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MCAS EL TORO
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CLEAN II TRANSMITTAL/DELIVERABLE RECEIPT

Contract No. N-68711-92-D-4670 **Document Control No.:** CTO-0079/0370

File Code: 0222

TO: Commanding Officer
Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS.RS (O)
Building 128
1220 Pacific Highway
San Diego, CA 92132-5187

DATE: March 18, 1997
CTO #: 0079
LOCATION: MCAS El Toro

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

DESCRIPTION: Response to Comments Documents (Navy, U.S. EPA [2], and DTSC), Draft Phase II Remedial Investigation Report Operable Unit 3A Sites (Various Dates)

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401 West A Street
Suite 1000
San Diego, CA 92101-7905

CLEAN II Program
Bechtel Job No. 22214
Contract No. N68711-92-D-4670
File Code: 0222

IN REPLY REFERENCE: CTO-0079/0370

March 18, 1997

Naval Facilities Engineering Command
Southwest Division
Mr. Richard Selby, Code 57CS.RS (O)
Building 128
1220 Pacific Highway
San Diego, CA 92132-5187

Subject: Response to Comments Documents (Navy, U.S. EPA [2], and DTSC), Draft Phase II Remedial Investigation Report Operable Unit 3A Sites

Dear Mr. Selby:

It is our pleasure to submit these copies of the four Response to Comments documents for the Draft Phase II Remedial Investigation Report Operable Unit 3A Sites, MCAS El Toro, California, prepared under Contract Task Order (CTO) 0079 and Contract No. N68711-92-D-4670. These documents are being transmitted concurrent with submittal of the Draft Final Phase II Remedial Investigation Report Operable Unit 3A Sites (Volumes I through III).

We appreciate the opportunity to be of service to you on this project. If you have any questions or would like further information, please contact me at (619) 687-8804.

Sincerely,

Craig L. Carlisle
Project Manager

CLC/sp

Enclosures: Response to Comments, Draft Phase II Remedial Investigation Report Operable Unit 3A Sites - Navy (Virginia Garelick)
Response to Comments, Draft Phase II Remedial Investigation Report Operable Unit 3A Sites - U.S. EPA (Glenn R. Kistner)
Response to Comments, Draft Phase II Remedial Investigation Report Operable Unit 3A Sites - U.S. EPA (Jeffrey M. Paull)
Response to Comments, Draft Phase II Remedial Investigation Report Operable Unit 3A Sites - DTSC (Tayseer Mahmoud)

RESPONSE TO COMMENTS
DRAFT PHASE II REMEDIAL INVESTIGATION REPORT
OPERABLE UNIT 3A
MCAS EL TORO, CALIFORNIA

Originator: Virginia Garelick Navy **To:** Bernie Lindsey Navy **Date:** 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
GENERAL COMMENTS	***RESPONSES TO GENERAL COMMENTS***
a. **The subject document addresses 14 IR sites comprising OU-3 at MCAS El Toro. The objective of a Remedial Investigation (RI) is to collect sufficient data to adequately characterize a site and to determine whether further remedial action is warranted. The reports adequately followed U.S. EPA guidance for preparation of RI reports.**	**RESPONSE a:** The OU-3A RI team is pleased that the Navy has approved and has provided their comments on the OU-3A Draft RI report. Navy and other review comments have been incorporated into the "red-line strike-out" version of the Draft Final RI report.
b. **With the exception of three sites, NFRAP was recommended. This conclusion was generally based on 10-5 residential risk. Last year, Mr. Scandura of DTSC mentioned that the State of California had "tentatively decided to require deed restrictions on sites that posed a residential risk of greater than 10-6." Has the State issued its risk policy? If so, how will the State's policy affect the closure of these sites?**	**RESPONSE b:** At the 6 February 1997 BCT Meeting, the DTSC agreed to No Further Action recommendations based on the residential scenario for Sites 4, 6, 9, 10, 11 (Unit 3), 12 (Units 1, 2, and 4), 13, 15, 16 (Unit 3), 19, 20, 21, and 22.
c. **Regarding the data validation reports for the OU-3A sites, I noted that nearly 30 sample delivery groups were flagged "R". This means that the associated non-detected results are not useable for any purpose. This is not acceptable. (Please see comments on Appendix J for details.)**	**RESPONSE c:** "R" flagged data within these 30 delivery groups represents only a small fraction of the data within each delivery group. The "R" flagged data is primarily associated with non-detect antimony results. As stated in Appendix I (PARRC) the data (OU-3A) met the completeness criteria of greater than 95% for all decision data.
d. **As mentioned earlier, most of the sites discussed in this report were recommended for NFRAP; however, the statements to support these conclusions were riddled with "caveats". Recommend paring down the discussion in sections 6.4.3 - 6.5 (qualifiers, uncertainly analysis, data evaluation).**	**RESPONSE d:** Sections 6.4.3 through 6.5 will be revised to minimize the use of "caveats".
e. **The document failed to mention the MCAS El Toro community Reuse Plan that was developed in August 1996. Add a paragraph on page 3-22 to discuss the community Reuse Plan and the proposed land use for the OU-3A sites. Also, recommend adding a paragraph**	**RESPONSE e:** Section 3 of the Main Body of the Draft Final RI report will be revised to present a discussion of the Community Reuse Plan that will include a figure and table addressing the land use implications on the OU-3A sites. In addition, site-specific information on the Community Reuse Plan will also be

RESPONSE TO COMMENTS
DRAFT PHASE II REMEDIAL INVESTIGATION REPORT
OPERABLE UNIT 3A
MCAS EL TORO, CALIFORNIA

Originator: **Virginia Garelick** **Navy** **To:** **Bernie Lindsey** **Navy** **Date:** **01 January 1997**	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
GENERAL COMMENTS	***RESPONSES TO GENERAL COMMENTS***
a. The subject document addresses 14 IR sites comprising OU-3 at MCAS El Toro. The objective of a Remedial Investigation (RI) is to collect sufficient data to adequately characterize a site and to determine whether further remedial action is warranted. The reports adequately followed U.S. EPA guidance for preparation of RI reports.	**RESPONSE a:** The OU-3A RI team is pleased that the Navy has approved and has provided their comments on the OU-3A Draft RI report. Navy and other review comments have been incorporated into the "red-line strike-out" version of the Draft Final RI report.
b. With the exception of three sites, NFRAP was recommended. This conclusion was generally based on 10-5 residential risk. Last year, Mr. Scandura of DTSC mentioned that the State of California had "tentatively decided to require deed restrictions on sites that posed a residential risk of greater than 10-6." Has the State issued its risk policy? If so, how will the State's policy affect the closure of these sites?	**RESPONSE b:** At the 6 February 1997 BCT Meeting, the DTSC agreed to No Further Action recommendations based on the residential scenario for Sites 4, 6, 9, 10, 11 (Unit 3), 12 (Units 1, 2, and 4), 13, 15, 16 (Unit 3), 19, 20, 21, and 22.
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d. As mentioned earlier, most of the sites discussed in this report were recommended for NFRAP; however, the statements to support these conclusions were riddled with "caveats". Recommend paring down the discussion in sections 6.4.3 - 6.5 (qualifiers, uncertainly analysis, data evaluation).	**RESPONSE d:** Sections 6.4.3 through 6.5 will be revised to minimize the use of "caveats".
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Originator: Virginia Garelick Navy **To:** Bernie Lindsey Navy **Date:** 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
for each of the site descriptions to indicate the planned site reuse.	provided in Section 1.1.1 of Attachments A (Site 4) and H (Site 13) and in Section 1.2.1 of Attachments B through G (Sites 6, 8, 9, 10, 11, and 12) and I through N (Sites 15, 16, 19, 20, 21, and 22).
f. Add a discussion in Section 7 to discuss "risk management". Explain the NCP provision regarding acceptable risk range and how this relates to the OU-3A sites. Additionally, provide a brief discussion regarding risk management in each of the OU-3A site descriptions.	**RESPONSE f:** A discussion of risk management will be provided in Section 6.6 of the Main Body of the Draft Final RI report. A discussion of risk management is also provided in the Section 7 of the site specific attachments.
g. It's not clear what happened to the remainder of the OU-3 sites. Revise Table 1-1. Explain which sites have been deferred to the petroleum program, which have been addressed in removal actions, and which sites have been deferred to OU-3B. Additionally, provide the rationale for deferring sites to OU-3B. Finally, per Lynn Hornecker's request, please clarify whether Units 2 and 3 of Site 20 and Unit 4 of Site 19 have been deferred to the petroleum program.	**RESPONSE g:** Table 1-1 in the Main Body of the Draft Final RI report will be revised to include the information requested.
h. Include groundwater gradient information on Figures 2-1 for each of the site-specific reports.	**RESPONSE h:** A footnote indicating the groundwater gradient will be added to Figures 2-2, 4-2, and 4-13 of Attachment J (Site 16). The local groundwater gradient value will also be incorporated into the discussion of hydrogeology (Section 3.4) for Site 16. At the remaining sites, the identified contamination is limited to the shallow soil interval and groundwater conditions are not a factor in assessing the need for further action and consequently this information will not be added to the other OU-3A Site Figures 2-1 in the Draft Final RI report.
i. Add a section in Chapter 4 to discuss the background study that was conducted at El Toro. Provide a table of background values.	**RESPONSE i:** Section 4 in the Draft Final RI report will be revised to include the information requested.
SPECIFIC COMMENTS	***RESPONSES TO SPECIFIC COMMENTS***
a. Executive Summary	**a. Executive Summary**
(i) Page ES-9, second paragraph. Clarify the following sentence "the storm sewer systems and engineered surface drainages are present	**RESPONSE a(i):** These sections will be revised to indicate where storm drain

Originator: Virginia Garelick Navy **To:** Bernie Lindsey Navy **Date:** 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
near a majority of the OU-3A sites; however, they are not present within the boundary of most of the sites." (Same comment applies to page 5-2 and 5-3).	inlets are present within the site boundaries.
(ii) Page ES-11, second paragraph. The rationale for grouping site units is not clear. Provide an example to illustrate this.	**RESPONSE a(ii):** An example will be provided on this page in the Draft Final RI report.
b. Chapter 1 - Introduction **(i) Figure 1-3. Add removal actions to the chart.**	**RESPONSE b(i):** Removal Actions will be added to this figure in the Draft Final RI report.
(ii) Table 1-1. Delete footnotes that state "Phase II RI/FS sampling will be completed at a later date."	**RESPONSE b(ii):** These footnotes will deleted in the Draft Final RI report.
(ii) Table 1-2. Title should read "IRP OU-3A Site Characteristics."	**RESPONSE b(iii):** The title will be changed in the Draft Final RI report.
c. Chapter 3 - Physical Characteristics of MCAS El Toro **(i) Page 3-22, second paragraph. Mention historical usage of herbicides and pesticides.**	**RESPONSE c(i):** This page will be revised to include the information requested.
e. Chapter 4 - Nature and Extent of Contamination **(i) Page 4-1. Provide a table that summarizes the nature and extent of contamination at the OU-3A sites.**	**RESPONSE e(i):** The conditions unique to each site, including nature and extent of contamination, are presented in the site-specific attachments. Because the OU-3A sites represent areas that not only have diverse histories and types of contamination, but are also situated in widely scattered locations throughout MCAS El Toro, it was most efficient to evaluate each site on the basis of its individual characteristics and conditions. Using that approach, the purpose of the main section of the report was to present only general background information that was applicable to all of the OU-3A sites. Therefore, a table that summarizes the nature and extent of contamination at the OU-3A sites will not be provided.

