not need to address benzene contamination. Please discuss the mechanism that will be used to address the benzene contamination. Also, when will the Navy submit such proposals to the regulatory agencies.** | **RESPONSE 3:** A statement will be added that the benzene in groundwater from Tank Farm No. 5 will be addressed as part of the MCAS El Toro UST program. |
| **4. Section 1.1.1, Guidance and Agreement, Figure 1-3: Revise Figure 1-3 to add the Remedial Design step before Remedial Action. Also, add Certification step after Operation and Maintenance.**<br><br>**Reference to Department of Health Services now being California Environmental Protection Agency (Cal/EPA) is not accurate. The correct reference is Department of Toxic Substances Control (DTSC). Both DTSC and California Regional Water Quality Control Board (RWQCB) are under the umbrella of Cal/EPA.**<br><br>**Rewrite the sentence regarding FAA signatory agencies as follows: "The BCT consists of representatives from SWDIV, U.S. EPA, and Cal/EPA (DTSC & RWQCB)."** | **RESPONSE 2:** As per OPNAVINST 5090.1b (November 1994), three additional steps: Remedial Design, Long-Term Monitoring, and NPL Site Close-out, were added to Figure 1-3 illustrating the Installation Restoration Program Process. The DON does not recognize the Certification step.<br><br>References to DTSC and RWQCB were clarified in the text.<br><br>The sentence was rewritten regarding the FFA signatory agencies. |

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| **5. Section 1.1.2, Remedial Investigation Approach: Reference to Cal/EPA should be changed to DTSC.** | **RESPONSE 5:** Reference to Cal/EPA was changed to DTSC. |
| **6. Section 1.2.2.2, Recent Station Operations: Revise the 1st sentence in the 2nd paragraph to read as follows: Currently, hazardous materials/wastes are managed under appropriate Federal, State, local, and DoN requirements.**<br><br>**Also, reference to on-Station RCRA-Interim-Status Storage Facility is not accurate because the term Interim-Status refers to temporary authorization until a final permit is received from the regulatory agencies. Please note that MCAS El Toro was issued a RCRA Hazardous Waste Storage Permit in August 1993. DTSC terminated the permit on March 8, 1996 after we accepted the closure certification for Building 673-T3. MCAS El Toro is allowed to store hazardous waste at generator accumulation areas for periods less than ninety (90) days.** | **RESPONSE 6:** This sentence was revised to indicate that the DON manages hazardous wastes/materials under the appropriate requirements.<br><br>Reference to MCAS El Toro as a RCRA-Interim-Status Storage Facility has been changed to generator-only status. |
| **7. Section 1.2.3.1, Phase I Remedial Investigation Results, page 1-3: The text references soil and groundwater samples collected at Site 4. Please show location of Site 4 on Figure 1-4 for clarifications.** | **RESPONSE 7:** Site 4 boundaries will be shown on Figure 1-4. |
| **8. Section 2.13, Investigation-Derived Waste: Soil generated during the Phase II RI field procedures was containerized, sampled, and moved to Site 5 for storage. We like to point out that if the investigation-derived waste meets the hazardous waste criteria, MCAS El Toro is allowed to store it at Site 5 for periods less than ninety (90) days. Also, it must be managed under appropriate Federal, State, local, and DoN requirements.** | **RESPONSE 8:** All investigation-derived waste was managed according to the Investigation-Derived Waste Plan for the Phase II RI/FS. The soil analytical results were used to screen and provide a classification for the wastes. No soils from the landfill investigations were classified as hazardous. |
| **9. Section 3.1, Surface Features, page 3-1: The list of DQO decisions should include the following to be added:**<br><br>**Identify the limits of exposed and buried landfill waste.** | **RESPONSE 9:** This will be added. |

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| **10. Section 4.5.1, Volatile Organic Compounds, page 4-118, last sentence: It is the opinion of the authors of this report that it is not clear whether the source of benzene contamination is due to the landfill, the tank farm, and/or Agua Chinon Wash. In other parts of the report it is mentioned that the contamination appears to be derived from Tank Farm No. 5. The discussion needs to be enhanced, clarified, and consistent throughout the report.** | **RESPONSE 10:** Site 3 was principally a disposal facility for burned wastes, therefore it is an unlikely source of benzene and Tank Farm No. 5 is the most likely source of the benzene in groundwater. |
| **11. Section 4.5.8, Radionuclides, page 4-141: Total gross alpha measured in groundwater downgradient of the landfill at monitoring well 03-DGMW64 measured 28 pCi/L. This value exceeds U.S. EPA MCL of 15 pCi/L and it is twice the gross alpha (14.5 pCi/L) measured at the upgradient monitoring well 03-UGMW26. Total gross alpha does not help too much in determining whether or not there is an actual release from the landfill. I suggest that you conduct isotopic analysis for Radium-226, K-40, etc., and anything that might have been disposed in the landfill. Compare the numbers to background to determine what is making the higher reading. When you generate the information, please send an additional copy to:**<br><br>**Ms. Darice Bailey**<br>**California Department of Health Services**<br>**Environmental Management Branch**<br>**601 North 7th Street, MS 396**<br>**P.O. Box 942732**<br>**Sacramento, California 94234-7320**<br>**(916) 324-2209**<br><br>**Please correct the typographical error in the last sentence of the 2nd paragraph.** | **RESPONSE 11:** Isotopic analysis are planned to be incorporated into the groundwater monitoring plan for MCAS El Toro.<br><br>Comparing the upgradient to downgradient results for gross alpha and beta indicate that no significant trend is apparent and, therefore, the landfill does not appear to a source of gross alpha and beta activity. |

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| **Originator:** Tayseer Mahmoud<br>DTSC<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 19 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **12. Section 5.1.3.3, Migration in Groundwater, page 5-10: Please discuss the mechanism that will be used to address the benzene contamination. Also, when will the Navy submit such proposals to the regulatory agencies.** | **RESPONSE 12:** The source of the benzene in groundwater appears to be Tank Farm No. 5. The mechanism for transport in groundwater is dispersion by groundwater movement. |
| **13. Section 5.3.3.1, Volatile Organic Compounds in Groundwater, page 5-25: Reference to benzene concentration in groundwater being 5 µg/L is a typographical error. The correct reference is 21 µg/L.** | **RESPONSE 13:** This error will be corrected. |
| **14. Section 6, Human-Health Risk Assessment: See attached Memorandum dated June 7, 1996 from DTSC staff Toxicologist, Dr. John Christopher.** | **RESPONSE 14:** Dr. Christopher's have been reviewed and responded to by the risk assessor. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*FOR SITE 3, OU-2C*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Sherrill Beard, RG<br>DTSC<br><br>**To:** Tayseer Mahmoud<br>DTSC<br><br>**Date:** 13 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***SPECIFIC COMMENTS*** | ***RESPONSES TO SPECIFIC COMMENTS*** |
| 1. **Executive Summary, Remedial Investigation Scope, Figure ES-1: Show former Site 3 boundaries on Figure ES-1 and provide an explanation why site boundaries were reevaluated and expanded. This information will support the reasons why the scope of the investigation was increased.** | **RESPONSE 1:** The purpose of the boundary shown on ES-1 is to illustrate the limit of the landfilled wastes based on the results of the RI. The study area boundaries are presented in Sections 1, 2, 3, and 4 of the RI report. |
| 2. **Executive Summary, Figure ES-1, Figure 1-2 and other applicable maps: All maps showing the boundaries of Site 3 should be revised to show consistency throughout the Report.** | **RESPONSE 2:** The figures in the Executive Summary show the limit of landfilled wastes for Units 1 and 4 based on the results of the RI and the boundaries for Units 2 and 3. |
| 3. **Executive Summary, Nature and Extent of Contamination, page ES-6: The estimation for the volume of waste should be revised to reflect recent information collected during the Phase II investigation.**<br><br>**Soil gas results should not be compared to California Air Resources Board (CARB) values. Values generated from the CARB study are intended for the comparison of surface air samples not subsurface soil gas samples.** | **RESPONSE 3:** The volume estimates presented on this page are from the original study of the landfill and are presented for historical purposes.<br><br>The CARB values used for soil gas are from a CARB study summarizing soil gas at landfills. |
| 4. **Executive Summary, Human-Health Risk Assessment, page ES-8 and Section 6.3.8, Toxicity Criteria for Chromium, page 6-16: Total chromium values, instead of hexavalent chromium values, for groundwater should not be used for risk-assessment. This approach will result in an over estimation of risk. Samples should be collected and speciated for hexavalent chromium and analysis of risk should be determined based on concentrations actually detected at the site and not on the assumption that concentrations of hexavalent chromium in groundwater are low, as describe in Section 6.3.8.** | **RESPONSE 4:** The assumption that the total chromium concentrations in groundwater are hexavalent chromium are required by DTSC risk assessment procedures. Based on a geochemical analysis of groundwater, hexavalent chromium should not be detected at the site. However, hexavalent chromium sampling will be included in the groundwater monitoring plan for MCAS El Toro. |

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| **5. <u>Section 1.2.2.3, History of Site 3 Landfill Operations, fourth bullet, page 1-18</u>: Prior to referencing Site 4, the Ferrocene Spill Area, a description of Site 4 should be provided in Section 1.2 or Section 1.2.1.1.** | **RESPONSE 5:** In Section 1.2.1.1, the discussion that the landfill was reported to be under a portion of Site 4 will be added, though the origin of Site 4 is different from Site 3. |
| **6. <u>Section 2.7, Leachate Sampling, page 2-29</u>: Prior attempts at sampling the lysimeters have proven unsuccessful, therefore, it is recommended to limit future sampling efforts.** | **RESPONSE 6:** Agreed. |
| **7. <u>Section 2.8.1, Monitoring Well Development and Dedicated Pump Installation, page 2-32</u>: Prior to installation or replacement of additional dedicated pumps, BCT approval should be obtained. Many of the dedicated pumps installed in 1992 and 1993 are no longer functional, somewhat due to the corrosive nature of the groundwater. Therefore, it would be prudent to utilize temporary pumps for future groundwater sampling events.** | **RESPONSE 7:** The use of dedicated pumps will be considered by the Navy for a long-term groundwater monitoring plan for MCAS El Toro. |
| **8. <u>Section 3.5.2, Regional Occurrence and Movement of Groundwater, Figure 3-6, page 3-19</u>: In the legend of this figure, the explanation for the groundwater divide depicted near Site 2 should be revised to read "Groundwater Divide Location and Trend Inferred."** | **RESPONSE 8:** This figure is intended to illustrate the overall groundwater elevations at MCAS El Toro. It is not intended to represent interpretations of hydrogeologic conditions. |
| **9. <u>Section 3.6.2, Site 3 Aquifer Hydraulic Properties and Section 3.6.3, Site 3 Aquifer Geotechnical Properties, page 3-25</u>: Provide a discussion comparing the differences between hydraulic and geotechnical aquifer permeabilities. The permeability values reported are different by several orders of magnitude. Additionally, it should be noted in the discussion that the samples collected for the aquifer geotechnical properties are from the lysimeter locations, therefore, the soil samples were collected from the vadose zone and not from the aquifer. Also please cross-check the geotechnical results in Appendix K with the values reported in Table 3-3. Data reported for specific samples in Appendix K are reported for different samples in Table 3-3. For example, percent moisture for sample 76C0008 is** | **RESPONSE 9:** The geotechnical vertical permeabilities reported in Appendix K are in cm/sec while the Table 3-3 permeabilities are a conversion of the Appendix K values to feet /day. The values in the Table 3-3 were corrected. |

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| **reported as 9.4 in Table 3.3 but in Appendix K sample 76C009 is reported as having a percent moisture of 9.4. There are several other discrepancies of this nature between Table 3.3 and Appendix K.** | |
| **10. <u>Section 3.6.4.1, Surface Water Quality, page 3-26</u>: Note: the sixth line of first paragraph, change 03SW1 to 03SW3.** | **RESPONSE 10:** Correction made. |
| **11. <u>Section 3.6.4.2, Groundwater Quality, page 3-28</u>: Please edit and delete the appropriate paragraphs in this section.**<br><br>**Most of the reasoning discussed as to why iron and manganese results are inconclusive with regard to potential degradation of groundwater from leachate of the Site 3 landfill are due to sample collection (high turbidity values) and laboratory duplicate results (not within control limits). If the laboratory duplicate results were not within control limits the sample lot should have been rerun. Since, it is assumed by the reviewer, that the samples were not rerun, it is suggested to use past data, including results form the most recent groundwater sampling event that occurred in January and February of 1996 (collected by CDM Federal Programs Corporation and reported in the draft quarterly groundwater monitoring report dated April 18, 1996) to interpret the iron and manganese analytical data.**<br><br>**The discussion about major cations and anions is unclear as to its purpose. The discussion leads the reviewer to assume that groundwater beneath Site 3 may be impacted by groundwater that has migrated beneath Sites 2, 5, and 17. Additionally, there is no support provided in the Report showing that Sites 2, 5, and 17 are upgradient, except perhaps Figure 3-6, which shows all relevant groundwater contours as inferred. Furthermore, if this section is going to state that Stiff and Piper diagrams generated from Site 3 data are similar to diagrams generated from data collected at other landfills located at MCAS El Toro, then the significance of the** | **RESPONSE 11:** The duplicate sample was not within control limits, not the regular sample used in the analyses. reference to the duplicate will be deleted.<br><br>This section states that the other landfills are generally upgradient of Site 3. The significance of the Stiff and Piper Diagram comparisons is that the Site 3 diagrams are similar to these other sites. |

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| **comparison should be addressed.** | |
| **12. Section 4, page 4-2, forth bullet, and Section 4.4, page 4-36: See the attached toxicologist's comment, number 1** | **RESPONSE 12:** Noted. |
| **13. Section 4, Nature and Extent of Contamination, page 4-2, second full paragraph: Please clarify "other agency standards". Provide a list of the standards that are used to identify COPCs.** | **RESPONSE 13:** All detected organics and metals above background concentrations are now shown in this section. |
| **14. Section 4.1.6, Aerial Photograph Review, page 4-8, first paragraph: Please show the disturbed area and the several stained areas located east and southeast of the existing site boundaries, as shown on the 1958 aerial photograph. Also provide an explanation for the existence of such features.** | **RESPONSE 14:** Because no interviewees were available from the time of the 1958 aerial photograph, the cause of the surface disturbance is unknown. No evidence of the staining or surface disturbance is apparent currently. These areas were discussed in the Work Plan for the Phase II RI/FS and no investigation was required in these areas as part of the Phase II RI. |
| **15. Section 4.1.7, Interviews with MCAS El Toro Personnel, page 4-8, third bullet: If available, provide the location of the 3,000 cubic yards of excavated soil that contained waste.** | **RESPONSE 15:** The location is unknown. |
| **16. Section 4.4.1.2, Subsurface Soil, Table 4-17 and Table 4-18: In addition to U.S. EPA Region IX Residential PRGs, please provide background concentrations presented in Appendix L, Table L-4.** | **RESPONSE 16:** The PRGs are deleted from the Tables and the background concentrations for metals are included. |
| **17. Section 4.4.2.1, Shallow Soil, page 4-69, sixth paragraph: Please provide further discussion about the statement "...the laboratory noted that the chromatograph patterns for these analyses were not typical for these fuels."** | **RESPONSE 17:** This statement was made in the RCRA Facilities Assessment from which this data was derived. The Phase II RI did not have contact with the RFA laboratory and does not known why this statement was made. |
| **18. Figure 4-12, page 4-137: Please show the boundaries of Tank Farm No. 5. Section 4.5.1, Volatile Organic Compounds, indicates benzene detects in monitoring wells 04_DBMW40 (20 µg/l) and 04_DGMW63 (5 µg/l) may be the result of activities at Tank Farm No. 5, therefore it is relevant to show the geographic relationship of the tank farm to Site 3.** | **RESPONSE 18:** This Tank Farm will be shown on the figure. |

