

M60050\_004053  
MCAS EL TORO  
SSIC NO. 5090.3.A



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

- Andy

December 15, 1995

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

Dear Mr. Joyce:

EPA has reviewed the "Draft Operable Unit 1 Interim-Action Feasibility Study Report" for MCAS El Toro, received on October 15, 1995. Please address the enclosed comments (Enclosures A, B and C) in the revised report. If you have any questions, I can be reached at 415/744-2368.

Sincerely,

Bonnie Arthur  
Remedial Project Manager  
Federal Facilities Cleanup Office

cc: Mr. Juan Jimenez, DTSC  
Mr. Larry Vitale, RWQCB  
Mr. Andy Piszkin, SW DIV  
Mr. Dante Tedaldi, Bechtel

OPTIONAL FORM 99 (7-80)

FAX TRANSMITTAL

# of pages 12

To: Andy Piszkin	From: B. Arthur
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## ENCLOSURE A

EPA COMMENTS ON THE EL TORO OPERABLE UNIT 1  
DRAFT INTERIM ACTION FEASIBILITY STUDY (IAFS)GENERAL

1) Pages ES-1, 1-6, 1-7, 1-8; The definitions for the "regional VOC groundwater plume," "regional groundwater system" and the "Area of Concern (AOC)" should be clarified in the text and Figure 1-3. The terms regional VOC groundwater plume and regional groundwater system should not be used interchangeably. Additionally, the definition for AOC should be flexible enough to include other potential on-Station source areas besides Site 24 and Fuel Farm 2. Phase II investigations will determine if there are other sites contributing to MCAS El Toro contaminated groundwater.

2) Pages ES-3, ES-4; The process, criteria and timeline by which one of the two preferred alternatives, 2A or 6A, will be chosen is not clear. This must be more clearly defined in the draft final FS, Proposed Plan and ROD.

3) Based on our review of the IAFS, EPA recommends the Marine Corps/Navy develop additional alternatives which focus on cleanup of the shallow aquifer and longterm monitoring of both shallow and principal aquifers. The shallow aquifer contains Volatile Organic Compounds (VOCs) with levels at an unacceptable risk and must be remediated. Although the shallow aquifer contains multiple VOCs, the risk level calculated for just one VOC, TCE, at a maximum onsite concentration of 2 ppm, is above the  $10^{-4}$  to  $10^{-6}$  acceptable risk range. One of the remediation goals for the shallow aquifer should be containment of this shallow groundwater to prevent any additional VOC contamination from migrating into the principal aquifer. As discussed in the IAFS, any significant pumping in the principal aquifer will "cause significant downward migration...from the Shallow Groundwater Unit to the Principal Aquifer." This further reinforces the necessity to ensure that shallow aquifer extraction occurs prior to any significant principal aquifer extraction.

The maximum VOC concentrations in the principal aquifer are within EPA's acceptable risk range of  $10^{-4}$  and  $10^{-6}$ . Specifically, the highest concentration of TCE, 34 ppb, detected in a principal aquifer monitoring well, 18MCAS01-6 (Page 1-24), is at a  $2 \times 10^{-5}$  risk level. This risk level is calculated based on the most conservative risk scenario of a person drinking and bathing in groundwater extracted from this maximum concentration location over their lifetime. Additionally, under the best case modeled scenario both recommended alternatives only achieve limited reduction in the size of the principal aquifer TCE plume; 24 percent reduction after 20 years in the size of the TCE plume for

*PLEASE PROVIDE  
ANSWERS*

Alternative 2A and 38 percent reduction after 20 years for Alternative 6A. As part of the development of new alternatives, the Marine Corps/Navy should provide a cost analysis of the incremental reduction of risk achieved by extraction in the principal aquifer to assess the cost effectiveness of principal aquifer cleanup.

4) EPA would like to discuss with the Marine Corps/Navy, the advantages/disadvantages of installation of additional multi-port monitoring wells (recommended in Appendix G).

5) Throughout Chapter 7, the IAFS states that "the cleanup target for this action is the drinking water standard, which represents a residual risk determined by EPA to be acceptable." MCLs are acceptable for this interim ROD given the VOCs detected to date. However, if further monitoring of the groundwater indicates that other VOCs are present and/or metals, MCLs may not be health protective and the final ROD would require more protective cleanup goals.

#### SPECIFIC

1) Pages ES-3, 7-24, 7-25; The summarized text states that the groundwater will be treated to remove VOCs and then provided to the "IDP for further treatment and use." However, the detailed text and schematics (Figure 4-6A) show no Marine Corps/Navy pre-treatment prior to the air stripper at the IDP. Please clarify this discrepancy.

2) Page ES-5, Table ES-1; The table and text appear inconsistent regarding the Alternative 6B shallow discharge proposal.

3) Page 1-7; Please correct grammatical error in sentence starting with "On the basis of the Phase 1 results, DON believes..."

4) Page 1-10; It may be more streamlined to include the final OU 1 groundwater risk assessment as part of the Operable Unit (OU) 3 (or the last OU to be completed) Baseline HHRA rather than a separate document.

5) Page 1-12; Clarify that Site 24 includes only the groundwater under the Operable Unit 3 sites. The shallow soil at these sites are covered in Operable Unit 3.