Originator: Virginia Garelick Navy **To:** Bernie Lindsey Navy **Date:** 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
f. <u>Chapter 5 - Fate and Transport</u> **(i) Provide a table that summarizes the groundwater sampling results at the OU-3A sites.**	**RESPONSE f(i):** One of the primary goals of the OU-3A Draft RI Report was to focus attention on the factors important to arriving at a decision on the need for further action at each OU-3A site or area of concern within a site. With the exception of Site 16, the Phase I and Phase II investigation results indicate that the impacts of historic site activities are essentially confined to the interval between 0 and 10 feet bgs. With the exception of Site 16, contaminants in soil at the OU-3A sites do not pose a threat to groundwater. Therefore, groundwater sampling results will not be included for any of the OU-3A sites except Site 16 in the Draft Final RI report.
g. <u>Chapter 6 - Human Health Risk Assessment</u> **(i) <u>Page 6-29, first paragraph</u>. State the background levels for arsenic and manganese.**	**RESPONSE g(i):** This information is already included on page 6-28. Per General Comment **i** on page 2 of this document, additional information pertaining to background levels will be provided in Section 4 of the Main Body of the Draft Final RI report.
(ii) <u>Page 6-14, Noncancer Health Effects</u>. Expand the second paragraph. Explain the significance of a hazard index that is greater than 1. What hazard index level (range?) would typically necessitate remedial action?	**RESPONSE g(ii):** An HI value of 1.0 indicates that lifetime exposure has limited potential to cause an adverse effect in sensitive populations. A value exceeding 1.0 does not by itself require remedial action. Values exceeding 1.0 are generally evaluated on a site specific basis taking into account types of contaminants, historical activities, and systematic effects of COPCs. A section on risk management (Section 6.6) providing this information will be added to the Main Body of the Draft Final RI report.
h. <u>Chapter 7 - Conclusions and Recommendations</u> **(i) This section is incomplete. Recommend providing a brief overview of the findings. Explain that, on the basis of the human health risk assessment, only three sites are recommended for a feasibility study whereas for the other sites, no further action is recommended. Add recommended RAOs for Sites 12, 16, and 21.**	**RESPONSE h(i):** Section 7.0 will be expanded to include this information.

Originator: Virginia Garelick Navy **To:** Bernie Lindsey Navy **Date:** 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
i. <u>Chapter 8 - Reference</u> **(i) Add the following references:** - **MCAS El Toro Community Reuse Plan, dated August 1996** - **Technical Memorandum, Background and Reference Levels, dated October 1996.**	**RESPONSE h(i):** These references will be added to Section 8 of the Main Body of the Draft Final RI report.
j. <u>Attachment C - Site 8 - DRMO Storage Yard</u> **(i) I was surprised that lead was not a risk driver given that it exceeded background by nearly 100 times. Provide a brief explanation (page C6-14) why lead is not a problem at this site.**	**RESPONSE j(i):** This information is presented in Section 6.4.1.1 on page C6-26 of the Draft OU-3A RI Report. The blood lead concentrations were calculated using the Cal-EPA pharmocokinetic model for the Unit 1 and 4 area of concern under the industrial scenario. The estimated concentrations of lead in blood did not exceed the 10 µg/dL threshold value. A similar calculation was not performed under the residential scenario because the 95-percent UCL for lead was an order of magnitude lower than the Cal-EPA residential PRG for lead (the most conservative value). For the reasons stated above lead was not considered a risk driver.
(ii) Unit 1 (East Storage Yard) and Unit 4 (PCB Spill Area) were combined for risk purposes. Explain the rationale for this. (The justification presented on page C6-1 is not adequate, e.g., that "the distribution of contaminants in shallow soil is continuous across the boundaries between Units 1 and 4".)	**RESPONSE j(ii):** Site 8 Units 1 and 4 were combined into one area of potential concern for the evaluation of nature and extent (Section 4) and risk (Section 6) based on the following criteria: common historical activities (the storage of electrical panels); location of the site units relative to each other (Site 8 Unit 4 is contained within Unit 1), the nature and magnitude of the chemical contaminants at contiguous units (both units contain PCBs in shallow soil), and the physiographic characteristics of the various units (both units are level, unpaved, unvegetated, and within the fenced storage yard). In the Draft Final OU-3A RI Report, Section 4.3 of this attachment (where subject of combining units is introduced) has been revised to include the information presented in this comment response. In addition, the discussion on page C6-1 has been revised to direct the reader to the Section 4.3 explanation.
k. <u>Attachment E - Site 10 - Petroleum Disposal Area</u> **(i) <u>Page E4-2, second paragraph</u>. Edit this paragraph. It's not clear why the groundwater results were omitted from this document.**	**RESPONSE k(i):** Section 4.2 in the Draft Final RI report will be revised to clarify why groundwater results were omitted.

Originator: Virginia Garelick Navy **To:** Bernie Lindsey Navy **Date:** 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
(ii) <u>Page E4-29, first paragraph</u>. Clarify why soil samples were not analyzed for VOCs during the Phase II RI.	**RESPONSE k(ii):** Section 4.3.1.2 in the Draft Final RI report will be revised to clarify why Phase II soil samples were not analyzed for VOCs.
p. <u>Attachment G - Site 12 - Sludge Drying Beds</u> **(i) The industrial risk is higher than the residential risk for Unit 3. Explain this.**	**RESPONSE p (i):** The explanation is presented in Section 6.4.5 on page G6-29. At Unit 3, exposure to the COPCs under the industrial scenario is based on their maximum reported concentrations within the 0 to 2 feet bgs interval because of the small number of data points. Many of analytes identified as risk drivers at Unit 3 are reported at their highest concentrations in this 0 to 2 feet bgs interval. Because the residential scenario incorporates a larger number of soil samples (0 to 10 feet bgs), exposure to many COPCs is based on the 95-percent upper confidence limit (UCL) rather than the maximum concentration. As an example, the exposure point concentration for Aroclor 1254 is 2.5 mg/kg (maximum concentration) under the industrial scenario and 0.048 mg/kg (95 percent UCL) under the residential scenario.
(ii) The justification for NFRAP for Unit 1 needs work. (The cancer risk for Unit 1 is nearly the same as Unit 3 which has been recommended for further action.)	**RESPONSE p(ii):** The cancer risks for both of these units are within the acceptable ranges as stated in the NCP (10^{-4} to 10^{-6}), however, Unit 3 (drainage ditch) was recommended for further action to mitigate the threat to surface water in Bee Canyon Wash.
q. <u>Attachment K - Site 19 - Aircraft Expeditionary Refueling Site</u> **(i) Report should mention that clean fill was placed on Unit 2 (in the course of a "removal action" to reduce human health risk).**	**RESPONSE q(i):** Section 1.2.2 of Attachment K of the Draft Final RI report will be expanded to include this information.
s. <u>Appendix A - Field Change Notices</u> **(i) Some of the field change notice request forms were incomplete. For draft final report please ensure that all forms contain authorization signatures. Also noted that some of the authorization signatures bore dates before change request was submitted.**	**RESPONSE s(i):** These issues will be resolved in the Draft Final RI report.

Originator: Virginia Garelick, Navy To: Bernie Lindsey, Navy Date: 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
t. Appendix B - Survey Data **(i) I noted there are inconsistencies with the information presented in this appendix and Appendix E (Soil Boring Logs). In other words, there should be a boring/well coordinate for each boring/well that was drilled. For Site 12, for example, Appendix B lists 34 coordinates, whereas Appendix E indicates there should be 36 coordinates. Please explain this discrepancy. I noted similar problems with the information related to Sites 6, 9, 10, 11, 15, 16, 19, and 20.**	**RESPONSE t(i):** A review of the data presented in Appendices B and E identified missing and or extra coordinate listings for soil borings at Sites 6, 8, 10, 12, and 15 in Appendix B. A revised listing of the Phase II sampling location coordinates will be included in the Draft Final RI report.
u. Appendix D - Background and Reference Levels **(i) Include date of report in footnote.**	**RESPONSE u(i):** The date of the reports will be included for these tables in the Draft Final RI report.
v. Appendix E - Soil Boring Logs **(i) Include reference for Figure E-1.**	**RESPONSE v(i):** There is no specific reference for the symbols in this figure. The symbols shown in this table are those that were used in all of the OU-3A site boring logs.
w. Appendix J - Data Validation Reports **(i) The following Sample Delivery Groups (SDGs) contained "R" qualified data:** **55717 56119 56750 57494** **55720 56350 56787 58059** **55796 56409 56806 58817** **55811 56499 56841 55874** **56663 57177 56048 66727** **57277 56048A 56740 57307** **57472** **The "R" qualifiers were assigned because acceptance criteria was often exceeded with respect to the following: (1) technical holding**	**RESPONSE w(i):** Comment noted. See General Comment c.

Originator: Virginia Garelick Navy **To:** Bernie Lindsey Navy **Date:** 01 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
times exceeded; (2) baseline rise on PID detected on both columns (3) percent recoveries outside QC limits; (4) compound quantitation and CRQLS; (5) matrix spike analysis (%R); (6) laboratory control samples, field blanks; (7) surrogate recovery (%R).	
x. <u>Appendix M - Immunoassay Protocol Sensitivities to PAHs and PCBs</u> **(i) Please provide the test kit sensitivity and assay protocol for the ENSYS PAH PIS Soil Test.**	**RESPONSE x(i):** This information will be provided in the Draft Final RI report.

RESPONSE TO COMMENTS
DRAFT PHASE II REMEDIAL INVESTIGATION REPORT
FOR OPERABLE UNIT 3A
MCAS EL TORO, CALIFORNIA

Originator: Glenn R. Kistner, Project Manager U.S. EPA **To:** Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro **Date:** 21 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
COMMENTS	*RESPONSES TO COMMENTS*
1. Executive Summary, p. ES-20, paragraph 2. **The extent of contamination has not been fully defined at sites 8, 9, 11, and 16, and further action at these sites to resolve the data gaps should be recommended.**	**RESPONSE 1:** The nature and extent of contamination at all of the OU-3A sites has been defined. Phase II Tier 1 sampling was implemented in accordance with the approved Work Plan and Field Sampling Plan for the remedial investigation at the OU-3A sites. Phase II Tier 1 sampling results were presented and recommendations for additional work (Tier 2 or Tier 3 sampling) were made to the BCT. At that time, decisions were made concerning the locations for additional sampling if deemed necessary. Results of additional sampling were also presented to the BCT. Phase II sampling activities were considered complete when the BCT agreed that the nature and extent of contamination at each site had been defined.
2. Figure 1-2. **Several of the sites listed in Table 1-1 are not included on this figure. Please revise the figure to include the missing sites (1, 7 and 14), or add a statement to the figure explaining why they are missing.**	**RESPONSE 2:** The purpose of Figure 1-2 is to identify only the sites addressed in this RI (i.e., the OU-3A sites). The figure title will be revised to "MCAS El Toro OU-3A Site Location Map." Although Table 1-1 identifies all of the OU-3 sites, information in the table indicates that several of these sites are not addressed in the OU-3A RI ("None" noted under the column - Site Units Addressed in This Report). These correspond to the text of Section 1.1 which identifies Sites 1, 7, and 14 as OU-3B sites.
3. Section 1.2.2.2, p. 1-14. **The information included in this section was based on 1991 data. Please update it so that the information is more current.**	**RESPONSE 3:** The Draft Final RI Report will incorporate more current information.
4. Section 5.1.1.1, p. 5-2. **Entrained soil may also be deposited as sediment in storm drain sumps and basins. Indicate if investigation/analysis of this potential contaminant "sink" was performed.**	**RESPONSE 4:** Several of the OU-3A sites include storm drain catch basins that were sampled (Sites 4, 6, 12, 20, and 21) and the analytical data are presented in the site-specific attachments (Attachments A, B, G, L, and M respectively). Section 5.1.2.3 will be revised to identify these five sites.
5. Section 5.1.2.3, p. 5-3. **Expand the discussion of catch basins and storm drain sumps to indicate that elevated concentrations of potential**	**RESPONSE 5:** This section will be expanded to identify the types of contaminants reported in the catch basin sediment samples.