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| **19. Section 4.5.6, Metals, page 4-140: The discussion regarding elevated concentrations of nickel being attributed to naturally occurring processes needs further support. There is insufficient data presentation to support this conclusion.** | **RESPONSE 19:** Elevated nickel (both dissolved and total) concentrations occur near or immediately adjacent to the landfill. This may be from the conditions imposed by the landfill. This section will be rewritten to indicate this, especially when nickel appears to be mobile under the site conditions. |
| **20. Section 5.3.2.1, Volatile Organic Compounds, page 5-23: Support should be provided either in this section or in prior sections detailing the conclusion that benzene detects in groundwater are a result of the adjacent tank farm. Due to the limited nature of the investigation, relative to the size of the site, it is difficult to conclude that the occurrence of benzene in groundwater exclusively is a result of the tank farm area.** | **RESPONSE 20:** Since the Site 3 landfill was primarily used to contain burned wastes and its age, benzene is unlikely to be derived from this site. |
| **21. Section 5.3.3, Groundwater Transport, page 5-25: Change upstream and downstream to upgradient and downgradient.** | **RESPONSE 21:** Change will be made. |
| **22. Section 5.3.3.1, Volatile Organic Compounds in Groundwater, page 5-25: This section should state that the maximum benzene concentration reported in groundwater for the Site 3 monitoring wells is 5 µg/l, additionally it should state 20 µg/l of benzene was detected at monitoring well 04_DBMW40.** | **RESPONSE 22:** This change will be incorporated. |
| **23. Section 7, Conclusions and Recommendations, Table 7-1, page 7-3: The "Nature and Extent" entry for DQO Decision 5 should be reevaluated. Low levels of SVOCs were detected in 21 of 21 groundwater samples collected and analyzed from Sites 3 and 4, yet it is stated that water quality parameters indicate that the landfill contents have not leached to groundwater. Please provide rationale for this interpretation.**<br><br>**The "Fate and Transport" entry for DQO Decision 6 should be revised to read "Landfill constituents are not predicted to leach to groundwater." In future documents, it is recommended to avoid using relative descriptors such as "significantly" without providing** | **RESPONSE 23:** The low concentration of butylbenzylphthalate , diethylphthalate, and phenols (less then 0.2 µg/L) in the December 1995/January 1996 RI sampling event is not indicative of a significant release to groundwater.<br><br>In the revisions, what is meant by significant is indicated. |

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| **supporting data. It is difficult for the reviewer to interpret the impact a landfill may have to groundwater based on the statement "Landfill constituents have not significantly leached to groundwater."** | |
| **24. <u>All Appendices</u>: It was our understanding that the primary reason each landfill site was submitted as an individual report was to make report writing and reviewing more manageable. Therefore, it is recommended that data included in the Appendixes are data that is applicable to the subject site of the report. Some appendixes, such as Appendix K, include data from other landfill sites.** | **RESPONSE 24:** Attempts will be made to divide the Appendices into site-specific reports, but in some cases (such as the soil gas report) the subcontractor provided one report for all four sites. |

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| **Originator:** John P. Christopher, Staff Toxicologist<br>DTSC<br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br>**Date:** 7 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***SPECIFIC COMMENTS*** | ***RESPONSES TO SPECIFIC COMMENTS*** |
| **1. Use of Upper Tolerance Limits for Selecting Chemicals of Potential Concern (COPC), Appendix L, Sec. L.2.1: The Navy selected the 95% upper tolerance limit on the 95th percentile ($UTL_{95,95}$) as its comparator for the upper range of ambient concentrations of those metals found to be either normally or lognormally distributed; the maximum concentration detected ($C_{MAX}$) was selected for the remaining metals. We do not accept the UTL as a comparator for the purposes of identifying COPC, because the method can be defeated with small sample sizes. With adequate sample populations, we favor the use of a simple estimate of a percentile for this purpose. We have expressed this to the Navy on numerous previous occasions.**<br><br>**At a meeting in San Francisco on 22-23 May 1996, the Navy presented convincing evidence the percentile test which we favor suffers from increasing probability of Type I error (i.e., wrongly deciding a metal is present above background concentrations) as the number of samples from the site and the number of comparisons against the percentile both increase. The Navy proposed that the percentile test be used in conjunction with other statistical tests of hypotheses, such as the Wilcoxon rank sum test, to permit formal estimates of Type I and Type II errors. We believe this approach is a good one and we recommend it for MCAS El Toro and other Navy bases.** | **RESPONSE 1:** Revisions of this document will included the procedures discussed at the 22-23 May 1996 meeting in San Francisco.<br><br>The probability plots were examined for each of the metals. Where outliers were evident in the cadmium, copper, and nickel plots occurred, these outliers were removed from the sample set prior to recalculation of the 95 percentiles for revisions in the final background concentrations. This 95th percentile value will be used as the "background" concentration for assessing nature and extent of metals in soils at MCAS El Toro. The Wilcoxon Rank Sum test and Quantile Test will be used in the human-health and ecological risk assessments to assess whether metals are COPCs.<br><br>This evaluation process is illustrated in a flowchart to be provided in the technical memorandum and in the Draft Final Remedial Investigation reports for the landfills.<br><br>Either, the 95-percent UCL or the maximum concentration was used as the exposure-point concentration for COPCs in soil. The highest measured value for the soil media was used as the exposure point concentration for chemicals characterized by: (1) a low frequency of detection; (2) a 95-percent UCL exceeding its highest measured concentration; or (3) a non-parametric distribution. The authors, however, recognize that use of maximum concentrations for the non-parametrically distributed data is overly-conservative, thus a 95% UCL based on a nonparametric approach will be used in the final report. |
| **2. Background Concentrations of Metals, Appendix L: We find it surprising that metals found at high frequencies of detection failed tests for either normality or lognormality (Table L-4). In particular, we are surprised at the results for As, Ca, Cd, Mn, Ni, and possibly Th. High frequencies of detection usually lead to easily recognizable distributions, unless multiple populations and/or contamination are** | **RESPONSE 2:** These probability plots were provided in a technical memorandum on background and reference levels. As discussed above outliers were trimmed from the sample set based on these plots. |

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| **present. Because the Navy did not provide plots of cumulative probability vs. concentration, we are unable to determine what these distributions look like. Please supply these plots for all 23 metals analyzed, as described on page L-2, to aid in performing the task in Figure L-1 labeled Remove outliers or possibly contaminated data. For instance, the highest detected value of cadmium, 11.4 mg/kg is approximately ten times higher than we would expect to see for soils in Orange County. If this value does not belong with the background data set, exclusion of this bioaccumulative and very highly toxic metal as a COPC could be made in error.** | |
| **3. <u>Hexavalent Chromium, Sec. 4.4</u>: Were analyses for hexavalent chromium performed? If so, where are the results? If analyses were not performed, please explain. In the absence of such analyses, chromium must remain a COPC in both soil and groundwater and be considered to be 100% in the hexavalent state. Some discussion of the treatment of hexavalent chromium can be found in the risk assessment in Section 6.3.8, but we found no mention of this in the site characterization in Chapter 4.** | **RESPONSE 3:** No analyses for hexavalent chromium were conducted. however, as part of the fate and transport analysis, the geochemical conditions of groundwater were evaluated by several different procedures. All analyses indicate that geochemical conditions are not likely to support detectable concentrations of hexavalent chromium. Hexavalent chromium sampling of groundwater will be included in the groundwater Monitoring Plan for MCAS El Toro. |
| **4. <u>Table 4-36</u>: Values for organic chemicals are given as mg/kg, whereas Tables 4-34 and 4-35 report these results as µg/kg. Please correct the discrepancy.** | **RESPONSE 4:** This unit correction will be made. |
| **5. <u>Sediment and Surface Water, Secs. 4.6-4.7</u>: The data reported in these sections were collected in Augua Chinon Wash. We were under the impression that the drainage channels comprised Site 25. Will these data be reported again?** | **RESPONSE 5:** The data reported for Site 3 in Agua Chinon Wash is specific to this site and not Site 25. The data from Agua Chinon at Site 3 was used to evaluate whether the landfill is impacting the surface water and sediment in this wash. |
| **6. <u>Ecological Risk Assessment</u>: We do not find any mention of risks to non-human receptors. At the very least, a screening assessment is required to determine if any ecologically important habitat or chemicals of potential ecological concern are present.** | **RESPONSE 6:** Additional paragraphs will be added to the Physical Characteristics section of this report which summarize that no usable habitats are available at this site. therefore, a screening ecological risk assessment will not be conducted. |

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| **7. <u>Groundwater Pathway, Sec. 6.2.2, p. 6-8</u>: Will risks and hazards upon exposure to groundwater be combined in any way with the assessment previously submitted for Operable Unit 1, the regional groundwater?** | **RESPONSE 7:** No, risks and hazards will not be combined with the regional groundwater assessment. |
| **8. <u>Benzene in Groundwater, Table 6-1</u>: Benzene is reported as a detected analyte in groundwater in Table 4-31, but it does not appear as a chemical to be considered in Table 6-1. Please correct this error and include benzene as a COPC. This will affect estimates of risk for potential future off-site receptors.** | **RESPONSE 8:** The benzene reported in well 04_UGMW40 is a well that is cross gradient from the site and the benzene is assumed to be derived from Tank Farm No. 5 immediately upgradient of this well. Therefore, benzene was not used in the risk assessment for groundwater. |
| **9. <u>Exposure Point Concentrations, Appendix P, Tables</u>: $C_{MAX}$ is selected as the exposure point concentration for nearly every organic COPC at Site 3. We do not fault the reasoning which led to these selections. However, U.S. EPA guidance (RAGS Part A, 1989) recommends a measure of central tendency for the exposure point concentration as part of its definition of a reasonable maximum exposure. We believe the systematic overuse of $C_{MAX}$ might be misleading to risk managers. While we do not have a ready overall solution for this problem, we recommend that the Navy identify for risk managers those instances where estimates of risks are driven by $C_{MAX}$ and thus could be overestimated.** | **RESPONSE 9:** As described in Section 6 and its corresponding appendix, the maximum detected value was used to quantify risk when a 95% UCL of the mean would have been an inappropriate estimator of the exposure point concentration. It is recognized that overuse of the highest detected value to calculate risk might be misleading to risk managers, thus, the risk characterization section identifies those risk drivers which are based on the maximum detected value. |
| **10. <u>Toxicity Criteria for Dermal Exposure, Sec. 6.3.6, p. 6-16, and Table PII-3</u>: Dermal Reference Doses in Table PII-3 should be altered to reflect the values for dermal absorption recommended in Table 2 of Appendix A of Preliminary Endangerment Assessment Guidance Manual (DTSC, 1994). This will affect the values shown for arsenic (3% dermal absorption), cadmium (0.1%), chlorinated dioxins and furans (3%), chlorinated insecticides (5%), polycyclic aromatic hydrocarbons (15%), and polychlorinated biphenyls (15%). Employing these recommended values will lead to changes in some of the estimated risks and hazards for all the receptor groups. For** | **RESPONSE 10:** Dermal risks were quantified for the draft report by use of the absorption factors presented in the Cal-EPA PRG table (Sept. 1995). However, for the final report, values presented in the Preliminary Endangerment Assessment Guidance Manual (DTSC 1994) will be considered in addition to the absorption factors present in the Cal-EPA PRG Table. The more conservative value among these two reference documents will be used in the estimation of the dermal route risk. |

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| **instance, cancer risks for industrial use are driven principally by dermal exposure to 2,3,7,8-tetrachlorodibenzo-p-dioxin (Table 6-2). Applying a dermal absorption of 3% would apparently lower the estimates below 1E-06.** | |
| **11. <u>Hexavalent Chromium, Section 6.3.8, p. 6-16</u>: We disagree with the Navy's assertion that only a small fraction of total chromium in groundwater is likely to be in the hexavalent state. Hexavalent chromium, as chromate, is so very much more water soluble than most forms of trivalent chromium, such as chromic oxide, that it seems more likely to us that any chromium detected in groundwater will be hexavalent. As mentioned above, the absence of data on speciation of chromium presents an important data gap, leading to significant uncertainties.** | **RESPONSE 11:** See response to Comment 3 above. |
| **12. <u>Risk Characterization, Sec. 6.4, pp. 6-17 ff.</u>: This section is well written and complete. Figures 6-2 through 6-7 are especially enlightening. It would be useful to number the tables in Appendix P and to provide in Section 6 references to key tables in Appendix P. Risks and hazards are quantified adequately for risk managers.** | **RESPONSE 12:** The tables in Appendix P will be numbered. |
| **13. <u>Off-Site Residents, Sec. 6.4.1.3, p. 6-25</u>: In addition to the possible misidentification of the valence state of chromium in groundwater, as discussed above, this section contains other errors and should be rewritten. California EPA does not publish classifications of carcinogens; this is done by U.S. EPA. Chromium is classified a Group A carcinogen only via the inhalation route. It would be useful to name the other contributors to estimated cancer risk in groundwater, because this section seems to read as though the estimated risk of 1.9E-04 should be dismissed by risk managers.** | **RESPONSE 13:** See response to Comment 3 for the valence state of chromium in groundwater. It is acknowledged that Cal EPA does not publish classification of carcinogens. The text refers to such classifications as U.S. EPA classifications. All chemicals with risks in excess of 1E-06 will be identified in the discussion of groundwater risks. |
| **14. <u>Conclusions, Sec. 7</u>: Table 7-1 presents a very useful and informative summary of findings and recommendations in the framework of the data quality objectives which guided the investigation. We disagree** | **RESPONSE 14:** No significant releases of contaminants to groundwater have been identified at Site 5. The estimated risks in groundwater to residential users uses conservative parameters which overestimate the risks, especially the |

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| **with the third to last bullet on page 7-19, in which the Navy states that groundwater is not a significant pathway for fate and transport. Nearly all the estimated risk to potential off-site residents comes from groundwater and these estimates are higher than for any other group of receptors. Therefore, groundwater is a crucial transport medium, in our estimation. Section 7.1.4 should be strengthened with comparisons to the background risks and hazards calculated in Appendix P. Section 7.2.1 should mention the lack of data on speciation of chromium in groundwater, which creates a large uncertainty in the estimates of risk.** | use of hexavalent chromium for the total chromium concentration when analyses of the groundwater geochemistry indicates that hexavalent chromium should not exist at detectable concentrations. . |
| ***CONCLUSIONS AND RECOMMENDATIONS***<br>**The report is well organized and well presented. The risk assessment is quite good, but it can be made completely acceptable upon incorporation of our recommendations.** | |
| **1. The Navy should address ecological risks at Site 3.** | **RESPONSE 1:** The area at Site 3 is currently used for industrial-type activities and no usable habitats exist. therefore, no ecological screening risk assessment will be conducted. |
| **2. The Navy should present a complete characterization of ambient concentrations of metals, including cumulative frequency plots. The UTL should be discarded in favor of a simple estimate of a percentile, perhaps in conjunction with another statistical tool such as the Wilcoxon rank sum test.** | **RESPONSE 2:** This has been prepared and issued as a technical memorandum. |
| **3. Benzene should addressed as a chemical of concern in groundwater.** | **RESPONSE 3:** See response to comment 8 above. |
| **4. When estimated risks are driven by the maximum concentrations detected instead of an estimate of central tendency, the uncertainty introduced should be clearly pointed out to risk managers in the risk characterization and conclusions.** | **RESPONSE 4:** The uncertainty associated with use of the highest measured value in the estimation of risk is discussed in Section 6. |

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| **Originator:** John P. Christopher, Staff Toxicologist<br>DTSC<br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br>**Date:** 7 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **5. Potential risks due to hexavalent chromium are dismissed with assertions about the low probability of finding hexavalent chromium in groundwater. We do not accept this. The Navy should perform the analysis and assess risks on the materials actually present.** | **RESPONSE 5:** This analyses was completed using geochemical modeling and hexavalent chromium was not considered to be detectable at the site under current conditions. Analysis for hexavalent chromium will be included as part of the groundwater monitoring plan at MCAS El Toro. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*OPERABLE UNIT 2C-SITE 5*
*COMMUNICATION LANDFILL*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** John P. Christopher, Staff Toxicologist<br>DTSC<br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br>**Date:** 12 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***GENERAL COMMENTS***<br>**1. The report is well organized and well presented. The risk assessment is quite good. The risk assessment can be made acceptable upon adequate response to the specific comments below.** | ***RESPONSE TO GENERAL COMMENTS*** |
| ***SPECIFIC COMMENTS:***<br>**1. Use of Upper Tolerance Limits for Selecting Chemicals of Potential Concern (COPC), Appendix N, Sec. N.2.1: The Navy selected the 95% upper tolerance limit on the 95th percentile ($UTL_{95,95}$) to represent the upper range of ambient concentrations of those metals found to be either normally or log normally distributed. The maximum concentration detected ($C_{MAX}$) was selected for the remaining metals. We do not accept the UTL as a comparator for the purposes of identifying COPC, because the method can be defeated with small sample sizes. With adequate sample populations, we favor the use of a simple estimate of a percentile for this purpose. We have expressed this to the Navy on numerous previous occasions.**<br>**At a meeting in San Francisco on 22-23 May 1996, the Navy presented convincing evidence that comparison of a simple estimate of a percentile to the highest detected concentrations at a site suffers from increasing probability of Type I error (i.e., wrongly deciding a metal is present above background concentrations) as the number of samples from the site and the number of comparisons against the percentile both increase. The Navy proposed that the "percentile test" be used in conjunction with other statistical tests of hypotheses, such as the Wilcoxon rank sum test, to permit formal estimates of Type I and Type II errors. We believe this approach is a good one and we recommend it for MCAS El Toro and other Navy bases.** | ***RESPONSES TO SPECIFIC COMMENTS:***<br>**RESPONSE 1:** Revisions of this document will included the procedures discussed at the 22-23 May 1996 meeting in San Francisco.<br>The probability plots were examined for each of the metals. Where outliers were evident in the cadmium, copper, and nickel plots occurred, these outliers were removed from the sample set prior to recalculation of the 95 percentiles for revisions in the final background concentrations. This 95th percentile value will be used as the "background" concentration for assessing nature and extent of metals in soils at MCAS El Toro. The Wilcoxon Rank Sum test and Quantile Test will be used in the human-health and ecological risk assessments to assess whether metals are COPCs.<br>This evaluation process is illustrated in a flowchart to be provided in the technical memorandum and in the Draft Final Remedial Investigation reports for the landfills.<br>Either, the 95-percent UCL or the maximum concentration was used as the exposure-point concentration for COPCs in soil. The highest measured value for the soil media was used as the exposure point concentration for chemicals characterized by: (1) a low frequency of detection; (2) a 95-percent UCL exceeding its highest measured concentration; or (3) a non-parametric distribution. The authors, however, recognize that use of maximum concentrations for the non-parametrically distributed data is overly-conservative, thus a 95% UCL based on a nonparametric approach will be used |

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| **Originator:** John P. Christopher, Staff Toxicologist<br>DTSC<br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br>**Date:** 12 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| | in the final report. |
| **2. <u>Background Concentrations of Metals, Appendix N</u>: We find it surprising that metals found at high frequencies of detection failed tests for either normality or log normality (Table N-4). In particular, we are surprised at the results for As, Ca, Cd, Mn, Ni, and possibly Th. High frequencies of detection usually lead to easily recognizable distributions, unless multiple populations and/or contamination are present. Because the Navy did not provide plots of cumulative probability vs. concentration, we are unable to determine what these distributions look like. Please supply these plots for all 23 metals analyzed, as described on page L-2, to aid in performing the task in Figure N-1 labeled "Remove outliers or possibly contaminated data". For instance, the highest detected value of cadmium, 11.4 mg/kg is approximately ten times higher than we would expect to see for soils in Orange County. If this value does not belong with the background data set, exclusion of this bioaccumulative and very highly toxic metal as a COPC could be made in error.** | **RESPONSE 2:** These probability plots were provided in a technical memorandum on background and reference levels. As discussed above outliers were trimmed from the sample set based on these plots. |
| **3. <u>Table 4-14</u>: Toluene in shallow soil is reported at concentrations of 4 mg/kg, whereas in Table 4-13 this is given as 4 ,u/kg. Please correct this discrepancy.** | **RESPONSE 3:** The correct units are mg/kg and will be shown on the tables. |
| **4. <u>Hexavalent Chromium, Sec. 4.4</u>: Were analyses for hexavalent chromium performed? If so, where are the results? If analyses were not performed, please explain. In the absence of such analyses, chromium must remain a COPC in both soil and groundwater and be considered to be 100% in the hexavalent state.** | **RESPONSE 4:** No analyses for hexavalent chromium were conducted. however, as part of the fate and transport analysis, the geochemical conditions of groundwater was evaluated by several different procedures. All analyses indicate that geochemical conditions are not likely to support detectable concentrations of hexavalent chromium. Hexavalent chromium sampling of groundwater will be included in the groundwater Monitoring Plan for MCAS El Toro. |

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| **Originator:** John P. Christopher, Staff Toxicologist<br>DTSC<br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br>**Date:** 12 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **5. Table 4-17: Acetone is reported as being detected 3 times in 20 analyses. This is a 15% frequency of detection, but it is reported as 25%. Please correct this.** | **RESPONSE 5:** The frequency of detections will be checked and corrected. |
| **6. Groundwater, Table 4-21: Very few samples of groundwater were analyzed for Site 5. Just one sample was analyzed for some compounds, including benzene, a known human carcinogen. Benzene was detected in that single sample, but this is not an adequate amount of data to characterize potential exposures and risks due to benzene. How will the Navy rectify this problem?** | **RESPONSE 6:** All groundwater samples collected during the December 1995/January 1996 groundwater sampling event were analyzed for benzene by EPA Method 8010/8020 and by EPA CLP/OLC (8260). No detectable concentrations of benzene were found in the last round of RI sampling. The one detection of benzene occurred on the August 1995 sampling event in the upgradient well 05_UGMW27 by EPA CLP/OLM01. This detection also relates to TPH detected in soil and groundwater at this well. The source of this petroleum contamination is not the landfill. |
| **7. Ecological Risk Assessment: We do not find any mention of risks to non-human receptors. At the very least, a screening assessment is required to determine if any ecologically important habitat or chemicals of potential ecological concern are present.** | **RESPONSE 7:** A screening risk assessment has been included in the Draft Final RI. |
| **8. Benzene in Groundwater, Table 6-1: Benzene is reported as a detected analyte in groundwater in Table 4-21, but it does not appear as a chemical to be considered in Table 6-1. Please correct this error and include benzene as a COPC. This will affect estimates of risk for potential future off-site receptors.** | **RESPONSE 8:** Only downgradient wells sampled during the December 1995/January 1996 sampling results were used in the risk assessment of groundwater. |
| **9. Exposure Point Concentrations, Appendix R, Tables: $C_{MAX}$ is selected as the exposure point concentration for nearly every organic COPC at Site 3. We do not fault the reasoning which led to these selections. However, U.S. EPA guidance (RAGS Part A, 1989) recommends a measure of central tendency for the exposure point concentration as part of its definition of a reasonable maximum exposure. We believe the systematic overuse of $C_{MAX}$ might be misleading to risk managers. While we do not have a ready overall solution for this problem, we recommend that the Navy identify for** | **RESPONSE 9:** As described in Section 6 and its corresponding appendix, the maximum detected value was used to quantify risk when a 95% UCL of the mean would have been an inappropriate estimator of the exposure point concentration. It is recognized that overuse of the highest detected value to calculate risk might be misleading to risk managers, thus, the risk characterization section identifies those risk drivers which are based on the maximum detected value. |

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| **Originator:** John P. Christopher, Staff Toxicologist<br>DTSC<br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br>**Date:** 12 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **risk managers those instances where estimates of risks are driven by $C_{MAX}$ and thus could be overestimated.** | |
| **10. <u>Toxicity Criteria for Dermal Exposure, Sec. 6.3.6, p. 6-16, and Table PII-3</u>: "Dermal Reference Doses" in Table PII-3 should be altered to reflect the values for dermal absorption recommended in Table 2 of Appendix A of *Preliminary Endangerment Assessment Guidance Manual* (DTSC, 1994). This will affect the values shown for arsenic (3% dermal absorption), cadmium (0.1%), chlorinated dioxins and furans (3%), chlorinated insecticides (5%), polycyclic aromatic hydrocarbons (15%), and polychlorinated biphenyls (15%). Employing these recommended values will lead to changes in some of the estimated risks and hazards for all the receptor groups.** | **RESPONSE 10:** Dermal risks were quantified for the draft report by use of the absorption factors presented in the Cal-EPA PRG table (Sept. 1995). However, for the final report, values presented in the Preliminary Endangerment Assessment Guidance Manual (DTSC 1994) will be considered in addition to the absorption factors present in the Cal-EPA PRG Table. The more conservative value among these two reference documents will be used in the estimation of the dermal route risk. |
| **11. <u>Risk Characterization, Sec. 6.4, pp. 6-14 ff.</u>: This section is well written and complete. Figures 6-2 through 6-7 are especially good. Risks and hazards are quantified adequately for risk managers, except for benzene. Please number the tables in Appendix R and refer to key tables in Section 6.**<br><br>**Risks drivers in groundwater requires more complete coverage. If the total risk is on the order of 1E-03 and 90% is due to hexavalent chromium, then risks in excess of 1 E-04 must be present due to other chemicals. Risk managers would benefit from discussion of such risks at greater length.** | **RESPONSE 11:** For Benzene in groundwater refer to response to comment 8. The tables in appendix R will be numbered.<br><br>Concur with comment. For additional coverage, all chemicals with risks in excess of 1E-06 are identified in the discussion of groundwater risks. |
| **12. <u>Conclusions, Sec. 7</u>: Table 7-1 presents a very useful and informative summary of findings and recommendations in the framework of the data quality objectives which guided the investigation. Section 7.1.4 should be strengthened with comparisons to the "background" risks and hazards calculated in Appendix R Section 7.1.4 should include discussion of total risks across pathways.** | **RESPONSE 12:** Risks are fully discussed in Section 6. Section 7 is meant to summarize the findings of all work completed for the RI. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*OPERABLE UNIT 2C-SITE 5*
*COMMUNICATION LANDFILL*
*MCAS EL TORO, CALIFORNIA*

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|---|---|
| **Originator:** John P. Christopher, Staff Toxicologist<br>DTSC<br><br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br><br>**Date:** 12 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***CONCLUSIONS AND RECOMMENDATIONS***<br><br>**The report is well organized and well presented. The risk assessment is quite good., It can be made acceptable upon incorporation of the following recommendations:** | ***RESPONSES TO CONCLUSIONS AND RECOMMENDATIONS*** |
| **1. The Navy should address ecological risks at Site 5.** | **RESPONSE 1:** This will be included in the Draft Final RI. |
| **2. The Navy should present a complete characterization of ambient concentrations of metals, including cumulative frequency plots. The UTL should be discarded in favor of a simple estimate of a percentile, perhaps in conjunction with another statistical tool such as the Wilcoxon rank sum test.** | **RESPONSE 2:** This has been prepared and issued as a technical memorandum. |
| **3. Benzene should addressed as a chemical of concern in groundwater.** | **RESPONSE 3:** See response to comment 8 above. |
| **4. When estimated risks are driven by the maximum concentrations detected instead of an estimate of central tendency, the uncertainty introduced should be clearly pointed out to risk managers in the risk characterization and conclusions.** | **RESPONSE 4:** The uncertainty associated with use of the highest measured value in the estimation of risk is discussed in Section 6. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*FOR LANDFILL SITES 3 AND 5*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Lawrence Vitale<br>CRWQCB<br>**To:** Tayseer Mahmoud<br>DTSC<br>**Date:** 2 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***GENERAL COMMENTS***<br>**SITE 3**<br>**1. A final closure cover must be provided (some hazardous wastes were disposed of at the site) and the stabilization of the banks of Agua Chinon Wash should be implemented as proposed to prevent waste exposure and erosion which may impact surface water and sediment. A closure and postclosure maintenance plan, for the cover in accordance with Chapter 15 requirements, shall be submitted for our approval.** | ***RESPONSES TO GENERAL COMMENTS***<br>**SITE 3**<br>**RESPONSE 1:** These measures will be evaluated in the feasibility study. |
| **2. Monitoring programs for groundwater, surface water, and landfill gas should be developed, approved and implemented to assess the changes in quality of these media.** | **RESPONSE 2:** A Proposed Monitoring Plan will be provided with the feasibility study for the site. |
| **3. Benzene was found in groundwater, downgradient of the landfill site, at concentrations exceeding the drinking water standards (MCLs). A potential source of the benzene is Tank Farm No. 5 but additional investigations should be conducted for confirmation. Once the source of the groundwater contamination is identified remedial measures should be taken to prevent further groundwater degradation.**<br>**In the future, if additional downgradient monitoring wells are to be installed for the landfill, it is recommended that the new wells be placed immediately downgradient of the landfill to minimize impacts from other pollutant sources.** | **RESPONSE 3:** Based on the age and types of wastes disposed in the landfill, benzene is not considered to be derived from the landfill. |
| **SITE 5**<br>**1. A final closure cover must be constructed (designated wastes were disposed of at the site) for the site to minimize water infiltration. A closure and postclosure maintenance plan must be submitted to us for approval.** | **SITE 5**<br>**RESPONSE 1:** These measures will be considered in the feasibility study. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*FOR LANDFILL SITES 3 AND 5*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** **Lawrence Vitale** **CRWQCB**<br>**To:** **Tayseer Mahmoud** **DTSC**<br>**Date:** **2 June 1996** | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **2. Groundwater and gas monitoring programs should be implemented to assess the potential changes in quality of the groundwater and potential landfill gas generation.** | **RESPONSE 2:** A Proposed Monitoring Plan will be provided with the feasibility study. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*OPERABLE UNIT 2C-SITE 5*
*COMMUNICATION LANDFILL*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Peter M. Janicki<br>U.S. EPA<br><br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br><br>**Date:** 3 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***GENERAL COMMENTS*** | ***RESPONSES TO GENERAL COMMENTS*** |
| **1. The text mentions an area of disturbed ground in the southwestern portion of the landfill and surface impoundments in the northwestern area. Neither of these features are indicated on the subsequent site drawings. Also, the text does not make a reference to any site exploration data relevant to these areas.**<br><br>**Depending on the location of these terrain features relative to the landfill. these areas may be potentially affected by closure activities on the landfill (grading, drainage system construction, final cover borrow areas, etc.). Thus, we recommend that these terrain features be shown on the site drawings. Also, any existing field exploration information relevant to these areas should be made available for review, if requested.** | **RESPONSE 1:** These features were reported in previous aerial photograph reviews. No evidence of the features are currently found at the site and do not appear to be impediments to closure activities. |
| **2. Section 2, Study Area Investigation lists surface geophysical survey and trenching as the field methods which were used to determine both the lateral and vertical extent of the land filling area. However, it appears, as shown on the subsequent site drawings, that a portion of the landfill indicated as a "previously identified disposal trench" had been excluded from both the trenching and geophysical survey.**<br><br>**It is unclear if this excluded area and the area mentioned in the text as part of the Phase I Site Investigation area are equivalent. If this is the case, please unify the terminology or, otherwise, provide additional information.**<br><br>**Also, it appears that the previously conducted investigation lacks a sufficient vertical landfill extent investigation component. Thus, we strongly recommend that the mentioned area be included in the geophysical survey. If a more complete site investigation exists, a less** | **RESPONSE 2:** The portion of the landfill not covered by a geophysical survey in the Phase II RI was covered by a geophysical survey conducted for the Phase I RI in 1991 as shown on Figure 4-1. |