Originator: Glenn R. Kistner, Project Manager U.S. EPA **To:** Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro **Date:** 21 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
contaminants were present in some locations.	
6. <u>Table 5-1</u>. It would be helpful to have a column indicating the number of samples analyzed or the frequency of detection to put the number of detections in perspective. Also, this table does not include analytes detected in groundwater. Please provide a table that presents similar information for groundwater.	**RESPONSE 6:** A column indicating the total number of sample analyses for each analyte will be added to Table 5-1. In addition, a table providing similar information for groundwater at Site 16 will be generated. Although Phase I groundwater data were collected at the remaining OU-3A sites, the Phase I and Phase II investigations have shown that these sites are not sources of groundwater contamination. Therefore, only the Site 16 groundwater analytical data are addressed in this RI.
7. <u>Table 5-2</u>. It would be helpful to cite or reference sources for individual physicochemical values presented since literature values often vary by several orders of magnitude. Also, please include literature values of the soil-water partition coefficients (K_d) for metals of concern at the facility.	**RESPONSE 7:** Table 5-2 will be revised to cite the sources for physiochemical values. A table (similar to Table 5-2) for metals will also be generated and included in the Draft Final RI Report.
8. <u>Section 5.2.1.1, p. 5-14, paragraph 3</u>. The fractional organic carbon content (f_{oc}) is a property of the soil, not the given organic chemical. Please revise the second sentence in this paragraph.	**RESPONSE 8:** The sentence will be rephrased to clearly indicate that only the K_{oc} value is chemical specific.
9. <u>Section 5.2.1.2, p. 5-15, paragraph 1</u>. It should be noted that the half-life times presented in Table 5-2 which are obtained from field studies include loss due to factors in addition to biodegradation (e.g., volatilization, leaching, etc.) and may overestimate biodegradation rates.	**RESPONSE 9:** The source of the half-life values (Howard et al. 1991. *Handbook of Environmental Degradation Rates* and Mackay et al. *Illustrated handbook of Physical-Chemical Properties and Environmental Fate for Organic Chemicals*) specifically state that the half-life values are for the degradation process only (obtained from laboratory studies) and do not consider transportation processes (volatilization, adsorption, etc.).
10. <u>Section 5.2.1.2, p. 5-15, paragraph 2</u>. Indicate that biodegradation rates are also influenced by nutrient concentrations and diffusion rates of contaminants.	**RESPONSE 10:** The text will be revised to include this information.
11. <u>Section 5.2.1.2, Semivolatile Organic Compounds, p. 5-16</u>. An interpretation is made that the wider distribution of PAH compounds compared to VOCs is due to their greater persistence. The distribution may also reflect the prevalence of petroleum products used at the facility. In general, petroleum fuels (with the exception of gasoline and	**RESPONSE 11:** The paragraph comparing PAHs to VOCs will be removed from the Draft Final RI Report.

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JP-4) contain few or no targeted VOCs.	
12. **Section 5.2.2, p. 5-17. It would be useful to expand the section to discuss the metal species used or produced at the facility. For example, if metal plating was conducted any metals released would initially be present as highly soluble species while, if sources were metals fabrication, sandblasting, or painting, metals would likely be present as relatively insoluble elemental or oxide forms.**	**RESPONSE 12:** A statement will be added to this section indicating that, with the exception of the incoming waste stream at Site 12 (Sludge Drying Beds and former WWTP site), insoluble forms of metals would likely be present at the OU-3A sites.
13. **Section 5.2.2, p. 5-17, paragraph 4. It is unclear how "well drained soils" provide conditions that render most metals immobile. It is recognized that alkaline conditions tend to retard metals migration though there are significant exceptions, notably arsenic, selenium, thallium, and manganese. It should also be noted that the concentration of clay minerals, iron and manganese oxides, aluminosilicates and soil organic matter strongly influence metals mobility.**	**RESPONSE 13:** The "well drained soils" is a qualitative generalization used in the Soil Conservation Service and Forest Service soil survey report for Orange County. Of more importance to the issue of mobility is that the neutral to alkaline nature of the soils, the low annual rainfall (12.2 inches), and the low net infiltration (less than 5 inches per year) at MCAS El Toro render most of the metals present at the OU-3A sites immobile. This paragraph will be revised to discuss these factors and the qualitative soil survey statement will be removed.
GENERAL COMMENTS ON ATTACHMENTS 1. **Please discuss whether field screening results and fixed laboratory results were comparable. If not, discuss the potential impact on each investigation.**	*RESPONSES TO GENERAL COMMENTS ON ATTACHMENTS* **RESPONSE 1:** A discussion of the comparability of the immunoassay field screening and fixed laboratory results for PAHs and PCBs was presented in Section 2.4.1.2 of the main body of the Draft RI Report. A discussion of the comparability of the mobile laboratory field screening and fixed laboratory results for VOCs and TPH will be included in the section cited above in the Draft Final RI Report.
2. **Section 4 of each attachment: Given the common occurrence of variable detection limits for some analytes (see specific comments), the procedure of only reporting hits in the data tables for each site (a generally acceptable practice) could allow potentially high concentrations of some analytes to be unreported. If a particular analysis results in "non-detects" with higher detection limits, the detection limit should be included in the table or noted in a footnote.**	**RESPONSE 2:** All of the soil analytical data collected during the Phase I and Phase II investigations for each area of concern at all OU-3A sites are presented in Appendix H. The data presented in the Section 4 tables of each attachment represent all of the results (detects and non-detects) for every analyte that was identified in at least one of the specified samples. The "non-detect" values (both low and high detection limits) included in these tables are identified by the qualifier "U", which is footnoted in each table, and the value

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	associated with each "U" is the detection limit for the analyte in that sample. Although elevated detection limits introduce some uncertainty into the nature and extent evaluation, they do not automatically imply the presence of analytes at high concentrations.
3. **The *Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA* (U.S. EPA, 1988) clearly emphasizes the need to delineate both the horizontal and vertical extent of contamination. In each attachment of the El Toro RI, color-coded maps are included which show the types of contamination found at each sampling location. This is helpful for showing the general horizontal extent of contamination, but vertical profiles or cross-sections are needed to show the vertical extent of contamination. In addition, the color-coded maps (e.g. Figure 4-2 in Attachment C) only show analyte detections, which can be deceptive because of the highly variable detection limits for some analytes. Also, the maps are completely qualitative in nature; the reader is given no sense as to the actual concentrations of COPCs in the soil. Contour maps showing the concentrations of COPCs might be more helpful.**	**RESPONSE 3:** The only intent of these figures was exactly as suggested, to provide a qualitative view of the classes of analytes identified in soil samples and the locations of these samples at each OU-3A site. Subsequent figures and the text discussions provide quantitative information on the concentrations and distribution of specific analytes at each site or area of concern.
4. **Units used to present analytical results for TRPH (diesel and gasoline): both µg/kg and mg/kg are used. Please be consistent and use the same units in the text, figures, and tables.**	**RESPONSE 4:** With the exception of Sites 4 and 13 (which were only sampled during the Phase I RI), all of the figures and text discussions pertaining to TPH and TRPH data in each site-specific attachment are presented in consistent units (i.e., mg/kg). While the Phase I TRPH data were provided to CLEAN II in mg/kg units, the TPH data were provided in µg/kg units. Both are presented without alteration in the Section 4 tables of each attachment (and in Appendix H). The Phase II TPH data were reported in mg/kg units and are presented in the same units in the attachment tables and Appendix H.
5. **The Fate and Transport sections are too general. Please discuss specific compounds and metals present at each site rather than providing general characteristics of analytical classes as a group. Volatiles and**	**RESPONSE 5:** The intention of this section was to provide sufficient information on the risk drivers at the site to support a recommendation for action (remedial or no further action). Specific information on mobility and

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metals tend to be presented generically when they should be discussed on an analyte specific basis.	persistence of selected organic compounds (risk drivers) was presented in tabular form. Comparable information on the metals that were risk drivers was not presented. The main metal risk drivers were arsenic, beryllium, and manganese. Concentrations of these metals at the OU-3A sites, although sometimes above MCAS El Toro calculated background levels, are believed to represent natural variation in soil at the station rather than contamination related to historic site activities. However, the Fate and Transport section of each attachment will be expanded to provide additional information, primarily in tabular form, on the specific metals identified as risk drivers at each site.
6. In the fate and transport discussions, provide concentration ranges when it is stated that "Due to low concentrations, ... (a chemical class) will not be addressed."	**RESPONSE 6:** The Draft Final RI Report will include the concentration ranges as requested.
7. The presentation of potential ranges of organics adsorbed (Tables 5-1) is a good concept. There is, however, an inconsistency when tables from different attachments are compared. The "percent sorbed" values for many COPCs in Table 5-1 are not consistent with values reported at other sites even though the high and low TOC values are identical.	**RESPONSE 7:** The values should be consistent as suggested. Table 5-1 in each attachment will be reviewed to eliminate any inconsistencies identified.
The origin of the range of values for fraction of organic carbon (f_{oc}) used at each of the sites to estimate the percent of the COCP that is sorbed onto the soil isn't referenced. Ideally, site-specific data should be used for the f_{oc} value, especially if site soils differ significantly from those referenced in the literature.	The maximum and minimum values presented in these tables represent the limits of organic carbon concentrations reported in soil samples collected at the MCAS El Toro OU-3A sites and as such, provide upper and lower bound estimates of f_{oc} values. The Table 5-1 footnotes referencing these values will be revised to clarify that the source of these values are soil analytical data from the OU-3A sites at MCAS El Toro rather than literature values.
A simplified calculation for the percent of the COPC sorbed onto soil is used. There are many factors present in the subsurface which are not included in this approach. Other important factors are the rate at which contaminants were introduced into the soil and the limited number of surface sites in the soil onto which a compound can be sorbed. The text should state that the calculations presented in Table 5-1 are only gross estimations.	The title of Table 5-1 in each site-specific attachment will be revised in the OU-3A Draft Final RI Report to indicate that the data are "Estimates of Mobility and Persistence for Selected Organic Compounds at Site ___."