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| **Originator:** Peter M. Janicki<br>U.S. EPA<br>**To:** Tayseer Mahmoud, RPM<br>DTSC<br>**Date:** 3 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **rigorous survey may be conducted in order to validate the existing survey interpretative methods.** | |
| **3. Section 2.5.2, Perimeter Gas Migration Samples makes a reference to 14 CCR, Section 17783.5, as a guide for conducting a subsurface gas survey. The section provides the survey depths (10, 25, and 40-feet).**<br>**It should be pointed out that the mentioned section 17783.5 provides regulatory guidelines for installing permanent landfill gas migration probes and specifies construction requirements. Neither the text nor the subsequent appendices provide a justification for the depths of the probes (needed are waste depth analyses for the specific probe locations) or construction details or construction quality for the well construction (design details should include screen lengths, materials used, etc.).** | **RESPONSE 3:** The perimeter soil gas samples were collected with direct push samplers and did not consist of permanent sampling wells. Sampling procedures are discussed in Section 2 and Appendix F. The sampling depths were 10, 25, and 40 were discussed in the Work Plan and were based on depths of wastes. |
| **4. Based on the limited size of the landfill and information about negative impacts of the landfill on the environment (ground water contamination, gas migration, and soil contamination), an alternative addressing clean closure and/or waste consolidation should be considered for the purpose of the feasibility study. We have previously included a copy of Board's Advisory discussing the subject of clean closure which may be used as a guidance document in this matter. Please refer to our letter of April 30, 1996, regarding Unit 2B, Site 2.** | **RESPONSE 4:** Based on the estimated volume, the Navy prefers to consider only alternatives to keeping the landfill at Site 5. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORT*
*FOR SITE 3, OU-2C*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Tayseer Mahmoud<br>DTSC<br><br>**To:** Peter M. Janicki<br>Cal/EPA<br><br>**Date:** 03 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***SPECIFIC COMMENTS*** | ***RESPONSES TO SPECIFIC COMMENTS*** |
| **1. Since the landfill covers about 20 acres, it is recommended that differential settlement analyses be conducted. This may be accomplished by reviewing existing surveying records or by estimating based on the thickness, age and composition of wastes.** | **RESPONSE 1:** Settlement monuments will be proposed as part of the monitoring plan. No periodic detailed topographic maps are available which could be examined for potential settlement since the landfill closed. |
| **2. Surface and subsurface soil analyses indicated wide spread contamination with solvents, diesel fuels and other compounds. Because the text mentions relatively flat grades and ponding potential throughout the site, the issue of soil contamination and may be reevaluated depending on a proposed final grading plan if any earth material is to be moved around or off site.** | **RESPONSE 2:** Consolidation of Unit 4 to Unit 1 will be considered in the feasibility study. |
| **3. While Figure 4-1 lists one of the map symbols as "1994 Blueprint Feature," the text refers to it as "the large rectangular area shown on the 1944 blueprint." Please explain this discrepancy. Also, please advise if more soil exploration information exists about that area.** | **RESPONSE 3:** The blueprint is dated 1944. |
| **4. Section 3.1.4.3, Flood Discharge Estimates, mentions a flood-retarding basin as a discharge reducing measure which is to be implemented in June 1996. We request that this feature be shown on appropriate drawings.** | **RESPONSE 4:** This drainage control feature is planned by Orange County and will be placed well upstream from the site. |
| **5. Since the site is to be closed under the presumptive remedy approach, the extent of field investigation is satisfactory. However, should this site be affected by closure activities at other sites on the base (clean closure and/or landfill consolidation) or other than open, non-irrigated postclosure land use is proposed, further field explorations may be advisable.** | **RESPONSE 5:** The details of consolidation will be provided in the final design for the site. |

*RESPONSE TO COMMENTS*
*DRAFT REMEDIAL INVESTIGATION REPORT*
*OPERABLE UNIT 2B-SITE 3*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***ENCLOSURE A - Site 5*** | |
| ***MAJOR COMMENTS*** | ***RESPONSES TO MAJOR COMMENTS*** |
| **1. Page ES-9; MCPP is discussed in response to the question "Is leachate impacting soil or groundwater," however, not under "Is the nature and extent of groundwater contamination known?" Also, the discussion of chromium on page ES-8 is not consistent with the discussion in response to the question, "Is the nature and extent of groundwater contamination known?"** | **RESPONSE 1**: MCPP was not detected in groundwater, so it was not discussed under the "nature and extent of groundwater contamination". The discussion of chromium on ES-8 involves the assumption that the total chromium concentration in groundwater was assumed to be hexavalent chromium for the risk assessment. |
| **2. Page 1-16; Throughout the discussion under "Aerial Photography Reviews" it is difficult to discern which areas of potential interest/contamination are associated with Site 5, it must be clear which site or program they will be investigated under. For future reports, it is very helpful to include drawings of the potential anomalies overlaid by site figures.** | **RESPONSE 2:** Anomalies in the aerial photographs were addressed in the Phase II RI/FS Work Plan. This section briefly summarizes the historical work completed at the site. |
| **3. Pages 4-37, Section 4.4, 4-42; it is not appropriate to compare pesticide/herbicide levels at all depths to reference levels developed for use to screen out surface pesticide application.** | **RESPONSE 3:** All organic compounds are shown on the figures; no screening was completed. |
| **4. Resolution of soil background levels must be completed prior to finalization of this remedial investigation. The meetings started this winter regarding Sites 2 and 17 must be expanded to include resolution of background concentrations at Sites 3 and 5. Please coordinate with the EPA and DTSC toxicologists to expedite resolution.** | **RESPONSE 4:** The development of background metal concentrations was finalized in July 1996 with John Christopher of DTSC and Dennis Askvig of the Navy. The background concentrations and selection of metals as COPCs are presented in a revised Appendix N. |
| **5. Maximum Contaminant Levels (MCLs) should not e utilized to screen chemicals for selection as COPCs. This results in an incorrect calculation of total risk.** | **RESPONSE 5:** MCLs have been deleted from the RI; all detected analytes are shown on the Figures. |

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **6. It is mentioned throughout the report that risk is overestimated due to considering all chromium as hexavalent. What is the Navy/Marine Corps schedule for including chromium speciation in future groundwater sampling?** | **RESPONSE 6:** The geochemical conditions of the groundwater at the site were evaluated for the Draft Final RI. From this evaluation, hexavalent chromium is not expected to be present at detectable concentrations. Speciation for hexavalent chromium will be conducted as part of the next round of groundwater monitoring at the site. |
| **7. Page 5-16; please provide some rationale for the elevated metals levels in the groundwater, based upon the on-site data.** | **RESPONSE 7:** A discussion of the geochemistry of groundwater at the site has been added to the fate and transport section. The slight increase in metal concentrations in groundwater, especially nickel, is possibly due to reduction/oxidation potential changes caused by the landfill. |
| ***MINOR COMMENTS*** | ***RESPONSES TO MINOR COMMENTS*** |
| **1. Page 4-3, Section 4.1.2; typographical error. Please replace "Site 3" with "Site 5."** | **RESPONSE 1:** Agreed. |
| **2. Page 4-4, Section 4.1.5; typographical error. Please replace "sandy" with "study" area.** | **RESPONSE 2:** Agreed. |
| **3. Page 7-3, Table 7-1; under "risk assessment" column add "hypothetical" prior to off-site residents.** | **RESPONSE 3:** Agreed. |
| ***ENCLOSURE B - Site 3*** | |
| ***MAJOR COMMENTS*** | ***RESPONSES TO MAJOR COMMENTS*** |
| **1. Page 4-36; please clarify how a sample which exceeds PRGs can be used to delineate extent of contamination.** | **RESPONSE 1:** PRGs have been eliminated from the RI. All organic compounds and metals exceeding background are shown in the RI. |
| **2. Pages 4-36 and 4-66; it is not appropriate to compare pesticides/herbicides concentrations from all depths to the UTLs for anthropogenic reference levels. For example, on page 4-66, endosulfan II at a depth of 87 feet bgs is compared to the reference concentration, which was intended to assess pesticide levels in surface soils.** | **RESPONSE 2:** See response to Comment 1. |

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **3. Page 4-141, Section 4.5.8; The Navy/Marine Corps should analyze for isotope specific analyses in the next round of groundwater sampling. Please coordinate with CDM, the Navy's groundwater monitoring contractor.** | **RESPONSE 3:** The Navy is considering isotope analyses in the next round of groundwater sampling at the site. |
| **4. Pages 5-10, 7-21; it may not be appropriate to assert that all benzene detected in the groundwater at Site 3 is due to upgradient sources at Tank Farm #5. As benzene has been detected in air monitoring and limited soil sampling was conducted (as part of the presumptive remedy approach) at Site 3, it is not possible to postulate that all benzene in groundwater is due to Tank Farm #5.** | **RESPONSE 4:** Based on the age of the site and that it primarily received burned waste, the site is not likely to be a source of benzene. |
| **5. Resolution of soil background levels must be completed prior to finalization of this remedial investigation report. The meetings started this winter regarding Sites 2 and 17 must be expanded to include resolution of background concentrations at Sites 3 and 5. Please coordinate with the EPA and DTSC toxicologists to expedite resolution.** | **RESPONSE 5:** Background concentrations for metals were resolved in July 1996 and are included in the Draft Final RI. |
| **6. Maximum Contaminant Levels (MCLs) should not be utilized to Screen chemicals for selection as COPCs. This results in an incorrect calculation of total risk.** | **RESPONSE 6:** MCLs have been deleted from the RI; all analytes detected in the groundwater are shown in the RI. |
| **7. Clarify whether ecological risk screening for the wash will be completed as part of Site 25.** | **RESPONSE 7:** An ecological risk assessment is being completed for Agua Chinon as part of the Site 25 RI, however, assessment of the section of Agua Chinon Wash in Site 3 was found to be absent of usable habitat so no ecological risk assessment was completed for the Site 3 RI. |
| ***MINOR COMMENTS***<br><br>**1. Page 1-24; selenium is listed under both categories: metals and inorganics.** | ***RESPONSES TO MINOR COMMENTS***<br><br>**RESPONSE 1:** This will be corrected. |

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **2. Page 4-15, Table 4-3; the median benzene concentration from the CARB study is not consistent with the text on page 4-16.** | **RESPONSE 2:** This will be corrected. |
| ***ENCLOSURE C - Site 3*** | |
| **A. TECHNICAL COMMENTS**<br>***GENERAL COMMENTS***<br>**1. There are several areas which require further attention.**<br><br>**There is an over reliance on PRGs and MCLs in both the Nature and Extent and the Fate and Transport Sections of this report. Although these thresholds were useful for limiting the extent of the field investigation they are not adequate for defining the extent of contamination. To assume that any analyte below a PRG does not possibly represent contamination is too simplistic. Furthermore, the exposure scenario used by U.S. EPA to calculate residential PRGs is not compatible with the recreational scenario used in this report.**<br><br>**The fate and transport analysis should concentrate more on the individual analytes in the site-specific database and less on generalizations about potential fate for large classes of analytes; especially for the groundwater data. There are low levels of COPCs in groundwater which require further scrutiny.** | **A. TECHNICAL COMMENTS**<br>***RESPONSES TO GENERAL COMMENTS***<br>**RESPONSE 1:** PRGs have been eliminated from the RI. All organic compounds and metals exceeding background are shown in the RI.<br><br>MCLs have been deleted from the RI; all analytes detected in the groundwater are shown in the RI. |
| **2. Executive Summary, The summary does not mention PRGs with respect to Nature and Extent and Fate and Transport; however, PRGs are prominently relied upon in these sections within the text. Thus, the Executive Summary seems to be more in line with the intent of the comments presented herein.** | **RESPONSE 2:** The use of PRGs and MCLs to screen the data for the RI has been deleted from the report. All organic compounds and metals above background in soil are discussed; all detected analytes for groundwater are shown. |
| **3. Page 2-29, Table 2-7; 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** | **RESPONSE 3:** BOD and COD have been removed from this table. |

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **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. <u>Page 4-5, Figure 4-1</u>; The figure is somewhat difficult to interpret because the line types and weighting are similar for several descriptors. Consider using color for clarity.** | **RESPONSE 4:** This figure is a cut and paste of two different geophysical studies. Attempts will be made to clear up the copying of the figure. |
| **5. <u>Page 4-36, first full paragraph</u>; 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 "If a reported concentration of a given organic compound equaled or exceeded its corresponding PRG in one or more samples tested, the sample would be used to delineate extent of contamination."**<br><br>**This approach tends to confuse the issues. The discussion of nature and extent should focus on all analytes detected above the risk assessment selection criteria; not PRGs. The use of PRGs and other arbitrary threshold criteria results in figures in the RI report not displaying organic and inorganic analytes detected in soil and groundwater.** | **RESPONSE 5:** These discussions have been rewritten to discuss all detected organics and metals above background in soils and all detected analytes in groundwater. |
| **6. <u>Page 4-43, Figure 4-6</u>; The units for metals are incorrect and should be milligrams/kilogram.** | **RESPONSE 6:** This correction will be made. |
| **7. <u>Page 4-45, Table 4-15</u>, This table and several other similar ones throughout the document should be corrected so that the units of any comparative criteria (if they continue to be used in the final draft) are consistent with the detection levels presented. For example, PRGs are in milligrams/kilogram, but detection levels for pesticides and herbicides are in micrograms/kilogram.** | **RESPONSE 7:** This correction will be made. |

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| **8. Page 4-51, first sentence; The comparison of acetone and toluene with their residential PRGs seems inappropriate. A more interesting and pertinent assessment could be conducted through an evaluation of the validation results to ascertain if these analytes are laboratory contaminants.** | **RESPONSE 8:** The draft final RI uses fully validated data and acetone and toluene do show as contaminants. |
| **9. Page 4-51, second full paragraph; Reported concentrations of pesticides are compared to PRGs and MCAS El Toro reference levels and for some analytes the reference level was exceeded but not the PRG. Because of the dual comparisons it is difficult to discern what the significance of the detected level is. Are the reference levels the appropriate comparator? If so then why also use PRGs?** | **RESPONSE 9:** As discussed above, all organics detected are presented and discussed in the draft final RI. PRGs and reference levels are not used in the nature and extent section. |
| **10. Page 4-51, last paragraph; Within this paragraph the text drifts far from Nature and Extent and deep into the realm of risk assessment.**<br><br>**The authors should consider moving the discussion to Section 6 or deleting it entirely.** | **RESPONSE 10:** Because the PRGs will be eliminated from the discussion, the use of an equivalent toxicity factor for dioxins will not be presented in the draft final RI. |
| **11. Page 4-52, Section 4.4.1.2; The authors should consider that there is some difficulty in data evaluation by the reader with respect to the exposure scenarios used in the risk assessment. This is due to the presentation of shallow soil in Section 4 as 0 to 10 feet, while shallow soil in the recreational exposure scenario for the risk assessment is for shallow soil between 0 to 2 feet. In actuality, only two samples out of seven were greater than 2 feet.** | **RESPONSE 11:** A summary table has been added to the end of Section 2 describing how the data is used in the various sections. The risk assessment sections also summarize what data was used in these efforts. |
| **12. Page 4-52, Section 4.4.1.2; The text notes that residential PRGs and MCAS El Toro metal and pesticide reference levels apply to shallow soils. It is not clear if the term shallow refers to the 0 to 2 ft interval of the Risk Assessment or the 0 to 10 foot interval of the soil sampling for the RI. In addition, the text notes that shallow soil threshold values were used for the purposes of comparison only, even though they clearly do not apply to the deep soils. This seems inappropriate** | **RESPONSE 12:** The division between shallow and subsurface was established in the Phase I RI. This RI does not make the attempt to redefine these soils, because the land use is uncertain at this time and a residential scenario may be designated (though highly likely at landfill sites). Therefore, the 10 feet depth for shallow and subsurface soil remains. |

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| **and tends to confuse the significance of any subsequent presentations within the document. The authors should make comparisons to directly relevant criteria and abstain from the use of nonapplicable surrogates.** | Though background concentrations for metals were developed from shallow soils, they are used for comparison against subsurface soils. For most of the sites at MCAS El Toro, this assumption should be reasonable because most sites are positioned on alluvial deposits which are derived from geologic formations in the foothills where the background samples were sampled. |
| **13. Page 4-52, Section 4.4.1.2; Here and numerous times elsewhere in this document the text includes speculation regarding the association of laboratory or field contamination with detected analytes. These speculations seem unnecessary. The authors should confirm that verification and validation of the data have been performed and if so, identify definitively whether or not laboratory or field contamination affected the results. If there is ambiguity because the data were not validated, then there should be an explanation in the text. Another notable example is on page 4-142 within the first complete paragraph.** | **RESPONSE 13:** The draft final RI does not contain this speculation because the data used in the draft final report has been fully validated while the data in the draft report was not. |
| **14. Page 4-67, Figure 4-7; The figure shows that TPH-gasoline was reported in soil at 215 ft bgs. This situation requires further discussion in the text since TPH-gasoline was also reported at much shallower levels and the extent and source should be clarified.** | **RESPONSE 14:** The samples with TPH at 215 and 230 feet bgs were collected at Site 4 which lies adjacent to Tank farm No. 5 which also appears to be the source of benzene in the groundwater. |
| **15. Page 4-71, Figure 4-8; The units for metals are incorrect and should be milligrams/kilogram.** | **RESPONSE 15:** This will be corrected. |
| **16. Page 4-71, Figure 4-8; The figure is entitled COPCs in shallow soil; however, it is not clear if the listing is consistent with other COPC listings in the RI.** | **RESPONSE 16:** The title will be revised to "Analytes in Shallow Soil - Unit 3". The use of COPCs has been eliminated from this section. |
| **17. Page 4-83, Figure 4-9; The units for metals are incorrect and should be milligrams/kilogram.** | **RESPONSE 17:** This will be corrected. |

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| **18. Page 4-118, Section 4.5.1; The text here and on the figures and tables throughout should be corrected to indicate that Contract Required Detection Limits CRDL apply to inorganic analyses and Contract Required Quantitation Limits CRQL apply to organics.** | **RESPONSE 18:** This statement will be revised to read "detected" VOCs. |
| **19. Page 4-118, Section 4.5.1; As noted previously, many organics analytes were detected in groundwater; however, since they were below MCLs they were not presented on the summary figure - Figure 4-12. The presentation should be corrected in the final draft to clearly show the distribution of all anthropogenic analytes in groundwater.** | **RESPONSE 19:** As discussed above, all detected analytes in groundwater will be shown. |
| **20. Page 4-137, Figure 4-12; The Figure should include the groundwater flow direction and all organics detected.** | **RESPONSE 20:** This figure emphasizes detected analytes; flow direction will be shown. |
| **21. Page 4-140, Section 4.5.7; 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.** | **RESPONSE 21:** The use of all MCLs will be deleted from the nature and extent section. |
| **22. Page 4-143, Figure 4-13; The units for thallium are incorrect and should be milligrams/kilogram.** | **RESPONSE 22:** This will be corrected. |
| **23. Page 4-143, Figure 4-13; It is not clear if sample location O3SE5 is supposed to be O3SE4. Please confirm and correct if necessary. Also see Table 4-35 where O3SE4, but not O3SE5 is listed.** | **RESPONSE 23:** 03SE4 is a duplicate sample of 03SE3. |
| **24. Page 4-154, Table 4-36; The location O3SE4 would appear to have the highest level of thallium at 0.77 mg/kg. Confirm and correct if necessary.** | **RESPONSE 24:** 03SE4 as the duplicate sample for 03SE3 does have the highest thallium. |

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| **25. Page 4-157, last paragraph; The discussion appears to introduce a new method for the determination of COPCs; i.e., if any analyte at a fixed location differed by an order of magnitude it was identified as a COPC. This method seems to be without precedent or basis and should be justified.** | **RESPONSE 25:** Comparison of all detected analytes in the upgradient and downgradient samples is used in the draft final RI are used to assess the impacts of the landfill on sediment and surface water. |
| **26. Page 5-8, first full paragraph; Here and elsewhere, as noted in the preceding comments, comparisons with inappropriate threshold criteria are provided. Neither Nature and Extent nor Fate and Transport should be used to display incomplete and inapplicable risk screening which conflicts with the Baseline Risk Assessment. The discussion regarding metals provides little information since it uses the dual comparative criteria of MCAS background and PRGs. If the background levels are acceptable to the BCT why use PRGs?** | **RESPONSE 26:** No screening will be completed in the draft final RIs. |
| **27. Page 5-13, first partial paragraph; The text should clarify the reasons why the surface water is considered to have the potential to mobilize waste materials under current conditions. Are wastes exposed in the channel? Are wastes present just below the channel?** | **RESPONSE 27:** No wastes are exposed in the channel or below it. However, runoff from the landfill surface discharged to the drainage may have in the past transport wastes to the wash. |
| **28. Page 5-11, Table 5-2; The presentation of data is helpful; however, the decision to only show "selected" analytes is peculiar. For example, MCPP is often mentioned in Nature and Extent yet it is not included in this table.** | **RESPONSE 28:** This table shows selected organics. Many of the properties shown on this table are not readily available from the literature. So this table is intended to illustrate the range of properties of the organics at the site. |
| **29. Page 5-19, Section 5.2.1.5; It seems unlikely that the authors intended to state that the precipitation from solution of dissolved metal contaminants forms sediments. Confirm and correct as required.** | **RESPONSE 29:** The statement "forming sediments" will be removed. |
| **30. Page 5-19, Section 5.2.1.5; The authors should use the voluminous data on-hand to evaluate the apparent mobility of metals at Site 3. Comparisons of dissolved metals, electron acceptors, and general chemistry indicators should be made.** | **RESPONSE 30:** This evaluation has been included in the draft final RI. |

*RESPONSE TO COMMENTS*
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*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **31. Page 5-19, Section 5.2.1.6; Here again, the authors should focus their attention on the assessment of the fate and transport of the pesticides and herbicides detected at the site and refrain from comparisons to arbitrary threshold criteria.** | **RESPONSE 31:** Discussion of comparators has been deleted from the draft final RI. |
| **32. Page 5-22, Table 5-4; Since arsenic, copper and manganese levels were all below MCAS El Toro reference levels, why model and compare to PRGs for air?** | **RESPONSE 32:** Because PRGs are eliminated for the draft final RI, this evaluation will remain in the RI. |
| **33. Page 5-22, Section 5.3.2.3; The text includes the sentence, "Concentrations of inorganics were reported in soil and groundwater." This statement requires revision. 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. Likewise for metals in soil.** | **RESPONSE 33:** This section has been thoroughly revised to include all detected organics and metals above background. |
| **34. Page 5-22, Section 5.3.2.3; The text makes the statement that the landfill may have leached thallium (to groundwater). Other than the fact that thallium exceeded background in the shallow and deep samples at Unit 4 there is no assessment of regional trends or at least station-wide trends for this analytes. Consideration of the presence of this element in soil and groundwater on other parts of the station seems to be in order.** | **RESPONSE 34:** This analysis focuses on the site. To pull this data from basewide or regionally is well beyond the scope of the project. Besides, most of the data on metals were collected from other IRP sites, and this entire data set would require detailed scrutiny to assess it for anthropogenic releases. If the landfill had been a substantial source of contamination, many of the analytes detected would have more than likely shown much higher concentrations than those detected. |
| **35. Page 5-24, Section 5.3.2.4; The fact that pesticides and herbicides were detected at low levels in groundwater is not sufficient basis for the statement that the "...data indicate that pesticides and herbicides are not leaching from Site 3."** | **RESPONSE 35:** No pesticides or herbicides were detected in the latest round of groundwater sampling in December 1995/January 1996. Pesticides were detected in only one round ((January 1993) and herbicides were detected in November 1992 and January 1993. Therefore, pesticides and herbicides have not had a substantial release at the site. |

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| **36. Page 5-23, Section 5.3.2.5; The text notes that high gross beta is common in areas such as Site 5. It would be helpful if the authors provided local and regional information regarding the reported levels of gross alpha and gross beta in Orange County.** | **RESPONSE 36:** This analysis of gross alpha and beta will focus on comparing upgradient to downgradient concentrations at the site. A basewide analysis is not in the scope of work for this site. |
| **37. Page 5-25, Section 5.3.3.2; As noted previously, the authors should focus their attention on the assessment of the fate and transport of the analytes detected at the site and refrain from comparisons to arbitrary threshold criteria; in this case MCLs. See also Section 5.3.3.4 for another notable example.** | **RESPONSE 37:** This section has been revised to include all detected analytes in groundwater. |
| **38. Page 5-25, Section 5.3.3.3; The text notes that the inorganic groundwater levels were not significantly different from those upgradient. Exactly what constitutes a significant difference is not explained.** | **RESPONSE 38:** A significant difference is assumed to be an order of magnitude. |
| **39. Page 6-11; The exposure pathway to water in the wash seems reasonable; however, the presence of any COPCs in the wash cannot be directly attributed to the site based on the data presented in this report. Therefore the basis for risk assessment seems uncertain.** | **RESPONSE 39:** There were COPCs in the wash and as discussed in Section 4 and 5, this contaminants do not appear to be derived from the site. However, under the CERCLA procedure for risk assessments, these contaminants have to be addressed as COPCs. |
| **40. Page 6-20 and 6-24 and 6-28, Table 6-4 Figure 6-4 and 6-6; The majority of the risk CAL-EPA risk was due to ingestion of chromium as hexavalent chromium. The substantial difference ( about four orders of magnitude) between the U.S. EPA and CAL-EPA carcinogenic risk needs greater attention and assessment so that the information presented can be of use by risk managers.** | **RESPONSE 40:** Concur with comment. The text will present the results for risks derived by use of both U.S. EPA and Cal-EPA. A comparison between the two results provides useful information to risk managers in the context of decisions to be made about selection of remedies. |
| **41. Page 6-16, Table 6-16; The authors should explain why chromium in groundwater was not speciated and if additional samples will be collected to address the high apparent risk due to hexavalent chromium.** | **RESPONSE 41:** Hexavalent chromium sampling was not in the Phase II RI Work Plan, as approved by the BCT. Geochemical conditions of the groundwater were evaluated in the Draft Final RI and the conditions of the groundwater are not conducive to hexavalent chromium persistence. Hexavalent chromium will be added to the groundwater monitoring plan for MCAS El Toro. |

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***ENCLOSURE D - Site 5*** | |
| **A. TECHNICAL COMMENTS**<br><br>***GENERAL COMMENTS***<br><br>**1. There are several areas which require further attention. There is an over reliance on PRGs and MCLs in both the Nature and Extent and the Fate and Transport Sections of this report. Although these thresholds were useful for limiting the extent of the field investigation they are not adequate for defining the extent of contamination. To assume that any analyte below a PRG does not possibly represent contamination is too simplistic. Furthermore, the exposure scenario used by U.S. EPA to calculate residential PRGs is not compatible with the recreational scenario used in this report.**<br><br>**The fate and transport analysis should concentrate more on the individual analytes in the site-specific database and less on generalizations about potential fate for large classes of analytes; especially for the groundwater data. There are low levels of COPCs in groundwater which require further scrutiny.** | **A. TECHNICAL COMMENTS**<br><br>***RESPONSES TO GENERAL COMMENTS***<br><br>**RESPONSE 1:** PRGs have been eliminated from the RI. All organic compounds and metals exceeding background are shown in the RI.<br><br>MCLs have been deleted from the RI; all analytes detected in the groundwater are shown in the RI. |
| **2. Executive Summary; The summary does not mention PRGs with respect to Nature and Extent and Fate and Transport; however, PRGs are prominently relied upon in these sections within the text. Thus, the Executive Summary seems to be more in line with the intent of the comments presented herein.** | **RESPONSE 2:** The use of PRGs and MCLs to screen the data for the RI has been deleted from the report. All organic compounds and metals above background in soil are discussed; all detected analytes for groundwater are shown. |
| **3. Page 2-26, 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.** | **RESPONSE 3:** BOD and COD have been removed from this table. |

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **4. Page 4-2, first full paragraph, Section 4.0; 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. Initially on page 4-1 and the top of page 4-2 the selection process for COPCs appears to be consistent with Section 6. However, in the first full paragraph the text indicates that the COPC list was further refined by comparisons to thresholds; i.e., residential PRGs, background or other regulatory agency standards. The text states that "The distribution of COPCs with concentrations greater than these thresholds is used to describe the extent of contamination."**<br><br>**This approach tends to confuse the issues. The discussion of nature and extent should focus on all analytes detected above the risk assessment selection criteria; not arbitrary comparison thresholds. The use of these thresholds results in figures in the RI report not displaying organic and inorganic analytes detected in groundwater. This skewed style of presentation tends to discount the possible significance of these analytes in groundwater. For example, the principal risk driver for this site is chromium in groundwater; yet the chromium concentrations and distribution are not shown on the figures since only analytes greater than MCLs are presented. For soil, MCPP is often displayed in Nature and Extent figures and identified as a COPC. While the presentation of the data is useful, MCPP is not considered a COPC within Section 6.** | **RESPONSE 4:** The nature and extent of contamination is based on all organic compounds that have been detected and all metals that exceed background concentrations in soil and all detected analytes in groundwater. |
| **5. Page 4-21, Figure 4-6; The authors should consider the identification of the detection limit for those analyses where that presentation currently only specifies "ND."** | **RESPONSE 5:** The ND was reported in the laboratory report along with a detection limit. The detection limit is provided on Table 4-3. |
| **6. Page 4-37, Section 4.4; The authors should consider that there is some difficulty in data evaluation by the reader with respect to the exposure scenarios used in the risk assessment. This is due to the** | **RESPONSE 6:** A summary table has been added to the end of Section 2 describing how the data is used in the various sections. The risk assessment |