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It would be beneficial to expand this presentation for the organics present and to also present similar tabulations for inorganics of concern using the range of literature values for soil-water partition coefficients (K_d).	See response to comment No. 5 on previous page.
8. In addressing surface water (and sediment) transport through storm drains for each site, discuss whether storm drain sediment from sumps or catch basins was analyzed and if concentrations indicated that this was a pathway.	**RESPONSE 8:** The information requested in this comment is included in the site-specific fate and transport sections (Section 5.3) of each attachment where applicable.
SPECIFIC COMMENTS ON ATTACHMENTS *ATTACHMENT B* **1. Figure 2-1. The circle with triangle symbols in the AOC204 area are not defined in the legend. Please include this symbol in the legend. If these are sample locations, the results should be summarized in the text.**	*RESPONSES TO SPECIFIC COMMENTS ON ATTACHMENTS* *ATTACHMENT B* **RESPONSE 1:** The symbols in question represent sampling locations associated with the RCRA Facilities Assessment (RFA) conducted at MCAS El Toro. The data are not presented in the site-specific attachment because they do not meet CERCLA data quality standards and because the sampling locations are outside the area investigated at Site 6. To avoid confusion, the sample locations will be removed from this figure.
2. Lead was detected at a concentration 2 orders of magnitude above the background level for lead in sample 06_GN1. The blood borne lead calculation was not done to evaluate whether this is a potential hazard. Evaluate whether future use of this site could result in exposure to lead in shallow soils and consider calculating the blood lead level from exposure to site soil. If lead is found to present unacceptable risk, action may be necessary.	**RESPONSE 2:** In accordance with the approved Risk Assessment Work Plan, the discussion in Section 6.4.1.2 of this attachment indicates that a blood-borne lead calculation was not performed for Units 1 through 3 because the 95-percent UCL for lead (10 mg/kg) was well below the Cal-EPA residential PRG for lead (130 mg/kg), suggesting a negligible risk for lead. The lead concentration cited represents a single surface soil sample. The intent of the risk assessment was to estimate the risk associated with the entire area of concern rather than a single point within that area.
ATTACHMENT C **1. A review of the 1992 aerial photograph shows that there is debris or drums piled in the southeast corner of the West Storage Yard and drums or other containers in the northeast corner of the East Storage**	*ATTACHMENT C* **RESPONSE 1:** As clarified at the February 6, 1997 BCT meeting, this comment refers to the 1952 aerial photograph presented in Attachment C as Figure 1-2. The 1952 photograph shows a small structure (building, shed, or

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Yard. Neither of these areas has been sampled. A review of analytical results from the nearest borings revealed that there were detections of PAHs and PCBs; this suggests that there could be contamination in these areas. This is a data gap that should be investigated.	storage bin) at both locations mentioned. The southeast corner of the West Storage Yard was sampled (boring 08B205 in Figure 2-1) during the Phase II investigation. The documented history of the DRMO Storage Yard indicates that storage activities took place throughout the entire yard at various times during its 50-year operational history. No information (with the exception of the former refuse pile [Unit 3] and a single PCB spill [Unit 4]) suggest that one part of the yard is more likely to be contaminated than any other part. The BCT previously agreed that the locations sampled during the Phase I and Phase II investigations provide sufficient data to characterize conditions at this site.
2. **Table 4-6, p. C4-27. Some detection limits for Aroclor 1260 are elevated and vary from 34 µg/kg to 450 µg/kg. This may have resulted in some false negative results.**	**RESPONSE 2:** This observation is correct. However, non-detect data resulting from elevated detection limits do not automatically imply false negative results for Aroclor 1260. In relation to Table 4-6 and the evaluation of nature and extent within Units 1 and 4 at Site 8, elevated detection limits do not alter the stated conclusion that Aroclor 1254 and 1260 are present throughout the area encompassed by these two units.
3. **Figure C-4-3. In the old salvage yard (Unit 5), there is a large area in the northwest corner of the unit where no soil samples were taken. The soil samples bounding this area (08B506, 08B505) had high concentrations of PAHs. This suggests that the area of impacted soils may be much greater. Since this area has not been sampled, the horizontal extent of contamination has not been established.**	**RESPONSE 3:** Field screening results and Phase II fixed laboratory data presented in Figure 4-3 suggest that PAHs are present throughout Unit 5 (borings 08B501, 08B502, 08B505, and 08B506). The summary of nature and extent (Section 4.3.3.3) also states that PAHs are present throughout Unit 5. Unit 5 is being recommended by the Navy for further action in the Draft Final RI Report based on these data.
4. **Table 4-9, p. C4-39 and Table 4-14, p. C4-57. Some detection limits for Aroclor 1260 are elevated; detection limits vary from 34 µg/kg to 680 µg/kg. This may have resulted in some false negative results.**	**RESPONSE 4:** This observation is correct. However non-detect data resulting from elevated detection limits do not automatically imply false negative results for PCBs.
5. **Lead was detected at more than 100 time the background at location 08_ST3, which is located in the unpaved Unit 1. This area should either be considered for a hot spot removal, or a blood lead calculation should be completed.**	**RESPONSE 5:** Blood lead concentrations were calculated using the Cal-EPA pharmocokinetic model for the Unit 1 and 4 area of concern under the industrial scenario (Section 6.4.1.1, p. C6-26). The estimated concentrations of lead in blood did not exceed the 10 µg/dl. threshold value. A similar calculation was not performed under the residential scenario because the 95-

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	percent UCL for lead was an order of magnitude lower than the Cal-EPA residential PRG for lead.
6. **Section 7.2.1, p. C7-9. This site should be recommended for further investigation, to fill in the data gaps, and then should be evaluated in a feasibility study (due to an ELCR of $1x10^{-4}$).**	**RESPONSE 6:** The three areas of concern at Site 8, Units 1 and 4, Units 2 and 3, and Unit 5, are being recommended for further action by the Navy in the Draft Final RI Report.
ATTACHMENT D 1. **Section 1.2.1, p. D1-4, paragraph 1. The site outlines and the location of the east pit on the 1968 aerial photograph do not match the site boundary and pit location shown on Figure 2-1. This is evident when the relative position of the east pit on the 1968 aerial photograph is compared to the fixed position of the two reservoirs (large tanks) and the Taxiway T-5 extension. The western edge of the east pit is actually about 80 or 90 feet east southeast of the aircraft matting boundary and the north edge is about 110 feet south southeast of the edge of the taxiway. This places the east pit in Site 10, in an area that was not investigated. This area should be investigated; samples should be analyzed for the Site 9 investigation parameters (including dioxins), and PCBs (because of the possibility that waste oil was used).**	*ATTACHMENT D* **RESPONSE 1:** The site boundary as drawn on Figure 1-2 (1968 aerial photograph) will be repositioned. The burn pit identified in this figure is the east pit at Site 9 as suggested in the comment. The lighter colored rectangular area to the east in the 1968 photograph is located within the Site 10 boundary, is not a Site 9 burn pit, and is not a feature associated Site 9. The discussion presented in Draft RI report will be revised. The boundaries of the two burn pits identified in Figure 2-1 were delineated prior to the Phase I investigation in a cooperative effort of the Navy, its contractors, U.S. EPA, and DTSC. Designation of the Site 9 boundaries was based upon historical site information and the results of the historical aerial photograph survey conducted by U.S. EPA in November 1991. Both of the burn pits associated with Site 9 have been sampled and characterized. The rectangular area identified within the boundaries of Site 10 on the 1968 aerial photograph is not believed to be related to the fire-training activities conducted at Site 9. Whether this rectangular area represents staining, vegetative cover, a structure, or some other feature cannot be determined from the photograph. It is not observed on aerial photographs reviewed for years before or after 1968 and was not identified as a feature of concern in the U.S. EPA or SAIC aerial photograph surveys. No historical information suggests that this location has special significance in relation to the remainder of Site 10. While this specific location was not sampled as part of the RI conducted at Site 10, data collected during the two phases of investigation at Site 10 were deemed sufficient by the BCT to characterize the impact of the historic activities conducted throughout the area comprising this site.

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The area investigated as the eastern pit was actually the western pit on the 1968 aerial photograph. If there are other aerial photographs, they should be reevaluated to ascertain whether there were any other burn areas. Note that the western test pits were outside the boundary of the 1968 burn areas. The text should be revised to reflect this.	See response to first part of this comment.
2. From the location of samples where dioxins were detected, it appears that dioxin contamination may have migrated off-site via surface water pathways. Please discuss the direction of surface water flow in this drainage area and evaluate whether dioxins may have been transported off site.	**RESPONSE 2:** The direction of surface water flow at Site 9 is addressed in Section 3.1 (Surface Features) and Section 5.1.3 (Potential Migration Pathways). Both discussions indicate that surface water is a potential migration pathway at Site 9. The sample analytical results and the risk assessment analysis suggest that further discussion of dioxins (beyond that already presented in the Draft RI Report) is not necessary because dioxins are not risk drivers at Site 9. One dioxin (1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin [OCDD]) was reported in only three of the 36 samples analyzed for dioxins at Site 9, the highest reported concentration was less than half the PRG value, and the reported concentrations decrease by a factor of about 3.5 times in a downstream direction. Because OCDD was only reported in three samples, the maximum concentration was used as the exposure point concentration (EPC) for estimating risk (a very conservative approach). The resultant residential and industrial risk estimates were both 10^{-7}.
3. Please explain why contamination was found outside the boundary of the burn pits (e.g., 09B109 is south and up slope from the burn pits.)	**RESPONSE 3:** As illustrated in Figure 2-1, sampling location 09B109 is located within the boundary of the area designated as the West Burn Pit on the basis of the U.S. EPA aerial photographic survey.
4. <u>Section 7.2.1, p. D7-8</u>. This site should be recommended for further action unless the investigation of the eastern burn pit will be done as part of the Site 10 investigation.	**RESPONSE 4:** Site 9, including the east burn pit location, has been characterized and additional investigation is unnecessary. Evaluation of nature and extent and results of the human-health risk assessment suggest that no further action is necessary at Site 9. This no further action recommendation was affirmed by the regulatory agencies at the February 6, 1997, BCT meeting which addressed OU-3A Draft RI Report comment resolution.

RESPONSE TO COMMENTS
DRAFT PHASE II REMEDIAL INVESTIGATION REPORT
FOR OPERABLE UNIT 3A
MCAS EL TORO, CALIFORNIA

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ATTACHMENT E 1. **Given that waste oil was routinely used for dust suppression at Site 10, PCB analyses should have been performed for shallow samples collected from all Phase II sampling locations in Units 1 and 2, however, PCB analyses were only done for four locations in unit 1 and four locations in Unit 22. Please explain.**	*ATTACHMENT E* **RESPONSE 1:** The Phase II investigation at Site 10 was performed in accordance with the approved Work Plan and Field Sampling Plan. The Phase I sampling results were one of the factors used to focus the direction of the Phase II field investigation described in the Work Plan and Field Sampling Plan. Because no PCBs were identified in any of the 28 Phase I soil samples collected at Site 10, the Phase II samples were not analyzed for PCBs.
ATTACHMENT F 1. **Sections 1.3.2 and 1.3.3, p. F1-4. Please discuss whether focused sampling was done in the stained areas identified from aerial photographs.**	*ATTACHMENT F* **RESPONSE 1:** Samples were collected at the location of the stained area (Phase II soil boring 11B303 on Figure 2-1) cited in Sections 1.3.2 and 1.3.3 summarizing results of the U.S. EPA and SAIC aerial photographic surveys pertinent to Site 11. The text in Section 2.2.3, which describes the soil sampling activities conducted in Unit 3 at Site 11, will be expanded to indicate that boring 11B303 is situated in that area.
2. **Section 4. The presence of PCBs, which were normally added to oil strongly suggests that analyses for PAHs and TPH-d should also have been done. The omission of these analyses should be identified as a data gap. If PAHs are found, it is likely that the ELCR numbers for this site would be higher.**	**RESPONSE 2:** The soil sampling activities conducted at Site 11 (including the types of samples analyses) were performed in accordance with the approved Work Plan and Field Sampling Plan. The Phase I and Phase II Tier 1 sampling results were reviewed by the BCT and additional sampling (Tier 2) was conducted to better characterize the site conditions. Following review of all the Phase I and Phase II sample data, the BCT concluded that the nature and extent of contamination had been satisfactorily delineated at Site 11.
3. **The vertical extent of PCB contamination has not been defined. In the Phase I soil sample, 11_DD1, taken from 4 feet bgs, Aroclor 1260 was detected at 3,580 µg/kg. No samples were taken below this depth at this location. The samples taken at the surface and at 2' bgs at location 11 DD1 were below detection levels. This situation underscores the potential for liquid contaminants to migrate downward through the unsaturated zone, resulting in higher concentrations of PCBs at depth. If the volume and rate of introduction of PCBs to the soil exceeds the**	**RESPONSE 3:** Boring location 11B202 was drilled immediately adjacent to the location of 11_DD1 for the specific purpose of further delineating the vertical extent of PCBs. Samples were collected at four intervals between 0 and 10 feet bgs. As indicated in the Draft RI Report, PCBs were not identified (at a detection limit of ≤40 µg/kg) in the two samples collected below 4 feet bgs. The text in Sections 2.2.2 and 4.3.2.3 of Attachment F will be revised to clarify the intent of sampling at 11B202 and to address the results in relation to boring 11_DD1.

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sorption capacity of the soil, PCBs will continue to migrate downward or horizontally along low permeability layers.	
4. Figure 5-1 is ambiguous. It appears that the ditch shown in the figure is in the wrong location. The conceptual cross-section should show the compass heading of the section. The buildings should be labeled.	**RESPONSE 4:** A revised figure will be included in the Draft Final RI Report.
5. Section 7.2.1, p. F7-8. There are data gaps, specifically, the vertical extent of PCBs near location 11_DD1 and whether PAHs are present in the soil. This site should be recommended for further investigation. If PAHs are found, the ELCR will likely exceed 10^{-4}; if so, the site should be recommended for the FS.	**RESPONSE 5:** The nature and extent of contamination at this site has been defined (see responses to comment Nos. 1 through 3 above). At the February 6, 1997, BCT meeting, the Navy indicated that a recommendation for further action at Site 11 Units 1 and 2 will be included in the Draft Final RI Report.
ATTACHMENT G **1. The variability of detection limits for PCBs may indicate that the extent of contamination has not been completely defined. If the detection limit for a particular sample is much higher than normal, it would be more accurate to report it as "less than (the detection limit)," not as ND.**	*ATTACHMENT G* **RESPONSE 1:** The presence of elevated detection limits for several samples does not alter the conclusion, presented in the summaries of nature and extent for Site 12 Unit 1 (Section 4.3.1.3), Units 2 and 4 (Section 4.3.2.3) and Unit 3 (Section 4.3.3.3), that PCBs are present in shallow soil throughout each of these areas of concern. For the two PCBs (Aroclors 1254 and 1260) identified in soil at Site 12, detection limits are included in the Section 4 data tables. These results, as with all non-detect values, are designated by the qualifier "U" and a numeric value representing the detection limit for the analysis of each sample so qualified.
2. Please explain why Units 1, 2, and 4 are not recommended for further action. Consider whether Unit 3 could be recontaminated by runoff from the other sites and whether this contamination could then be transported off site.	**RESPONSE 2:** Units 1, 2, and 4 were recommended for no further action because evaluation of the analytical data, the risk estimates, and the risk drivers for each of these areas of concern suggest that the three units do not pose an unacceptable risk to human-health. The excess upper bound life-time cancer risk for Units 1, 2, and 4 are within the acceptable range as stated in the NCP (between 10^{-4} and 10^{-6}) under both the residential and industrial scenarios. Although the hazard indices exceeded unity at both areas of concern, the exposure point concentrations (EPCs) for the organic risk drivers contributing to the HI's were based upon the maximum

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	reported concentration (a very conservative approach). The EPCs for the inorganic risk drivers contributing to the HI's (manganese and arsenic) were less than or only slightly above their respective MCAS El Toro background concentrations established to assess nature and extent of metals contamination in soil. In addition, systemic toxicity effects attributed to each of these metals were also less than unity. At the February 6, 1997, BCT meeting, the regulatory agencies agreed that no further action recommendations for Unit 1 and Units 2 and 4 were acceptable because the cancer risk estimates were within the acceptable range and the HI values probably overestimate the risk at these two areas of concern. Unit 3 is recommended for further action because of the potential threat it poses to surface water in Bee Canyon Wash. The potential for transport of contaminants into Unit 3 by surface runoff from Units 1, 2, and 4 is judged to be minimal based on the low annual rainfall; the relatively flat, stable ground surface conditions present at Units 1, 2, and 4; and the relatively low concentrations of contaminants.
ATTACHMENT H **1. Table 4-2. The reported concentration of arsenic in sample 13_SA3 (2' bgs) was "undetected" at 276 mg/kg. This appears to be a typographical error. Please correct or explain.**	*ATTACHMENT H* **RESPONSE 1:** The value is correct as reported. An explanation for the elevated detection limit is not provided in the Phase I RI Technical Memorandum.
ATTACHMENT I **1. Lead was detected at elevated concentrations in surface and subsurface soil (as much as 360 times background). Other metals were also detected at more than 5 times background. Please evaluate and discuss whether these metals could leach to groundwater, or, in the case of surface samples, whether soil with elevated metal content could erode and be transported off site.**	*ATTACHMENT I* **RESPONSE 1:** Evaluation of the analytical results for metals indicates that reported concentrations greater than two times background are confined to the shallow soil interval between 0 and 5 feet bgs. This limited vertical distribution, the low net infiltration rate, and the neutral to alkaline pH of the soil suggest that metals in shallow soil at Site 15 do not pose a threat to groundwater. Off-site transport of metals in surface soil is also considered unlikely due to the low annual rainfall total, the flat ground surface conditions, and the absence of an established drainage pattern extending off-site. The

Originator: **Glenn R. Kistner, Project Manager** **U.S. EPA** **To:** **Joseph Joyce, BRAC Environmental Coordinator** **MCAS El Toro** **Date:** **21 January 1997**	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
	narrow (~2 feet wide), shallow (<6 inches deep) ditch located in Unit 2 terminates on-site and infrequent surface flow along the ditch ponds in the southwest end of Unit 2. The discussion presented in Section 5.3 of this attachment indicates that infiltration is not considered a viable pathway and that the impact of surface-water transport is considered low for the reasons stated above.
ATTACHMENT J **1. <u>Section 1.2.1, p. J1-4 and Figure 2-1</u>. The pits shown on Figure 2-1 do not match the pits visible on the 1980 and 1996 aerial photographs (Figures 1-2 and 1-3). The main fire fighting pit on Figure 2-1 is in approximately the correct location, but is much smaller than the main pit on the 1980 aerial photograph. The 1980 photograph also shows large stained areas where fuels and other liquids flowed away from the main burn pit. The two other pits visible on the 1996 aerial photograph are in very different locations than shown on Figure 2-1; samples were not collected in the smaller pit areas shown on these photographs. This means that the extent of contamination in soil has not been defined at Site 16. Please reduce or enlarge air photos to the same scale, overlay them (by matching fixed features like the runway, taxiways, and feature 399) over the site map and trace the actual locations of the historic burn pits and stained areas. Then evaluate whether these areas have been investigated and design a sampling program to address the resulting data gaps. This is important because a remedial action, if done using current data, would likely not result in cleanup of all affected areas.**	***ATTACHMENT J*** **RESPONSE 1:** The extent of contamination at Site 16 has been characterized and all three of the former burn pits at the site, as well as the pit perimeter area, have been sampled. Following review of the Phase I and Phase II sample results, the BCT agreed that the extent of contamination had been defined sufficiently to make decisions on the need for further action. As stated in Section 1.2.1 of this attachment, the Site 16 boundaries were determined by consensus among the Navy and the regulatory agencies prior to initiation of the Phase I RI. These boundaries were based upon a review of historical records and results of the aerial photographic survey conducted by U.S. EPA. The boundaries were reaffirmed by the subsequent SAIC aerial photographic survey. The main fire-fighting pit is shown in the 1980 and 1996 aerial photographs, Figures 1-2 and 1-3 respectively. The other two Site 16 pits, the residual fluids pit and the hand-held fire-training pit are not shown on either of these photographs. As stated in Section 1.2.2 of this attachment, the two other structures shown in the 1996 aerial photograph are the current, concrete-lined fire-fighting pits which remain in use at MCAS El Toro and are not part of IRP Site 16. These pits are not addressed as part of the OU-3A RI. Although not part of Site 16, they are identified in Figure 2-1 (structure Nos. 850 and 851) for completeness.
2. <u>Section 3-4, p. J4-45, last paragraph</u>. The local groundwater gradient and flow direction can not be established from the three existing wells. The wells are located roughly along a straight line, making triangulation of flow direction very inaccurate. The text should be changed to reflect	**RESPONSE 2:** The text of Section 3.4 will be revised for the Draft Final RI Report to indicate that the regional direction of groundwater flow in the area of Site 16 is west northwest. The following sentence will also be revised to indicate that evaluation of data from the three Site 16 wells only *suggests* that

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this, relying more heavily on regional groundwater information for discussions on groundwater flow directions at the site. Note that according to the Groundwater Elevation Map of MCAS El Toro (Figure 3-5, Main Report) groundwater flow is to the west northwest in the Site 16 area.	the local flow direction is consistent with the regional trend. The estimated local flow direction derived from measurements taken in the three wells (between approximately N50°W and N60°W) agrees quite well with the direction of flow shown in Figure 3-5 (in the main body of the report) for the Site 16 area (approximately N55°W).
3. **Table 4-6, p. J4-45. The detection limits for VOCs are quite high (3000 µg/kg); significant contamination could be present. When results less than the detection limits are transposed to the figures showing extent of contamination on figures, analytical results are represented as "ND." The figures should instead show results of "< [detection limit]". For example, if the detection limit for benzene was 3,000 µg/kg, the result on the figures should be reported as "< 3000 µg/kg". Alternately, the NDs should be footnoted and the elevated detection limits should be specified.**	**RESPONSE 3:** The elevated detection limits corresponding to the "ND" notations in Figure 4 4 are presented in Table 4-6. The intent of Figure 4-4 is to focus attention on the VOC analytes actually identified in the soil samples. Although elevated detection limits introduce a component of uncertainty into the evaluation process (an uncertainty that was considered during the Site 16 assessment), they do not alter the reported "non-detect" result nor do they imply that a specific analyte was present but not identified in the sample. At Site 16, the elevated detection limits associated with some sample results do not change the stated conclusion that Units 1 and 2 have been impacted by VOCs, PAHs, and petroleum hydrocarbons or that further action is recommended for Site 16.
4. **Section 4.4.3, p. J4-101, first paragraph. Based on the fact that the wells are in a straight line and the resulting uncertainty in the groundwater flow direction, it is unclear whether monitoring well 16_DBMW81 is truly downgradient of the burn pits. Without installing a new monitoring well to more accurately establish the local groundwater flow direction at Site 16, it is inappropriate to make statements regarding the downgradient extent of contamination in groundwater. It is likely that since main report Figure 3-5 shows groundwater flow to the west northwest , that groundwater contamination would be found west northwest of the main burn pit.**	**RESPONSE 4:** As indicated in response to Attachment J comment No 2, the local groundwater flow direction estimated from the Site 16 wells is consistent with the west northwest regional groundwater flow direction. A downgradient flow direction toward well 16_DGMW81 is supported by the groundwater analytical results for hydropunch samples collected from sampling locations 16B107, 16B108, 16B109, and 16B206. These data indicate that groundwater contamination originating beneath the main burn pit is migrating downgradient in a west northwest direction toward well 16_DGMW81, that VOC concentrations in groundwater appear to decline rapidly in a downgradient direction, and that VOCs were not identified in groundwater at well 16_DGMW81. All of these factors support the hypothesis that the downgradient extent of contamination is likely limited.
5. **Figure 5-3, p. J5-12. This figure is missing the arrow that represents the major transformation of cis 1,2-DCE; cis 1,2-DCE is primarily**	**RESPONSE 5:** The missing arrow on this figure was identified and the figure was revised following release of the OU-3A Draft RI Report. The revised