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| **presentation of shallow soil in Section 4 as 0 to 10 feet, while shallow soil in the recreational exposure scenario for the risk assessment is for shallow soil between 0 to 2 feet. In actuality, only two samples out of seven were greater than 2 feet.** | sections also summarize what data was used in these efforts. |
| **7. <u>Page 4-41, Section 4.4.1</u>; The comparisons with residential PRGs are inappropriate for the reasons identified previously, as well as due to the fact that surface soil exposure are defined in Section 6 as recreational and thus, the residential scenario used to develop the soil PRGs would not apply. Here, as well as elsewhere in the subsections which follow, numerous organic analytes detected but below PRGs are excluded from the data presentation in the complementary figures. This screening step should be eliminated and the figures corrected.** | **RESPONSE 7:** The use of PRGs has been deleted from the RI. see response to Comment 4. |
| **8. <u>Page 4-45, Table 4-13</u>; This table and several other similar ones throughout the document should be corrected so that the units of any comparative criteria (if they continue to be used in the final draft) are consistent with the detection levels presented. For example, PRGs are in milligrams/kilogram, but detection levels for pesticides and herbicides are in micrograms/kilogram.** | **RESPONSE 8:** Units have been corrected in the draft final RI. |
| **9. <u>Page 4-51, Section 4.4.2</u>; The text notes that PRGs, pesticide reference levels, and MCAS El Toro background apply to shallow soils. It is not clear if the term shallow refers to the 0 to 2 ft interval of the Risk Assessment or the 0 to 10 foot interval of the soil sampling for the RI. In addition, the text notes that shallow soil threshold values were used for the purposes of comparison only, even though they clearly do not apply to the deep soils. This seems inappropriate and tends to confuse the significance of any subsequent presentations within the document. The authors should make comparisons to directly relevant criteria and abstain from the use of nonapplicable surrogates.** | **RESPONSE 9:** The division between shallow and subsurface was established in the Phase I RI. This RI does not make the attempt to redefine these soils, because the land use is uncertain at this time and a residential scenario may be designated (though highly likely at landfill sites). Therefore, the 10 feet depth for shallow and subsurface soil remains.<br><br>Though background concentrations for metals were developed from shallow soils, they are used for comparison against subsurface soils. For most of the sites at MCAS El Toro, this assumption should be reasonable because most sites are positioned on alluvial deposits which are derived from geologic formations in the foothills where the background samples were sampled. |

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| **Originator:** Bonnie Arthur, RPM<br>U.S. EPA<br><br>**To:** Joseph Joyce, BRAC Environmental Coordinator<br>MCAS El Toro<br><br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **10. Page 4-51, Section 4.4.2; Here and numerous times elsewhere in this document the text includes speculation regarding the association of laboratory or field contamination with detected analytes. These speculations seem unnecessary. The authors should confirm that verification and validation of the data have been performed and if so, identify definitively whether or not laboratory or field contamination affected the results. If there is ambiguity because the data were not validated, then there should be an explanation in the text.** | **RESPONSE 10:** The draft final RI does not contain this speculation because the data used in the draft final report has been fully validated while the data in the draft report was not. |
| **11. Page 4-51, Section 4.4.2; The text notes that TPH as diesel was reported at concentrations of about 2 percent in soil at 185 ft bgs. This seems highly unusual for this site since no other samples, shallow or deep had concentrations as high, and thus this occurrence requires greater explanation.** | **RESPONSE 11:** The actual units are mg/kg not %. |
| **12. Page 4-68, Section 4.5.1.2; The text here and on the figures and tables throughout should be corrected to indicate that Contract Required Detection Limits CRDL apply to inorganic analyses and Contract Required Quantitation Limits CRQL apply to organics.** | **RESPONSE 12:** This statement will be revised to read "detected" VOCs. |
| **13. Page 4-68, Section 4.5.1.2; As noted previously, many organics analytes were detected in groundwater; however, since they were below MCLs they were not presented on the summary figure - Figure 4-11. The presentation should be corrected in the final draft to clearly show the distribution of all anthropogenic analytes in groundwater.** | **RESPONSE 13:** As discussed above, all detected analytes in groundwater will be shown. |
| **14. Page 4-79, Table 4-20; The discussions in the text do not highlight and explain why concentrations of many dissolved inorganics were reported to be substantially higher in downgradient wells 05_DGMW68 and 05_NEW1. For example, chromium, zinc, and nickel were typically undetected in groundwater with the exception of these two wells.** | **RESPONSE 14:** This discussion has been revised and a comparison is made between upgradient and downgradient concentrations to assess the impacts of the landfill. |

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| **15. Page 4-81, Table 4-20; Confirm the units for each of the MCLs listed. For example, the MCL for chloride is not 250,000 milligrams/liter, but rather, 250,000 micrograms/liter.** | **RESPONSE 15:** MCLs are deleted in the drat final RI. |
| **16. Page 4-83, Section 4.5.3; The units for the MCL for bis(2-ethylhexyl)phthalate are incorrect and should be milligrams/liter. Likewise, the units for diethylphthalate and di-n-butylphthalate are incorrect and should be micrograms/liter.** | **RESPONSE 16:** This correction has been made. |
| **17. Page 4-83, Section 4.5.3; The units for 2,4,5-T are incorrect and should be micrograms/liter.** | **RESPONSE 17:** This correction has been made. |
| **18. Page 4-86, Section 4.5.8; 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.** | **RESPONSE 18:** The use of all MCLs will be deleted from the nature and extent section. |
| **19. Page 5-3, Section 5.1.2.2 and 5.1.2.3; Here and elsewhere, as noted in the preceding comments, comparisons with inappropriate threshold criteria are provided. Neither Nature and Extent nor Fate and Transport should be used to display incomplete and inapplicable risk screening which conflicts with the Baseline Risk Assessment.** | **RESPONSE 19:** No screening will be completed in the draft final RIs. |
| **20. Page 5-4, Table 5-1; The analytes listed in this table are not consistent with those presented as COPCs in the Nature and Extent section as well as in the Baseline Human Health Risk Assessment.** | **RESPONSE 20:** This section will be rewritten in particular to address risk drivers from Section 6. |
| **21. Page 5-11, Table 5-2; The presentation of data is helpful; however, the decision to only show "selected" analytes is peculiar. For example, MCPP is often mentioned in Nature and Extent yet it is not included in this table.** | **RESPONSE 21:** This table shows selected organics. Many of the properties shown on this table are not readily available from the literature. So this table is intended to illustrate the range of properties of the organics at the site. |

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| **22. Page 5-15, Section 5.2.1.4; The SVOCs most often detected were phthalates and yet these do not appear in the Risk Assessment. Were these SVOCs excluded from further consideration after data validation?** | **RESPONSE 22:** Many of these phthalates were below the 2 feet depth for soils which is the cutoff depth for industrial scenario assessment. |
| **23. Page 5-15&16, Section 5.2.1.5; It seems unlikely that the authors intended to state that the precipitation from solution of dissolved metal contaminants forms sediments. Confirm and correct as required.** | **RESPONSE 23:** The statement "forming sediments" will be removed. |
| **24. Page 5-16, Section 5.2.1.5; The text would benefit from the substitution of "organic" for the term "PAH."** | **RESPONSE 24:** Agreed. |
| **25. Page 5-16, Section 5.2.1.5; Rather than simply speculating about the possibility that elevated metal levels in groundwater may be due to phenomena reported in the scientific literature, the authors should use the voluminous data on-hand to evaluate the situation at Site 5. Comparisons of dissolved metals, electron acceptors, and general chemistry indicators should be made.** | **RESPONSE 25:** This evaluation has been included in the draft final RI. |
| **26. Page 5-16, Section 5.2.1.6; Here again, the authors should focus their attention on the assessment of the fate and transport of the analytes detected at the site and refrain from comparisons to arbitrary threshold criteria.** | **RESPONSE 26:** Discussion of comparators has been deleted from the draft final RI. |
| **27. Page 5-22, Section 5.3.2.1; Here also the text includes speculation related to laboratory contamination of samples. This type of discussion does not belong in Fate and Transport and these determinations should be definitive, not speculative, and included in the validation summary.** | **RESPONSE 27:** The data for the draft final RI will be fully validated. |
| **28. Page 5-22, Section 5.3.2.3; The text includes the sentence, "Trace concentrations of inorganics were reported in soil and groundwater." This statement requires revision. There is nothing particularly unusual about the presence of dissolved metals in groundwater, it is a** | **RESPONSE 28:** This section has been thoroughly revised to include all detected organics and metals above background. |

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| **completely normal occurrence and certainly samples collected upgradient support this. Likewise for metals in soil.** | |
| **29. Page 5-22, Section 5.3.2.3; The text makes the statement that the landfill may have leached manganese, nickel, and thallium to groundwater. Other than the site-specific upgradient to downgradient concentration comparison there is no assessment of regional trends or at least station-wide trends for these analytes. Were these analytes elevated due to leaching or is it possible that there were other processes involved; for example biodegradation which would tend to release metals?** | **RESPONSE 29:** Again, the discussion of metals in groundwater has been revised and includes a discussion of geochemical processes at the site. |
| **30. Page 5-22, Section 5.3.2.4; The text identifies a "...significant concentration of MCPP at 20 and 25 feet bgs in soil near the landfill..." and speculates that the presence "...indicates that some leaching may have occurred." It would be helpful if the authors defined what the term "significant" means in this context. In addition, since MCPP and its properties were not included in Table 5-2 it is not possible to assess the likelihood that MCPP would migrate through soil or groundwater.** | **RESPONSE 30:** This occurrence of MCPP appears to be a localized release and has not migrated to groundwater (over 120 feet from the deepest MCPP soil contamination). "Significant" in the draft RI meant exceedance of the PRGs. |
| **31. Page 5-23, Section 5.3.2.5; The text notes that high gross beta is common in areas such as Site 5. It would be helpful if the authors provided local and regional information regarding the reported levels of gross alpha and gross beta in Orange County.** | **RESPONSE 31:** This analysis of gross alpha and beta will focus on comparing upgradient to downgradient concentrations at the site. A basewide analysis is not in the scope of work for this site. |
| **32. Page 5-23, Section 5.3.3; As noted previously, the authors should focus their attention on the assessment of the fate and transport of the analytes detected at the site and refrain from comparisons to arbitrary threshold criteria; in this case MCLs.** | **RESPONSE 32:** This section has been revised to include all detected analytes in groundwater. |
| **33. Page 5-23, Section 5.3.3.3; The text notes that the inorganic groundwater levels were not significantly different from those measured station wide. This is appears to introduce a hypothesis not** | **RESPONSE 33:** This analysis has been revised to assess upgradient and downgradient concentrations at the site. |

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| **examined on the previous page. Exactly what constitutes a significant difference is not explained however; nor is there a listing of the data set that was used for the stationwide comparison. The intent of the first paragraph seems to be to assert that the landfill is not contributing to the elevated levels of certain inorganics in groundwater. Yet the second paragraph implies the opposite.**<br><br>**The text notes that "...wide off-site dispersion of metals from the landfill is not expected." The authors should explain how the factors listed in the preceding sentence would affect dispersion. The authors should clarify the intent of the term dispersion to avoid confusion with molecular diffusion and mechanical dispersion descriptions which often appear in fate and transport discussions.** | |
| **34. <u>Page 6-9, Section 6.2.3</u>; Include a table which lists the exposure point concentrations for each analyte under each exposure scenario.** | **RESPONSE 34:** A table presenting the exposure point concentrations is presented in the appendix. |
| **35. <u>Page 6-16, Table 6-16</u>; The majority of the risk CAL-EPA risk was due to ingestion of chromium as hexavalent chromium. The substantial difference ( about four orders of magnitude) between the U.S. EPA and CAL-EPA carcinogenic risk needs greater attention and assessment so that the information presented can be of use by risk managers.** | **RESPONSE 35:** Concur with comment. The text will present the results for risks derived by use of both U.S. EPA and Cal-EPA. A comparison between the two results provides useful information to risk managers in the context of decisions to be made about selection of remedies.. |
| **36. <u>Page 6-17, Section 6.4.1.2</u>; The authors should explain why chromium in groundwater was not speciated and if additional samples will be collected to address the high apparent risk due to hexavalent chromium.** | **RESPONSE 36:** . Hexavalent chromium sampling was not in the Phase II RI Work Plan, as approved by the BCT. Geochemical conditions of the groundwater were evaluated in the Draft Final RI and the conditions of the groundwater are not conducive to hexavalent chromium persistence. Hexavalent chromium analysis will be added to the groundwater monitoring plan for MCAS El Toro. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORTS*
*OPERABLE UNIT 2C-SITES 3 AND 5*
*MCAS EL TORO, CALIFORNIA*

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| ***ENCLOSURE E*** | |
| ***SPECIFIC COMMENTS*** | ***RESPONSES TO SPECIFIC COMMENTS*** |
| **Executive Summary, Human Health Risk Assessment, p. ES-8: For the Site 3 RI, the sentence which reads "The risk assessment concluded that the lifetime excess upper-bound cancer risk to the Site 3 industrial office worker was 1.7 x $10^{-6}$ *statewide*" has a typo in the last word of the sentence, which should be corrected to *site-wide*.** | **RESPONSE:** This will be corrected. |
| **Executive Summary, Conclusions, p. ES-8 to ES-9: For both Sites 3 and 5, we have several questions (see our comments regarding air sampling, below) regarding the conclusion that "controls for landfill gases do not need to be considered in the remedial design."** | **RESPONSE:** All air sampling complies with the South Coast Air Quality Management District requirements for landfills. This effort was designed primarily to fulfill that agency's requirements. |
| **Instantaneous Air Sampling, §4.2.1, p. 4-9 to 4-13: For both Sites 3 and 5, instantaneous air sampling performed over a two-day period just above the landfill surface showed no detectable levels of methane. However this type of sampling is unreliable for measuring methane emissions from a landfill for several reasons, including:**<br><br>**1. In an unlined landfill, it is difficult to predict where peak methane emissions will emanate, and emissions above the landfill surface on-, and off-site could easily be missed;** | **RESPONSE 1:** The walking pattern designed for the instantaneous sampling was prepared to cover most of the site. Also, any capping design will reduce methane emissions from the landfill. Finally, significant methane emissions would have been detected using these methods. |
| **2. Seasonal variations, including temperature, barometric pressure, and wind speed could exert a significant effect on ambient methane concentrations, which would not be picked up over a two-day sampling period, and;** | **RESPONSE 2:** True, however, the time restriction for completing the RI as in the Federal Facilities Agreement did not allow multiple iterations of the instantaneous sampling. |
| **3. Depending on the size and composition of the landfill, and the characteristics of the waste, methane concentrations could either be increasing, or decreasing over time.** | **RESPONSE 3:** The Site 3 landfill was principally a landfill for burned wastes and is old enough that methane production would have peaked several years |

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| **There are more reliable methods for estimating methane emissions from a landfill, including the use of emission modeling, which we recommend.** | ago.<br>Methane modeling is not as reliable as actual field measurements due to the conservative assumptions that need to be made in modeling. |
| **Integrated Surface Air Sampling, §4.2.2, p. 4-10 to 4-14: Total organic carbon (TOC, as methane) screening analysis yields little useful information regarding a landfill's methane or VOC emission potential. The fact that for Site 3, chloroform, methylene chloride, and 1,1,1-TCA ambient concentrations reported during the Site 3 Phase II RI exceed CARB median values for ten VOCs required to be controlled by California law, for 251 landfills statewide, is of greater significance for evaluating potential landfill VOC emissions.** | **RESPONSE:** By utilizing instantaneous, integrated, ambient, and soil gas information, the full emissions of the landfill are more clearly understood. |
| **Ambient Air Sampling, §4.2.3, p. 4-14 to 4-16: Regarding the statement on p. 4-16, "The concentrations of organic compounds measured in ambient air at Site 3 were of the same order of magnitude as those observed in urban areas," we draw a different interpretation from the data of Table 4-5. It appears that ambient concentrations of six of the 15 VOCs monitored (carbon tetrachloride, chloroform, chloromethane, Freon 12, 1,2,4-trichlorobenzene, and xylene) were either significantly above statewide urban average concentrations reported in the table, or else could not be directly compare due to a lack of statewide data in the CARB reference document. For Site 5, seven of 17 VOCs monitored were either above statewide urban average concentrations, or could not be directly compared. It should also be noted that VOC concentrations statewide have generally decreased since 1988, the year in which the statewide comparison data were collected.**<br>**In addition, ambient monitoring data have only limited value for estimating landfill VOC emissions. Under U.S. EPA Waste Disposal Regulations (AP-42), and New Source Performance Standards (40CFR60, part WWW), the recommended method for estimating VOC emissions from a landfill is via modeling. Since as many as 13 VOCs, including** | **RESPONSE:** For those compounds in the statewide study, none of the analytes at Sites 3 or 5 exceeded the maximum values in the state wide study and the difference of the site-specific and average state values were less than a magnitude order. There are no comprehensive values for assessing landfill emissions. In addition the SCAQMD was allowed an opportunity to review these documents and did not provide comments on this analysis.<br>Capping will be a presumptive remedy for these landfills and will provide a reduction in emissions, from the landfills. |

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| **benzene, chloroform, chloromethane, methylene chloride, 1,1,1-TCA, and vinyl chloride were found above detection limits in surface air samples above the Sites 3 and 5 landfills, and since VOCs are regulated air pollutants, a more detailed estimate of potential landfill emissions (tons/year) is necessary, in order to comply with all relevant air quality requirements, regarding the need for a landfill gas collection system.** | |
| **<u>Perimeter Landfill Gas, §4.31.2, p. 4-24 to 4-37</u>: The Lower Explosive Limit (LEL) of 5% (50,000 ppm) is not the appropriate ARAR for evaluating whether methane is migrating beyond the facility property boundaries of landfill Sites 3 and 5. The federal standard for migration of methane cited here, CCR Title 14, is based upon safety considerations (explosion) rather than toxicity, or degradation of air quality, and is therefore not adequately protective of human health, or the environment.** | **RESPONSE:** The concentrations of methane detected as shown on Figure 4-5 are 2 to 28.5 µg/L. Methane is not considered in a risk assessment and is usually considered as a health and safety issue where the LEL is an important factor. |
| **<u>Shallow Soil, §4.4.1.1, p. 4-41 to 4-52</u>: The background concentration of 11.4 mg/kg for cadmium, cited in Table s4-14 and 4-16, for Sites 3 and 5, respectively, appears to be about an order of magnitude higher than levels generally encountered in site soils from the Orange County area. As previously discussed, the background cadmium concentration distribution should be carefully examined, in order to eliminate outliers, which may be indicative of possible contamination from anthropogenic sources. Elimination of cadmium (detected at a maximum soil concentration of 3.2 ppm) as a COPC, due to an elevated background concentration, could result in an underestimation of health risk. It would be helpful to provide the cumulative probability vs. Concentration plots for the background data somewhere in the RI reports, or in an appendix.** | **RESPONSE:** Background concentrations for metals have been recalculated based on conversations with John Christopher of DTSC and Dennis Askvig of the Navy. |
| **<u>Groundwater, §4.5, p. 4-52 to 4-113, and Tables 4-20 and 4-31</u>: Although MCLs, which factor in technical feasibility and cost, are often utilized as ARARs for establishing cleanup criteria in groundwater, they are not the appropriate criteria for evaluating human health risk, or for the purpose of identifying COPCs. Use of MCLs for this purpose often results in omitting contaminants which significantly contribute to health risk from** | **RESPONSE:** All detected analytes in groundwater were considered in the nature and extent section. |

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| **ingestion and inhalation of contaminants in groundwater. Since COPCs in groundwater were not identified in this section, the purpose of comparing groundwater contaminant concentrations with MCLs in Tables 4-31 (Site 3) and 4-20 (Site 5) is unclear.** | |
| **<u>Volatile Organic Compounds, §4.5.1, p. 4-117 to 4-118</u>: Although the Site 3 monitoring well in which benzene was detected is located downgradient of Tank Farm No. 5 Area, there is not enough groundwater monitoring data to rule out the landfill as the source of the benzene contamination.** | **RESPONSE:** The landfill is a World War II landfill where burned wastes from an incinerator were disposed. Based on the age and type of wastes, benzene is not expected to be derived from the landfill. |
| **<u>Frequency of Compounds Detected in Groundwater -- Phases I and II RI, Site 3, Table 4-32, p. 4-133, and Site 5, Table 4-21, p. 4-84</u>: Of the site 3 compounds listed in this table, the maximum concentrations of the following contaminants exceed their respective PRGs, and hence should be retained as COPCs in the risk assessment: arsenic, benzene, chloroform, bis (2-ethylhexyl)phthalate, dieldrin, and heptachlor. The following contaminants are within a factor of ten of their PRGs, and should also be retained as COPCs: antimony, nickel, selenium, vanadium, DDT, and lindane.** | **RESPONSE:** All detected analytes are shown on this table. the use of comparators has been eliminated from the draft RIs, based on other comments. |
| **Chromium, since it has not been speciated, is not sufficiently characterized to determine whether it exceeds the Cal-EPA PRG of 0.16 µg/L for hexavalent chromium. In the absence of speciation, all chromium in groundwater (as well as in soil) must be considered in the hexavalent state.** | This is assumed in the human health risk assessment. However, based on geochemistry of the groundwater, hexavalent chromium is not likely to be present at detectable concentrations. |
| **Additionally, for Site 3, there appears to be calculation errors in Table 4-32, with respect to the frequency of detections (percent) for the following compounds: antimony, cadmium, chromium, cobalt, copper, selenium, silver, and zinc.** | |
| **There is a paucity of data for Site 5 groundwater contaminants, particularly for benzene, chlorobenzene, and toluene, which were analyzed for and detected in a single sample. This is not an adequate data set for estimating potential exposures and risks for these contaminants.** | The information for the December 1995/January 1996 groundwater sampling event at the downgradient wells at this site was used for the risk assessment. |

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| **Methane Migration, §5.3.1.3, p. 5-20 to 5-23: As indicated in the comment on §4.3.1.2 above, the Lower Explosive Limit (LEL) of 5% (50,000 ppm) is but one criteria for evaluation of potential hazard due to methane migration, but is not the most appropriate ARAR for evaluating whether methane is migrating beyond the facility property boundaries of the landfills at concentrations which pose potential health risks.** | **RESPONSE:** See response to comment above. |
| **Volatile Organic Compounds in Groundwater, §5.3.3.1, p. 5-25: As indicated in the comment on §5.3.2.1 above, there is not enough groundwater monitoring data for Site 3 to draw any definitive conclusions regarding the source of the benzene contamination.** | **RESPONSE:** See response to comment above. |
| **Groundwater Data, §6.1.3, p. 6-5 to 6-6: For Site 3, the selection of COPCs based on comparison of contaminants between downgradient and upgradient monitoring wells resulted in the identification of only three organics -- ammonia, chloroform, and diethyl phthalate.**<br><br>**A more complete explanation is needed for the elimination of the other VOCs in groundwater, which were detected at concentrations close to, or above their respective PRG values, including benzene, chloroform, bis (2-ethylhexyl)phthalate, dieldrin, DDT, heptachlor, and lindane (e.g., the pesticides dieldrin, DDT, heptachlor, and lindane were detected in only one groundwater sample from a monitoring well in January 1993, and were not detected in subsequent samples from that well in June 1993, or January 1996). For Site 5, benzene cannot be eliminated as a COPC on the basis of only one sample result.** | **RESPONSE:** All organic analytes which were detected in monitoring wells downgradient from Sites 3 and 5 were identified as COPCs. Analytes detected in monitoring wells other than the downgradient wells were not included as COPCs. |
| **Receptor Analysis, §6.2.1, p. 6-5 to 6-8: We agree with the selection of the office/industrial worker, recreational child, off-site resident, and utility maintenance worker, as potential receptors for Site 3, and the latter three receptors for Site 5. Despite short and infrequent exposures, however, the risks to the utility maintenance worker should still be quantitatively, rather than qualitatively assessed.** | **RESPONSE:** Sites that do not pose a risk under restrictive exposure conditions will, in turn, not pose a risk under other less restrictive land use scenarios. The risk to chronic exposures to children playing at site 5 and to the office/industrial worker and recreational child at site 3 was assessed as being greater than the risk to someone repairing underground utilities over a short time. Repair work would be infrequent and it would probably be completed within a few days. Furthermore, if repair work were performed at the landfills, |

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| | workers would wear protective clothing, thus curtailing exposures to the surrounding media. In addition, equipment to monitor releases of hazardous gases from the subsurface would be used in repair of underground utilities at landfills. Based on this exposure scenario, there is reasonable confidence that risks to a maintenance/utility worker will be much lower, if at all, than risks to a child and the industrial worker. Therefore, quantification of risk to a person conducting repair of underground utilities may not provide risk managers with additional information for use in decision making. |
| **<u>Toxicity Criteria for Dermal Exposure, §6.3.6, p. 6-13 to 6-16, and Tables PII-3 and R II-3</u>: The dermal absorption values used to calculate the Dermal Reference Doses shown in Table PII-3 and R II-3 for sites 3 and 5 should be consistent with the values cited in the U.S. EPA Region IX PRGs, and the Cal-EPA Endangerment Assessment Manual. Specifically the following values should be used: arsenic (3%), cadmium (0.1%), chlorinated dioxins and furans (3%), chlorinated insecticides (5%), PAHs (15%), and PCBs (15%).**<br><br>**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."**<br><br>**However, adjusting RfDs and CSFs for gastrointestinal absorption, does not always result in the dermal risk exceeding the oral risk "by a considerable margin." A combination of exposure factors, including the skin surface area exposed, the duration of exposure, the skin and oral absorption factors, and the ingestion rate, will determine which exposure route will predominate, and drive the risk. Often the oral route will predominate, even when toxicity factors, adjusted for oral absorption are used. Although we are not specifically objecting to the practice of using unadjusted toxicity factors to evaluate dermal risk, the rationale presented** | **RESPONSE:** Dermal risks were quantified for the draft report by use of the absorption factors presented in the Cal-EPA PRG table (Sept. 1995). However, for the final report, values presented in the Preliminary Endangerment Assessment Guidance Manual (DTSC 1994) will be considered in addition to the absorption factors present in the Cal-EPA PRG Table. The more conservative value among these two reference documents will be used in the estimation of the dermal route risk.<br><br>As suggested, the phrase will be deleted from the text. |

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| **here for not considering adjustment overstates the case, and the editorial remark is unnecessary.** | |
| **<u>On-Site Industrial Use, §6.4.2.1, p. 6-21 to 6-26</u>: This section erroneously refers to the U.S. EPA Region IX residential PRG for lead, citing a value of 130 mg/kg, which is the Cal-EPA residential PRG value.** | **RESPONSE:** The text will be modified to correctly cite the PRG. |
| **<u>Risk to Utility Maintenance Worker, §6.4.3, p. 6-24 to 6-31</u>: 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 quantitation of health risk for this particular receptor, employing appropriate exposure assumptions (e.g., a soil ingestion rate of 480 mg/day).** | **RESPONSE:** See response to comment § 6.2.1, p.6-5 to 6-8. Risks to a maintenance/utility worker exposed to surface soils, with a weight of 70 kg, an exposed skin surface area of 5000 $cm^2$, a soil ingestion rate of 480 mg/day, an exposure duration of 1 year and an exposure frequency of 10 days ( 2 workweeks) would be quantified approximately 46 times less than the risk to the playing child. A summary of the previous statement will be added to the text. |
| **<u>Exposure Assessment, §6.5.2, p. 6-27 to 6-33</u>: A discussion should be added to this section involving environmental fate and transport, including contaminant degradation rates and breakdown products, and the associated impact on health risks via each potential exposure pathway.** | **RESPONSE:** A discussion on the environmental fate and transport of various chemicals, including the risk drivers, is covered in Section 5, Fate and Transport. |
| **<u>Toxicity Assessment, §6.5.3, p. 6-27 to 6-34</u>: In this section, the following two 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.**<br><br>**In addition, the use of the hexavalent chromium toxicity criteria may not result in as large an overestimation of the groundwater risk as stated here,** | **RESPONSE:** The text will be modified to read as follows "...Depending upon the relative degree of exposure between the oral and the dermal route, the dose and risk associated with ingested chemicals should be higher than those associated with contact of chemicals with the skin..."<br><br>Use of the hexavalent chromium toxicity criteria results in an overestimation of the groundwater risks, since, as presented in Section 5, under the redox-pH range for groundwater conditions at the sites, the most probable species for chromium is trivalent chromium, which is not carcinogenic. |

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| **Originator:** Jeffrey M. Paull, Regional Toxicologist<br>U.S. EPA<br>**To:** Bonnie Arthur, RPM<br>U.S. EPA<br>**Date:** 20 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **since hexavalent chromium compounds are often more water soluble than the trivalent form, and may be the predominate species in groundwater.** | |
| **Fate and Transport, §7.1.3, p. 7-19 to 7-20: We do not agree with the statement for Site 3, that, "Groundwater is not currently a significant migration pathway due to the low level of contaminants present in this medium, "since the groundwater exposure pathway accounts for most of the estimated risk to potential off-site residents.** | **RESPONSE:** The risks in groundwater are overestimated due to the overestimation of risk from assuming total chromium is all hexavalent chromium. |
| **Risk Assessment, §7.1.4, p. 7-19 to 7-21: This section should include a comparison of the health-risks estimated for Sites 3 and 5, with the background risks calculated in Appendices P and R.** | **RESPONSE:** This section of the report summarizes findings. These comparisons are used to support the Section 6 effort (human-health). |
| **Conclusions, §7.2, p. 7-20 to 7-22: In the absence of more precise estimates of peak landfill emissions of methane and VOCs, it is premature to conclude that controls for landfill gas do not need to be considered in the remedial design for Sites 3 and 5.** | **RESPONSE:** The values for methane in air and soil gas indicate that very little if any methane is present at either Sites 3 or 5. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORTS*
*OPERABLE UNIT 2C-SITES 3 AND 5*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Virginia Garelick<br>Navy<br>**To:** Bernard Lindsey<br>Navy<br>**Date:** 13 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| ***GENERAL COMMENTS*** | ***RESPONSES TO GENERAL COMMENTS*** |
| **a. The subject documents address Site 3 (Original Landfill) and Site 5 (Perimeter Road Landfill). The objective of a Remedial Investigation (RI) is to collect sufficient data to adequately characterize a site. The information generated from this activity will be used to develop and evaluate 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.**<br>**On May 24, I provided comments on the Phase II RI reports for Site 2 (Magazine Road Landfill) and Site 17 (Communication Station Landfill). Because several of those comments apply to the subject documents they are reiterated in this memorandum.** | **RESPONSE a:** These comments and other comments received from the regulatory agencies on the draft RIs for Sites 2, 3, 5, and 17 have been incorporated into all draft final RIs. |
| **b. As was the case with Sites 2 and 17, I noted that many compounds have "R" data qualifiers. This means that the associated non-detected results are not useable for any purpose. Please see Attachment 2 for a summary of deficiencies that are associated with the "R" qualified data. Recommend that CLEAN II develop a corrective action plan to address these deficiencies.** | **RESPONSE b:** The "R" qualified data have been reviewed and described in the appendices on laboratory data. Based on this review, all site-specific completeness of analytical data exceeded the 90 percent completeness as required by the CLEAN program. |
| **c. Regarding the format of the reports, some of the appendices include information for the four 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 makes 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** | **RESPONSE c:** Where possible, only site-specific data will be included in the appendices for the draft final RIs. In several cases, the appendices provide the reports from subcontractors who submitted one report for all 4 sites. The site-specific data should be highlighted for the final RIs or an attempt will be made to include only site specific data for the appendices. |