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transformed to vinyl chloride (the 1,2-DCA transform is only a minor pathway).	figure will be included in the Draft Final RI Report.
6. The DQOs have not been met because the extent of contamination in soil and groundwater has not been established. The soil investigation did not cover the lesser burn pits shown in the 1996 aerial photo, nor did it include the stained area west of the main pit shown in the 1980 aerial photograph. The analytical results support the fact that there is a data gap associated with the hand-held training and residual fluids pits because there were no significant detections in the areas that were investigated; this should be contrasted with the fact that VOCs and petroleum-related analytes were detected in the soil from main pit area. **The extent of groundwater contamination has likely not been defined because there were no wells west northwest of the main pit.**	**RESPONSE 6:** See responses to comments 1 through 4 above. The soil and groundwater analytical data were reviewed by the BCT. Field investigation activities at Site 16 only ceased when the BCT agreed that the nature and extent of soil and groundwater contamination had been defined sufficiently to make decisions on the need for further action.
ATTACHMENT N **1. Figure 4-3, p. N4-17. Phase I sampling location 22_2FB3 exhibited high levels of petroleum hydrocarbons in the soil in the deepest sample analyzed (from 4 feet bgs). The location of Phase II sample 22B201 appears to have been chosen to define the vertical extent of contamination noted at 22_2FB3 (which was located approximately 18 feet to the east), but only trace amounts of petroleum hydrocarbon at 2-3.5 feet and 6-7 feet bgs were detected. It appears likely that Phase II sampling may have missed the area of soil contamination detected in the Phase I sampling program. This suggests that the extent of contamination in shallow soil has not been defined. Hence, it is uncertain whether deeper soils have been impacted the 22_2FB3 area.**	*ATTACHMENT N* **RESPONSE 1:** Boring location 22B201 was drilled immediately adjacent to the location of 22_FB3 for the express purpose of further delineating the vertical extent of petroleum hydrocarbons. Samples were collected at three intervals between 0 and 10 feet below the 2-foot thick concrete apron. As indicated on page N4-19 in the Draft RI Report, petroleum hydrocarbons were not reported in the 9 to 10 foot sample. Figure 4-3 will be revised to include the data from this sample, which does not presently appear on the figure. Site 22 figures will also be revised to more accurately reflect the proximity of boring locations 22_2FB3 and 22B201. Discussions in Sections 2 and 4 of this attachment that pertain to this sampling location will also be expanded to reflect the purpose and positioning of boring 22B201.

RESPONSE TO COMMENTS
DRAFT PHASE II REMEDIAL INVESTIGATION REPORT
FOR OU-3A SITES
MCAS EL TORO, CALIFORNIA

Originator: Jeffrey M. Paull, MS HYG, MPH, CIH Regional Toxicologist, U.S. EPA **To:** Glenn Kistner, Remedial Project Manager U.S. EPA **Date:** 16 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
GENERAL COMMENTS **The methods and procedures used to estimate the human health risks at each IRP site are consistent with U.S. EPA risk assessment guidance. Relevant exposure pathways are considered, exposure assumptions are plausible, and appropriate toxicity values and exposure factors are used to estimate risks. Random checks verified that exposure point concentrations, excess cancer risks, and hazard indices are correctly calculated. The extensive use of graphical information, including plots, color diagrams, and bar charts, greatly enhances the interpretation of data.** **The excess cancer risks were estimated to be at or below 1 x 10^{-4} for all potential receptors, at all sites. With the exception of an excess cancer risk of 1.8 x 10^{-4} estimated for the residential scenario for the catch basin at Site 21, principally due to PAHs, and for which further action is recommended, these health risks are within the acceptable risk range (10^{-6} to 10^{-4}), as stated in the NCP, where regulatory and risk management options include the no further action alternative.** **The cumulative hazard indices exceeded a value of 1 at almost all sites, including IRP Sites 4, 6, 8, 9, 10, 11, 12, 13, 15, 16, 20, 21, and 22 for the residential child scenario, and IRP Sites 11 and 12 for the industrial worker scenario. These noncancer hazard indices appear to be driven primarily by manganese, MCPP, PCBs, trichloroethylene, and to a lesser extent arsenic and cadmium.** **Hazard indices which significantly exceed a value of 1 generally require some form of remediation; however, further action is recommended in the RI for only three of these sites – Unit 3 at Site 12, Unit 1 at Site 21, and for groundwater at Site 16, and it is unclear whether further action is being recommended to address cancer risks, or noncancer health effects at these sites.**	***RESPONSES TO GENERAL COMMENTS*** **RESPONSE:** As the BCT agreed at the 6 February 1997 Meeting, the Navy will recommend OU-3A Sites 4, 6, 9, 10, 11 (Unit 3), 12 (Units 1, 2, and 4), 13, 15, 16 (Unit 3), 19, 20, 21 and 22 for No Further Action based on the residential receptor in the Draft Final RI. OU-3A Sites 8, 11 (Units 1 and 2), 12 (Unit 3), and 16 (Units 1, 2, and groundwater) will be recommended for Further Action based on the residential receptor. Although No Further Action under CERCLA is being recommended, the Site 21 attachment (Attachment M) will also include a recommendation for removal of sediment in the catch basin (as a routine Station maintenance activity) to reduce or eliminate the potential for transport off-site. In addition, discussions will be added to Sections 6 and 7 of the site specific attachments of the Draft Final RI report to explain the significance of the Hazard Indices for the areas of concern at the sites being recommended for No Further Action, especially in association with the non-cancer risk drivers arsenic, beryllium, cadmium, manganese, MCPA, and MCPP. The additional discussion will also provide the rationale for a No Further Action recommendation.

Originator: Jeffrey M. Paull, MS HYG, MPH, CIH Regional Toxicologist, U.S. EPA **To:** Glenn Kistner, Remedial Project Manager U.S. EPA **Date:** 16 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
In general, the specific rationale (e.g., COPC concentration not significantly above background, effect-specific hazard indices less than 1) for not considering the further action alternative for these sites is not made explicit in the Conclusions section of the report (Attachments A-N). Additional information is therefore necessary, to provide justification for the no further action recommendation at the remaining IRP sites. **We have identified several specific technical and human health risk assessment-related issues, explained in more detail below, for which we are requesting additional information, or further clarification, either in the RI Report, o in the form of a written response from the Navy.**	
SPECIFIC COMMENTS **Human Health Risk Assessment, Summary of Results, Vol. 1, §6.4.3, p. 6-29: The RI Report states that arsenic is the primary cancer-risk driver, and manganese is the primary noncancer-risk driver for most of the areas of potential concern at the OU-3A sites, but that there was no documented use of these two metals at these sites. The RI then draws the following conclusion:** **"It appears unlikely that some unknown activity conducted at these areas was responsible for the reported concentrations (above background) of arsenic and manganese in soil. Rather, the reported concentrations probably reflect local, but natural, variations in the actual background levels for these metals that exceed the background level calculated for MCAS El Toro."** **We agree it is unlikely that some unknown activity conducted at these areas was responsible for the reported concentrations (above background) of arsenic and manganese in soil, however, there are a number of known activities that could have. Water treatment facilities, particularly sludge drying beds, such as those at site 12, are known to concentrate metals normally present in water, including arsenic and manganese. These metals would also be expected to concentrate in areas where there is**	***RESPONSES TO SPECIFIC COMMENTS*** **RESPONSE:** As stated in the Draft RI report, although concentrations of arsenic and manganese reported in soil at the OU-3A sites sometimes exceed MCAS El Toro calculated background levels, they are believed to represent natural variation in soil at the station rather than contamination related to historic site activities. The Fate and Transport section of each site-specific attachment in the Draft Final RI report will be expanded to provide additional information on mobility and persistence, primarily in tabular form, on the specific metals identified as risk drivers at each site. Also see the response to the General Comment on page 1 of this document.

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sediment movement, such as catch basins, also present at site 12. Arsenic may also be introduced into the soil through activities such as coal burning, and, as noted in the RI Report, through the use of arsenical pesticides. **Manganese, which is alloyed with metals to impart hardness (e.g., alloyed with iron in the manufacture of steel), can be introduced into the environment through the disposal of ferrous metals, and their subsequent oxidation, and weathering. Manganese above background level in soil at site 20 (Hobby Shop) could be due to the disposal and subsequent weathering of metals containing manganese.** **Manganese may also be present in low concentrations in metal-contaminated fluids, including waste oils. Virgin diesel fuel contains 0.29-6.2 ppm manganese (and 0.012-0.13 ppm arsenic) by weight,[1] and concentrations in waste diesel fuel would obviously be expected to be higher.** **This may explain the presence of elevated manganese levels at Site 13 (Oil Change Area), Site 15 (Suspended Fuel Tank Area), Site 16 (Crash Crew Pit), Site 19 (Aircraft Expeditionary Refueling Site), Site 21 (Materials Management Group), and Site 22 (Tactical Air Fuel Dispensing System).**	
Regardless of the source of the arsenic and manganese at these sites, there appears to be elevated levels of these metals which significantly contribute to noncancer risks above acceptable hazard indices at several sites, and this will need to be addressed by the RI.	
<u>Site 4, Attachment A, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations</u>: In the Conclusions section, it is stated that "[T]he chemicals identified in soil at Site 4 do not pose an imminent risk to human health or the environment ..." However, there	**RESPONSE:** See the response to the General Comment on page 1 of this document.

[1] The Installation Restoration Program Toxicology Guide. Health and Safety Research Division, Oak Ridge National Laboratory (July 1989)

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appears to be no discussion, or adequate explanation in the conclusions for dismissing the noncancer hazard above a hazard index (HI) of unity (1.4) calculated for the on-site resident at Unit 1. **It is important to note that even when COPCs are segregated by specific noncancer effect, and separate hazard indices (HI) were derived specific to each effect group, several of the effect-specific HIs exceeded unity, indicating the potential for systemic toxicity. The effect-specific HIs estimated for Site 4 are: gastrointestinal effects (1.13), hematological effects (1.05), neurotoxicity effects (1.37), reproductive effects (1.27), and respiratory effects (1.37).** **Based on the information presented in the RI, which indicates the potential for systemic toxicity to the on-site resident, we do not agree with the conclusion that no remedial action is required to address contaminants at Site 4.**	
<u>Site 6, Attachment B, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations:</u> No adequate explanation is presented for dismissing the noncancer hazard index of 1.1, and 1.4 calculated for the industrial worker, and on-site resident at Units 1, 2, and 3, respectively. Based on the information presented in the RI, indicating the potential for systemic toxicity to the industrial worker, and on-site resident, and for similar reasons to those stated above, we do not agree with the conclusion that no remedial action is required to address contaminants at Site 6.	**RESPONSE:** See the response to the General Comment on page 1 of this document.
<u>Site 8, Attachment C, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations:</u> No adequate explanation is presented for dismissing the noncancer hazard index of 1.1, and 2.3 calculated for the on-site resident at Unit 5, and at Units 2 and 3, respectively. Based on the information presented in the RI, indicating the potential for systemic toxicity to the on-site resident, we do not agree with the conclusion that no remedial action is required to address contaminants	**RESPONSE:** See the response to the General Comment on page 1 of this document.

Originator: Jeffrey M. Paull, MS HYG, MPH, CIH Regional Toxicologist, U.S. EPA **To:** Glenn Kistner, Remedial Project Manager U.S. EPA **Date:** 16 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
at Site 8.	
Site 9, Attachment D, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: No adequate explanation is presented for dismissing the noncancer hazard index of 1.4 calculated for the on-site resident. Based on the information presented in the RI, indicating the potential for systemic toxicity to the on-site resident, we do not agree with the conclusion that no remedial action is required to address contaminants at Site 9.	**RESPONSE:** See the response to the General Comment on page 1 of this document.
Site 10, Attachment E, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: No adequate explanation is presented for dismissing the noncancer hazard index of 1.2 calculated for the on-site resident at Units 1, 2, and 3, and 2.2 calculated for the on-site resident at Unit 4. Based on the information presented in the RI, indicating the potential for systemic toxicity to the on-site resident, we do not agree with the conclusion that no remedial action is required to address contaminants at Site 9.	**RESPONSE:** See the response to the General Comment on page 1 of this document.
Site 11, Attachment F, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: No adequate explanation is presented for dismissing the noncancer hazard index of 1.1 calculated for the on-site industrial worker, or the hazard index of 4.5 calculated for the on-site resident, both at Unit 1. Based on the information presented in the RI, indicating the potential for systemic toxicity to the on-site resident, and industrial worker, we do not agree with the conclusion that no remedial action is required to address contaminants at Site 11.	**RESPONSE:** Units 1 and 2 at this site will be recommended for further action in the Draft Final RI report. See the response to the General Comment on page 1 of this document.
Site 12, Attachment G, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: Recommended actions for Site 12 include reducing exposure to contaminated soil from the drainage ditch (Unit 3), and reduce the likelihood of contaminated soil from this area being transported off-site. This recommended action is appropriate, and will serve to reduce potential exposures to on-site industrial worker, and	**RESPONSE:** Comment noted.

Originator: Jeffrey M. Paull, MS HYG, MPH, CIH Regional Toxicologist, U.S. EPA **To:** Glenn Kistner, Remedial Project Manager U.S. EPA **Date:** 16 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
the on-site resident at Unit 3, for whom noncancer hazard indices of 2.3, and 5.9 were calculated. **However, no remedial actions were recommended for Unit 1, where a value of 4.6 was calculated for the noncancer hazard index for on-site residents, or for Units 2 and 4, where an HI value of 2.1 was calculated for on-site residents. These hazard index values are approximately equal in magnitude to those calculated for Unit 3. The rationale for recommending remedial actions for Unit 3, but not for Units 1, 2 and 4 is therefore unclear, and requires further explanation and justification.**	At the February 6, 1997, BCT meeting, the regulatory agencies agreed that no further action recommendations for Unit 1 and Units 2 and 4 were acceptable because the cancer risk estimates are within the acceptable range and the HI values probably overestimate the risk at these two areas of concern. Unit 3 is recommended for further action because of the potential threat it poses to surface water in Bee Canyon Wash. The potential for transport of contaminants into Unit 3 by surface runoff from Units 1, 2, and 4 is judged to be minimal based on the low annual rainfall, the relatively flat, stable ground surface conditions present at Units 1, 2, and 4, and the relatively low concentrations of contaminants.
Site 13, Attachment H, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: No adequate explanation is presented for dismissing the noncancer hazard index of 1.1 calculated for the on-site resident, although no effect-specific HI exceeds a value of 1. If this is the basis for the conclusion that no remedial action is required to address contaminants at Site 15, this rationale needs to be made more explicit in the Conclusions.	**RESPONSE:** See the response to the General Comment on page 1 of this document.
Site 15, Attachment I, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: A noncancer hazard index of 1.1 calculated for the on-site resident, although no effect-specific HI exceeds a value of 1. If this is the basis for the conclusion that no remedial action is required to address contaminants at Site 15, this rationale needs to be made more explicit in the Conclusions.	**RESPONSE:** See the response to the General Comment on page 1 of this document.
Site 16, Attachment J, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: Remedial actions are recommended at Site 16, for Units 1 and 2, to reduce VOC concentrations in the vadose zone and minimize degradation of the shallow aquifer, although potential human cancer risks and noncancer hazards associated with exposures at	**RESPONSE:** The recommendation for No Further Action at Unit 3 is based on the concentrations of chemicals in shallow soil (0 to 10 feet bgs). Groundwater beneath Site 16 (including Unit 3) was addressed in the risk assessment as a separate area of concern.

Originator: Jeffrey M. Paull, MS HYG, MPH, CIH Regional Toxicologist, U.S. EPA **To:** Glenn Kistner, Remedial Project Manager U.S. EPA **Date:** 16 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
these Units were within acceptable ranges. However, no further action is recommended for Unit 3, where a noncancer hazard index of 1.3 was calculated for the on-site resident, driven primarily by TCE in groundwater. The basis for this apparent contradiction requires further explanation.	See the response to the General Comment on page 1 of this document.
Site 19, Attachment K, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: We are in agreement with the no further action recommendation for Site 19, based upon cancer risks (3.6×10^{-6} to 1.3×10^{-5}) and noncancer hazards (0.036 to 0.95 to the on-site resident and industrial worker, that are within acceptable ranges.	**RESPONSE:** Comment noted.
Site 20, Attachment L, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: No adequate explanation is presented for dismissing the noncancer hazard index of 1.3 calculated for the on-site resident at Unit 1, or the hazard index of 1.2 calculated for the on-site resident at the catch basin. Unit 4 cancer risks and hazard indices are within the acceptable range. If the absence of an effect-specific HI exceeding unit is the basis for the conclusion that no remedial action is required to address contaminants at Site 20, this rationale needs to be made more explicit. Based on the information presented in the RI, indicating the potential for systemic toxicity to the on-site resident, we do not agree with the conclusion that no remedial action is required to address contaminants at Site 20.	**RESPONSE:** See the response to the General Comment on page 1 of this document.
Site 21, Attachment M, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: Remedial actions are recommended at Site 21, to reduce exposure to contaminated sediment in the catch basin, although potential human cancer risks and noncancer hazards associated with exposures at the catch basin were within acceptable ranges. **However, no further action is recommended for Unit 1, where a noncancer hazard index of 2.0 was calculated for the on-site resident, driven by manganese, arsenic, and the herbicide MCPP in soil. The basis for this**	**RESPONSE:** See the response to the General Comment on page 1 of this document.

Originator: Jeffrey M. Paull, MS HYG, MPH, CIH Regional Toxicologist, U.S. EPA **To:** Glenn Kistner, Remedial Project Manager U.S. EPA **Date:** 16 January 1997	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
apparent contradiction requires further explanation.	
Site 22, Attachment N, §6. Human Health Risk Assessment, and §7. Conclusions and Recommendations: There appears to be a typographic transposition error in the hazard index calculated for the on-site resident at Unit 1. In Table 6-5 a value of 0.52 is presented, while in the Conclusions and Recommendations Section (p. N7-5), an HI value of 5.2 is cited. Additionally, no adequate explanation is presented for dismissing the noncancer hazard index of 1.2 calculated for the on-site resident at Unit 2, as a basis for consideration of the further action alternative. **If the absence of an effect-specific HI exceeding unity, or the relationship of manganese and aluminum concentrations to background, is the basis for the conclusion that no remedial action is required to address contaminants at Site 22, this rationale needs to be made more explicit. Based on the information presented in the RI, indicating the potential for systemic toxicity to the on-site resident, we do not agree with the conclusion that no remedial action is required to address contaminants at Site 22.**	**RESPONSE:** The hazard index for an on-site resident at Unit 1 is 0.52 as presented in Table 6-5 of the Draft RI report. The HI cited in Section 7 of Attachment N will be revised in the Draft Final RI report. Also, see the response to the General Comment on page 1 of this document. See the response to the General Comment on page 1 of this document.
CONCLUSION **The Draft Remedial Investigation Report for OU-3A generally meets is objective of collecting sufficient data to determine the nature and extent of contamination, and for appropriately characterizing human health risk. Appropriate recommendations were made with respect to the evaluation of potential human cancer risk, however, additional information is required to support the no further action decision at IRP Sites where the noncancer hazard index indicated the potential for systemic toxicity, before we can issue approval of the RI report.**	***RESPONSE TO CONCLUSION*** **RESPONSE:** See the response to the General Comment on page 1 of this document.

RESPONSE TO COMMENTS
DRAFT PHASE II REMEDIAL INVESTIGATION REPORT
FOR OPERABLE UNIT - 3A
MCAS EL TORO, CALIFORNIA

Originator: Tayseer Mahmoud DTSC **To:** Joseph Joyce, BRAC Environmental Coordinator MCAS El Toro **Date:** 20 November 1996	**CLEAN II Program** **Contract No. N68-711-92-D-4670** **CTO-0079** **File Code: 0222**
COMMENTS	***RESPONSES TO COMMENTS***
1. **Executive Summary, Table ES-2, Human-Health Risk Assessment, Future Uses and Complete Pathways - In Table ES-2 the risk management decisions seem to correspond in nearly every case to protection of the future industrial worker at an excess cancer risk 1E-04 and a Hazard Index (HI) 1.0. Some sites are likely to see future construction, in which case nonresidential receptors could be exposed to contaminants deeper than 2 ft below ground surface (bgs). Our concern arises from the differing suites of contaminants and exposure point concentrations used to calculate risk for the worker (0-2 ft bgs) and the resident (0-10 ft bgs). Although it is true that the estimates of risk and hazard for the future resident are higher than those for a typical construction worker scenario, we fear that a decision for no further action at a given site might not be protective of a future construction worker. The Navy should address this concern, either generically or on a site-by-site basis.**	**RESPONSE 1:** The risk scenarios presented in the RI were those included in the approved risk assessment work plan and associated addendum for the remedial investigation for the OU-3A sites. The risk scenarios as presented and associated risks calculated in the RI report accurately represent the risk to an industrial worker (0-2 feet bgs) and an on-site resident (0-10 feet bgs). An estimation of risk to a construction worker (based on a percentage of the risk to a resident) will be provided in the RI report. The recommendations that will be presented in updated Table ES-2 and site specific attachments of the Draft Final RI are based on the residential land use scenario (most conservative scenario). As the BCT agreed at the 6 February 1997 meeting, the Navy will recommend OU-3A Sites 4, 6, 9, 10, 11 (Unit 3), 12 (Units 1, 2, and 4), 13, 15, 16 (Unit 3), 19, 20, 21 and 22 for No Further Action and OU-3A Sites 8, 11 (Units 1 and 2), 12 (Unit 3), and 16 (Units 1, 2, and groundwater) for Further Action based on the residential receptor in Draft Final RI.
2. **Section 1.1, Purpose of Report, Figure 1-2 - The title of the figure should be changed to OU-3A Site Location Map.**	**RESPONSE 2:** The title of Figure 1-2 will be corrected in the Draft Final RI Report.
3. **Section 1.1, Purpose of Report, 2nd paragraph, page 1-1 - Please verify the number of IRP sites at MCAS El Toro. OU-1 has one site; OU-2A has two sites; OU-2B has two sites; OU-2C has two sites; and OU-3 has seventeen sites. Thus, the total number of sites is 24.**	**RESPONSE 3:** The total number of IRP sites will be corrected to 24 in the Draft Final RI Report.
4. **Section 1.1, Purpose of Report, Table 1-1 - The table lists Units 1 and 2 of Site 1, Explosive Ordinance Disposal Range, as being addressed in this report though this site belongs to OU-3B. Also, no units are listed for Site 4, Ferrocene Spill Area. Please correct the table or change the title to clarify that the table lists sites investigated during the Phase II RI.**	**RESPONSE 4:** The table will be corrected in the Draft Final RI Report. Site 1 (Explosive Ordnance Disposal Range) is not addressed in this RI report. Site 4 (Ferrocene Spill Area) consists of Units 1 and 2.