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| **Originator:** Virginia Garelick<br>Navy<br>**To:** Bernard Lindsey<br>Navy<br>**Date:** 13 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **document more "user friendly." This can be accomplished by providing a dark band on the pages that contain site specific information.** | |
| **d. Site 3 - The relationship between Site 3 (original landfill) and 4 (ferrocene spill area) is not clear. In the Executive Summary there is no mention of Site 4, yet elsewhere in the report (Chapters 1, 2, 3 and 4) it appears that the sites have been combined. Please clarify whether both sites are addressed in the report.** | **RESPONSE d:** These relation of Site 3 and 4 will be discussed more fully in the report. |
| **e. Site 3 - The boundary of the landfill is not clear. For example, the report states that Site 3 (Original Landfill) encompasses an area of approximately 20 acres including 4 units. The executive summary explains that Unit 1 is designated as the area occupied by landfill activities. However, the report also states that the landfill area includes units 1 and 2 (page 2-17). Elsewhere the report states that the landfill includes units 1 and 4 (page 4-9). Please address this inconsistency.** | **RESPONSE e:** Units with landfilled wastes include Units 1 (landfill) and 4 former incinerator). This inconsistency will be corrected. |
| **f. Site 3 - Based on the site risk assessment (using U.S. EPA toxicity criteria) it appears that very little additional work needs to be accomplished at the site, other than preventing further erosion of Agua Chinon Wash stream banks. The excess lifetime cancer risk to Site 3 industrial worker was estimated at 1.6 x 10 -6. For a child exposed to sediments in Agua China Wash (and that's assuming that the child would play in the wash for 2 hours a day, 350 days a year, for 7 years) the cancer risk probability is 1.7 x 10 -8.** | **RESPONSE f:** According to the remedial action objectives, grading of the site is needed to better control runoff and erosion protection is needed along Agua Chinon Wash. |
| **The cancer risk for residential use of groundwater by an adult is 6.1 x 10-6 and 2.0 x 10-4 using U.S. EPA and Cal-EPA cancer toxicity factors, respectively. The majority of the risk is due to chromium, which was evaluated as hexavalent chromium. This is probably an overestimation of risk.** | The assumption that total chromium in groundwater is all hexavalent chromium does overestimate risks. An evaluation of the geochemistry of groundwater in the RI indicates that hexavalent chromium should not be detectable on site. |

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| **Originator:** Virginia Garelick<br>Navy<br>**To:** Bernard Lindsey<br>Navy<br>**Date:** 13 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **g. Site 5 - Based on the site risk assessment (using U.S. EPA toxicity criteria) it appears that very little additional work needs to be accomplished at the site. The excess lifetime cancer risk to a child exposed to surface soil at Site 5 is 5.4 x 10 -8. Please clarify which risk drivers are involved. (Page 6-14 states that "no risk drivers were identified for the soil medium", yet Appendix R presents IRIS files for the following COPCs: chromium, manganese, and nickel.)**<br>**The hazard index for children and adults drinking groundwater immediately downgradient of Site 5 is 4.7 and 2.0, respectively. However, greater than 50 percent of both risks is due to chromium (assuming the dissolved chromium concentration in groundwater is hexavalent chromium). Consequently the risk to groundwater may be greatly overestimated.** | **RESPONSE g:** According to remedial action objectives, grading is required to control runoff and additional capping is needed to reduce the potential for contact with landfill wastes. |
| **h. Please read Attachment 2 (Application of the CERCLA Municipal Landfill Presumptive Remedy for Military Landfills) and ensure that the subject documents follow this guidance. Additionally, please include this document in the list of references. (This comment applies to both Site 3 and Site 5.)** | **RESPONSE h:** The military landfill presumptive remedies were used to provide guidance with this RI and the following FS efforts. |
| ***SPECIFIC COMMENTS***<br>**Although the majority of my comments focus on Site 3, please make similar revisions to the Site 5 RI report where applicable.** | ***RESPONSES TO SPECIFIC COMMENTS*** |
| **Site 3: Original Landfill**<br>**a. Executive Summary**<br>**(i) Figure ES-1: Indicate the location of Tank Farm 5 (since this is discussed in the text). Additionally, provide a sentence that explains the location of the tank farm in relation to the site (page ES-6, last paragraph).** | **Site 3: Original Landfill**<br>**RESPONSE a(i):** This information will added to the draft final RI. |

*RESPONSE TO COMMENTS*
*DRAFT PHASE II REMEDIAL INVESTIGATION REPORTS*
*OPERABLE UNIT 2C-SITES 3 AND 5*
*MCAS EL TORO, CALIFORNIA*

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| **Originator:** Virginia Garelick<br>Navy<br>**To:** Bernard Lindsey<br>Navy<br>**Date:** 13 June 1996 | **CLEAN II Program**<br>**Contract No. N68-711-92-D-4670**<br>**CTO-0076**<br>**File Code: 0214** |
| **(ii) Page ES-8, human health risk assessment. The report states that 70% of the risk is due to potential dermal contact with 2,3,7,8-tetrachlorobenzofuran. What are the other key risk drivers? Please state.** | **RESPONSE a(ii):** The contribution to risks are more specifically provided in Section 6 and Appendix S. |
| **b. Chapter 1 - Introduction**<br>**(i) Page 1-5: DTSC and RWQCB are both part of Cal EPA. Make this change throughout the document. (This comment also applies to Site 5.)** | **RESPONSE b(i):** This change will be included in the RI. |
| **(ii) Page 1-6, Figure 1-3 (IRP program process): Add a box entitled "Remedial Design". (This comment also applies to Site 5.)** | **RESPONSE b(ii):** The remedial design and site closeout have been added to this figure. |
| **(iii) Figure 1-4, Site Plan. Provide the names of the units in the legend. (This comment also applies to Site 5.) Additionally, confirm that this map is consistent with the boundaries presented in Figure 3-1 of the BCP.** | **RESPONSE b(iii):** The unit names are presented on the figure. |
| **(iv) Page 1-19, last paragraph. The text should cite the COCs that exceeded human or ecological criteria.** | **RESPONSE b(iv):** These compounds are the analytes that were used to target the analysis in the Phase II RI. |
| **c. Chapter 2 - Study Area Investigation**<br>**(i) Figure 2-6, Soil Boring, Lysimeter, CPT and Monitoring Well Sample Locations. Please include the groundwater gradient on this map. (This comment also applies to Site 5.)** | **RESPONSE c(i):** This figure is intended to illustrate locations of wells. The gradients are shown on figures in Section 3 and Section 8. |
| **(ii) Table 2-8, Monitoring Well and Lysimeter Construction. Explain why the table indicates "not applicable" regarding well development of MWs 03_DBMW39 and 04_UGMW63.** | **RESPONSE c(ii):** These wells were checked prior to development and were found to be relatively free of sediment and did not need redevelopment. |
| **(iii) Page 2-48, Data Validation Qualifiers. Mention the significance of "J" qualifiers, too. (This comment also applies to Site 5.)** | **RESPONSE c(iii):** This will be added. |

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| **d. Chapter 3 - Physical Characteristics**<br><br>**(i) Page 3-25, Table 3-3 (Geotechnical Soil Test Results): Were soil measurements such as plasticity index taken? If so, provide this information. (This comment also applies to Site 5.)** | **RESPONSE d(i):** Plasticity index was not performed. Only those tests indicated were conducted. |
| **(ii) Page 3-28, Groundwater Quality. Report states that groundwater samples were collected from five Site 3 monitoring wells and three Site 4 monitoring wells. Table 3-6 (Groundwater Quality Parameters - Site 3) provides the sampling results for 7 monitoring wells, not 8 wells. Clarify which wells are associated with Site 3.** | **RESPONSE d(ii):** Only four monitoring wells from Site 3 were sampled, not five. The site designation is the first numbers of the well numbering system. |
| **e. Chapter 4 - Nature and Extent of Contamination**<br><br>**(i) Page 4-42. Edit the first paragraph which states that "in order to assess the potential impact of the Original Landfill on Site 3 soils, analytical results for shallow soil samples collected at Unit 1 and subsurface samples collected from borings for Unit 1 and Site 4 were evaluated."** | **RESPONSE e(i):** All detected organic compounds and metals above background concentrations in soils are shown in Section 4. |
| **(ii) Page 4-49, Table 4-16. Indicate that U.S. EPA Region 9 *residential* PRGs are provided in the table.** | **RESPONSE e(ii):** PRGs have deleted from the RI when discussing soil contamination. |
| **(iii) Page 4-141, Radionuclides. Edit the last sentence in the second paragraph which states "these activities so not exceed the California DHS primary MCL of 50 pCI/L." This paragraph should be consistent with the executive summary which states "the gross alpha and beta activity appears to be derived from naturally occurring sources in the area." Describe the typical range of these constituents in areas where shales and siltstone are prevalent. (This comment also applies to Site 5.)** | **RESPONSE e(iii):** Gross alpha and beta in groundwater are evaluated in the draft final RI by comparing upgradient to downgradient activities. |

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| **f. Chapter 6 - Human Health Risk Assessment**<br>**(i) Page 6-16, Toxicity Factors for COPCs Without Assigned Criteria. Why did we deviate from the proposed risk approach regarding lead? (This comment also applies to Site 5.)** | **RESPONSE f(i):** Lead concentrations below the PRGs will result in blood lead levels below the acceptable concentration of 10 micrograms per deciliter (µg/dL). Consequently, the assessment of the risk presented by lead consisted in first comparing the concentration of lead in soil and groundwater to the residential Cal-EPA PRG of 130 mg/kg and the U.S. EPA tap water PRG of 4.0 µg/L, respectively. For the soil medium, the comparison is based on the residential Cal-EPA PRG instead of the U.S. EPA PRG (400 mg/kg) because the Cal-EPA PRG is lower and more stringent, rendering the approach conservative. In the event that the PRG is exceeded, the Cal-EPA pharmokinetic model is then utilized and the blood lead concentration is compared to the acceptable concentration of 10 micrograms per deciliter (µg/dL). |
| **(ii) Page 6-34. Recommend providing a section entitled "conclusions." Briefly state the risk drivers and present the excess cancer risks (using U.S. EPA toxicity criteria). Explain how background levels have been factored into the risk assessment and the extent that nickel, manganese, and chromium exceed background.**<br>**Highlight the fact that the use of the hexavalent chromium RfD and Cal EPA toxicity criteria has provided an extremely conservative risk estimate for Site 3. (This comment also applies to Site 5.)** | **RESPONSE f(ii):** The risk characterization section presents the risk drivers by use of both U.S. EPA and Cal-EPA toxicity criteria. For perspective, background risks are factored into the results section for all chemicals classified as risk drivers. A comparison between onsite and background risks provides useful information to risk managers in the context of decisions to be made about selection of remedies.<br>Concur with comment. The text will emphasize that use of the hexavalent chromium RfD and Cal-EPA slope factor provides a highly conservative risk estimate for these two sites. |
| **h. Chapter 7 - Conclusions and Recommendations**<br>**(i) Page 7-21, edit second bullet which states "excavation workers may be exposed to potential hazardous wastes and potential concentrations of methane that can be at explosive levels." This is not consistent with Section 7.2 (conclusions) which states that methane does not seem to be a problem at this site.** | **RESPONSE h(i):** Methane has been detected at the site so as a health and safety issue, the methane has a potential to exceed explosive levels until proven otherwise. |

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| **i. <u>References</u>. Add the latest presumptive remedy guidance (see Attachment 1) to the list of references. (This comment also applies to Site 5.)** | **RESPONSE i:** The military presumptive remedies reference will be added to the references. |
| **j. <u>Appendix A - Field Change Notices</u>. The field change notices apply to all four landfill sites. Recommend removing all information that does not pertain to Site 3 (and Site 5, as appropriate).** | **RESPONSE j:** These field change notices have an effect on almost all field activities conducted at the landfills. |
| **k. <u>Appendix B - Land Survey Data</u>.** | **RESPONSE k:** |
| **l. <u>Appendix C - Geophysics Report (Norcal).</u> This appendix includes a description of electromagnetic surveys and maps for all of the landfills at El Toro. Recommend eliminating all data that does not relate to Site 3 (and Site 5 as appropriate).** | **RESPONSE l:** Where possible, site-specific data will be included. |
| **m. <u>Appendix D - Air Sampling Information</u>. This appendix includes air sampling information for all of the landfills at El Toro. Recommend eliminating all data that does not relate to Site 3 (and Site 5 as appropriate).** | **RESPONSE m:** Where possible, site-specific data will be included. |
| **n. <u>Appendix E - Soil Gas Survey Report</u>. This appendix addresses all of the landfill sites at El Toro. Recommend removing all information that does not pertain to Site 3 (and Site 5 as appropriate).** | **RESPONSE n:** Where possible, site-specific data will be included. |
| **o. <u>Appendix I - Well Development Logs and Well Sample Records</u>. Two of the well development logs were missing. Please provide the logs for 03_DBMW39 and 04_DBMW63.** | **RESPONSE o:** These two wells were relatively clear when an initial inspection was performed and did not need to be redeveloped, purging prior to sampling was sufficient to assure representative samples from these wells. |
| **p. <u>Appendix J - Meteorology and Climate</u>. This appendix documents weather patterns, including windspeed, wind direction at Site 2. Are these conditions expected to be the same at Site 3 (or Site 5)? Please clarify.** | **RESPONSE p:** These conditions are the same for all sites as meteorological data was collected during air sampling at all sites. |
| **q. <u>Appendix K - Geotechnical Laboratory Reports</u>. This appendix includes the laboratory reports for all of the soil samples collected at El Toro. Recommend removing the reports that are not associated** | **RESPONSE q:** Where possible, site-specific data will be included. |

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| **with Site 3 (and Site 5). At a minimum, provide a list of sample identification numbers that are associated with Site 3 (and Site 5 as appropriate).** | |
| **r. <u>Appendix L - Background and Reference Levels</u>.**<br>**(i) <u>Page L-2, parametric approach</u>. What is the level (.05, .10, .20)? (This comment also applies to Site 5.)** | **RESPONSE r(i):** This appendix has been replaced by one that explains selection of metals as COPCs. Calculation of background concentrations is provided in a technical memorandum. |
| **(ii) <u>Page L-20, nonparametric approach</u>. 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." (This comment also applies to Site 5.)** | **RESPONSE r(ii):** This appendix has been replaced by one that explains selection of metals as COPCs. Calculation of background concentrations is provided in a technical memorandum. |
| **s. <u>Appendix M - Laboratory Analytical Data</u>. Recommend including a section entitled "Corrective Action Measures". Briefly explain what data quality problems occurred, why, and what steps will be taken to prevent their reoccurrence in the future. (This comment also applies to Site 5.)** | **RESPONSE s:** Addition information has been added discussing the "R" values and percent completeness. |
| **<u>Site 5: Perimeter Road Landfill</u>**<br>**a. <u>Chapter 1 - Introduction</u>**<br>**(i) <u>Table 1-1 (Site 5 Objectives, Data Types, and Data Uses)</u>. Recommend editing the potential RAO which states "prevent surface water in washes from contacting landfill." There are no washes near the site.** | **<u>Site 5: Perimeter Road Landfill</u>**<br>**RESPONSE a(i):** This will be edited out. |

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| **b. <u>Chapter 3 - Physical Characteristics</u>**<br>**(i) <u>Page 3-10, Potential for Ponding</u>. Recommend adding a sentence to the end of the paragraph. Explain that given the precipitation history at El Toro, site geology (silty sand), and Phase II Geotechnical results, it is unlikely that ponding will occur. (This comment also applies to page 5-22 "infiltration transport".)** | **RESPONSE b(i):** Ponding may occur in localized areas on the site where low spots exist. |
| **c. <u>Chapter 4 - Nature and Extent of Contamination</u>**<br>**(i) <u>Figure 4-1, Compounds Detected Above Groundwater MCLs</u>. Include the respective MCLs for the COCs detected.** | **RESPONSE c(i):** MCLs have been deleted from the RI. All detected analytes in the groundwater are discussed. |