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5. <u>Scope of the OU-3A Investigation, Table 1-2</u> - Please delete OU-3B Site 14, Battery Acid Disposal Area, from the table.	**RESPONSE 5:** The table will be corrected in the Draft Final RI Report. Site 14 (Battery Disposal Area) is not addressed in this RI report.
6. <u>Attachment B, Site 6, Drop Tank Drainage Area No. 1</u> <u>Section 7.1.4, Human-Health Risk Assessment, page B7-2</u> - The HI for an on-site industrial worker at Units 1, 2, and 3 listed as 1.1 is a typographical error. The correct value is 0.11. <u>Table 7-1, page B7-6</u> - The risk assessment values entered this table does not agree with the calculated values in Section 6.	**RESPONSE 6:** The section will be corrected in the Draft Final RI report. The correct value for an on-site industrial worker at Units 1, 2, and 3 is 0.11. Table 7-1 will be corrected in the Draft Final RI Report. The values for the residential scenario presented on Table 6-5 in Section 6 of the Draft RI report are correct. The risk to a resident is 1.9E-05/2.0E-05. The values for industrial scenario have been revised for the Draft Final RI report. The risk to an industrial worker is 1.1E-5/1.3E-5 for cancer at Units 1, 2, and 3. Tables 6-4 and 7-1 of Attachment B will be revised in the Draft Final RI report.
7. <u>Attachment C, Site 8, Defense Reutilization and Marketing Office Storage Area</u> - Figures depicting Site 8 should show the boundaries of the area (including depth) where the soil was inadvertently removed during the construction of the asphalt pad built in 1994. The construction of the asphalt pad occurred between the Phase I and Phase II remedial investigation. By showing the boundaries, the reviewer would be aware of soil boring data that may be invalid due to soil removal. Table ES-2 and Table 6-5 indicate the residential scenario HI at Units 2 and 3 is higher than Units 1 and 4, yet the analytical data show higher contaminant concentrations at Units 1 and 4. If this is not an error please include, on appropriate figures and tables, evidence to support these conclusions. If this is an error, please cross-check the analytical data at each unit (for all sites) with the analytical data used in the risk assessment to ensure these data properly correspond.	**RESPONSE 7:** There are no maps showing the exact location of where the soil was removed. As stated in Section 4.1 and presented in Table 2.2 the area where soil was removed is believed to have encompassed the entire area of Unit 3 to a depth of 2 feet bgs. As stated in the Draft RI report, soil data from the 0 and 2 foot bgs samples from borings 08_RE1, 08_RE2, and 08_RE3, were not used to estimate the nature and extent or for use in the calculation of human health risk. In addition, these data are not presented on any of the figures in Attachment C. These tables are correct. All the data used to calculate these values are presented in the Appendices H and K. Exposure point concentrations (EPC) for areas of concern were calculated by one of two methods. For areas of concern where an analyte was reported as a detect in less than four samples the maximum concentration was used as the EPC. If an analyte was detected in four or more samples the 95 percent upper confidence limit (UCL) of the reported sample values was used as the EPC unless it exceeds the highest measured value. Use of the maximum analyte concentration for the EPC is the most conservative approach for estimating risk. Both of these methods were

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Please provide any additional data showing that the remedial investigation identified the PCB "hot spot" at Unit 4. Soil sample location 08B404 indicates Oracular 1260 three times higher than the PRG, yet the surrounding soil was not further sampled.	discussed at the 6 February 1997 BCT Meeting attended by the EPA and DTSC toxicologists. For the reasons stated above, exposure under the residential scenario at Units 2 and 3 used the maximum detected values of Aroclor 1248, 1254, and 1260 as the appropriate estimator for the EPC. These three compounds account for 60 percent of the HI at Units 2 and 3. For Units 1 and 4 the EPCs for Aroclor 1248, 1254, and 1260 were the calculated 95 percent UCLs. Use of the 95 percent UCLs for these compounds resulted in lower residential risk estimates at Units 1 and 4 than at Units 2 and 3. The Navy will recommend further action for this area of concern (Units 1 and 4) in the Draft Final RI based on the presence of PCBs in shallow soil.
8. **Attachment I, Site 15, Suspended Fuel Tank Area, Section 1.2.1, page I1-2 - The text states that Unit 1 was excluded from the IRP based on petroleum exclusion under CERCLA. Please attach a copy of the decision document to demonstrate that the BCT has agreed to the exclusion.**	**RESPONSE 8:** The signed Petroleum Exclusion document will be included in the Draft Final RI: report as Appendix O.
Section 7.1.1, Physical Characteristics, page 17-1: The statement that Site 15 is located in the northeast quadrant of MCAS El Toro is not accurate. The correct location is northwest	Section 7.1.1 will be corrected in the Draft Final RI to indicate that Site 15 is located in the northwest quadrant of MCAS El Toro.
9. **Attachment k, Site 19, Aircraft Expeditionary Refueling Site, Section 1.2.1, page K1-2 - The text states that Units 1 and 4 were excluded from the IRP based on petroleum exclusion under CERCLA. Please attach a copy of the decision document to demonstrate that the BCT has agreed to the exclusion. Also, please explain why Unit 4 is included in Table ES-2.**	**RESPONSE 9:** The signed Petroleum Exclusion document will be included in the Draft Final RI: report as Appendix O. Table ES-2 will be corrected to eliminate reference to Unit 4 in the Draft Final RI.

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10. **Attachment L, Site 20, Hobby Shop, Section 1.2.1, page L1-4 - Please attach a copy of the decision document to demonstrate that the BCT has agreed to the exclusion of Units 2 and 3.**	**RESPONSE 10:** The signed Petroleum Exclusion document will be included in the Draft Final RI: report as Appendix O.
11. **Attachment L, Site 20, Hobby Shop, Section 6, Human-Health Risk Assessment - We find a discrepancy in estimations of excess cancer risk for future residents at Unit 1. Table L6-5 estimates this risk at 1.5E-05, driven by arsenic. However, Figure L4-3 shows that arsenic values for soils in Unit 1 fall within the range of ambient concentrations at all depths in both Phase I and Phase II investigations. Table KI-46 in Appendix K agrees with Figure L4-3 and shows that arsenic is not selected as a COPC for Unit 1. In addition, Table KVI-196 shows arsenic as a COPC for resident children for Unit 1. Please explain this discrepancy or correct any errors.**	**RESPONSE 11:** The discrepancy results from the comparison with two different backgrounds. As discussed in the 6 February 1997 BCT Meeting, two different background levels are used in the RI, one for the nature and extent of contamination and another for the risk assessment. The background used in the nature and extent is based on the 95th percentile whereas the background used in the calculation of the background risk is based on the 95-percent UCL. Comparing these two values is not appropriate. Section 4 in the main body of the Draft Final RI report will be revised to include a discussion of the two types of background. It should be noted that Table K1-46 shows arsenic selected as a COPC for Unit 1, hence, the risk from exposure to arsenic was quantified for resident receptors as shown in Tables KV1-196. Thus, there are no discrepancies between the table presenting the selected COPCs and the tables which present the risk from exposure to these COPCs.
Cancer risk and non-cancer hazard for future industrial workers at Unit 1 are <1E-07 and <0.10, respectively, while excess cancer risks for Unit 4 and the catch basin fall in the range of 2E-06 to 6E-06, driven by bis(2-ethylhexyl)phthalate (Tables L6-4, L6-5). Non-cancer hazard is not significant for either receptor group at Unit 4 or for industrial workers at Unit 4. The cumulative HI for future residents at the catch basin is 1.2, but all individual toxic endpoints show hazard indices <1.0 (Table L6-6).	Comment on the significance of cancer risk and hazard index at risk Unit 4 is noted.
12. **Attachment M, Site 21, Materials Management Group - This section is missing Figures 1-1, 1-2, and 3-1.**	**RESPONSE 12:** These figures were inadvertently left out of this copy. We will insure that all figures are present in all copies of the Draft Final RI.
13. **Attachment N, Site 22, Tactical Air Fuel Dispensing System, Section 6, Human-Health Risk Assessment - Arsenic is selected as a COPC for**	**RESPONSE 13:** See response to Comment 11. Tables 4-2 and 4-5 present the 95th percentile of the background ambient values. Selection of on-site

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Unit 1 and Unit 2 (Appendix K, Tables K153-55), although no detected values fell higher than the 95th percentile of ambient values (Table N4-5). This is apparently an error, leading to overestimation of excess cancer risk for both residential and industrial uses. Please explain or correct.	metal COPCs for the risk assessment was determined by statistically comparing on-site concentrations with background concentrations (95th percentile). The statistical approach was based on a comparison of maximum detected on-site concentrations to the 95th percentile of the background data and use of the Wilcoxon Rank Sum test and the Quantile test to analyze the hypothesis that on-site concentrations are less than or equal to background concentrations. The results of this process are presented in Appendix D. Application of the statistical approach described above identifies arsenic as a COPC for Unit 1 and Unit 2, hence, risks at this units are not overestimated by inclusion of arsenic in the risk calculations.
Even if arsenic were removed as a COPC, excess cancer risks for Unit 1 would still fall in the range of 1E-05 to 2E-05 for both the future resident and future industrial worker. If arsenic is not a COPC at Unit 2, then cancer risks are not significant. The cumulative HI is >1.0 only for the future resident at Unit 2, but no single toxic endpoint shows a HI >1.0 (Table N6-6). Therefore, no non-cancer hazards at Unit 2 are not significant. Cumulative HI via inhalation of dust at Unit 1 is six orders of magnitude greater for the future resident compared with the future worker (Table N6-5). This was due to barium being a COPC in soils in Unit 1 and manganese soils in Unit 2 for future residents (0-10 ft bgs) but not for workers (0-2 ft bgs), which accounts for 99+% of the difference (Tables KV-115, KV-117, KVI-233, KVI-244).	Comment on the significance of cancer risk and hazard index at risk Unit 1 and Unit 2 is noted.