6) Page 1-21; Clarify the following underlined phrase: "Because the VOC contamination is migrating from the source areas into the AOC, it is necessary to understand what contamination has been deleted in both areas in order to evaluate remedial responses."

7) Pages 1-25, 1-27; Based on BCT meetings/decisions, PRGs

should be used to evaluate risk.

8) Page 1-41, Figure 1-2; a) During the schedule negotiations earlier this year, the BCT agreed to prepare the last scheduled OU ROD, currently OU 3, as the final MCAS El Toro Station-Wide ROD, b) there are many scenarios where early removal actions do not lead to "No-Action RODs." Please delete this phrase.

9) Page 2-3; The following text is not correct: "decisions for action are often made on the basis of maximum contaminant levels (MCLs), defined as standards for drinking water by EPA." The MCLs are often chosen as cleanup levels, however, decisions for action should be based on risk.

10) Page 4-9; Figure 4-7 does not show the three TCE and one benzene areas clearly as stated in the text. Please change the text or label the figure.

11) Page 4-53, Figure 4-1; Please clarify in the figure which area is "not part of CERCLA Remedy."

12) Page 5-8, Section 5.3.3.; Alternative 3, the IDP stand alone alternative, causes "significant downward migration of the benzene plume from the Shallow Groundwater Unit to the Principal Aquifer." This further reinforces the necessity to ensure that shallow aquifer extraction occurs prior to any significant principal aquifer extraction.

13) Pages 5-19, A6-64; The text states that "pumping of the OCWD wells and of the MCAS El Toro project shallow extraction wells may induce vertical and horizontal migration of contaminants from the northeastern portion of the Station. Therefore, more containment/extraction wells may be needed downgradient of the northeastern VOC contamination zones to mitigate the spread of contamination. A response to this mitigation is outside the scope of this IAFS." How will the Marine Corps/Navy ensure coordination between this operable unit and the site specific remedial actions?

14) Page 7-9, Section 7.2.2, first sentence; Please correct the typographical error in this sentence.

15) Pages 7-12; The text states that the "residual risk remaining when Alternative 2A reaches cleanup levels is represented by the MCLs, nonzero MCLs, and RBCs for VOCs, which EPA has determined is not an unacceptable risk level." As the discussion in the first paragraph only presents results after 20 years of pumping, the times for actual cleanup for each alternative should be provided. This comment applies to all discussions throughout Chapter 7.

16) Page 7-14, Section 7.2.2.5; The following sentence is

confusing and should be deleted due to the use of "acutely toxic" and grammar: "Because the groundwater is not considered acutely toxic, no adverse short-term health effected are anticipated from implementing these alternatives."

#### APPENDIX A

1) Page A6-52; Clarify sentence starting with "These results suggest that pumping of the OCWD..."

#### APPENDIX B

1) Page B2-7; This discussion of hazardous waste classification conflicts with the discussion on Pages B2-8, B2-9.

2) Page B2-27, Table B2-1, "Comments" Section; Second paragraph states that "MCLs for inorganics specified in 40 CFR 141.11 are not identified as ARARs at this time because inorganics are outside the scope of this interim action. Furthermore, it has been determined that MCAS El Toro has not contributed to the regional groundwater inorganics contamination." This paragraph should be clarified as the above quoted text indicates that there is regional groundwater inorganics contamination, other than TDS/nitrates.

3) Page B2-29, Table B2-1, "Comments" Section; Please delete "could" in the following sentence: "None of the off-Station extraction wells could exceed TCLP limits."

4) Page B5-2; Clarify which portion of the IDP treatment system (reverse osmosis or air stripper) is considered onsite or offsite for purposes of the ARARs analysis.

#### APPENDIX E

1) Page F-1; Does Option #1 include the Alternatives with VOC treatment only at the Desalter?

ENCLOSURE B  
EPA COMMENTS ON THE EL TORO OU 1  
DRAFT INTERIM ACTION FEASIBILITY STUDY (IAFS)

o The FS should evaluate the possibility of no action with respect to the Principal Aquifer. The risks from contamination in the shallow aquifer vs the Principal aquifer should be distinguished. Also, risks posed by the "Area of Concern" should be distinguished from risks posed by the source areas, since this Interim Action FS does not address source areas. For example, the discussion at Section 2.2.2. (page 2-5) and Table 2-1 should distinguish risks from the two aquifers and from the source areas.

o Additional costs related to the possibility that extracted groundwater is a hazardous waste should be identified.

o The term Station-wide ROD should be replaced with Site-wide ROD, because the site is not necessarily coextensive with the Station.

o Clarify the terms Shallow Aquifer, Principal Aquifer and Regional Groundwater Plume -- are these adequately defined in previous volumes? I am not clear how the Regional Plume is related to the two aquifers.

o When citing a federal register, please put the date of publication (e.g., on page 2-10, the citation should read "55 Federal Register 8750-8754 (Month Date, 19\_\_)"

o With respect to cost estimates for the various alternatives, wherever a range of possible costs exists, the range (rather than a median) should be used to indicate the uncertainty (e.g., the range of possible cost share for VOC removal using the IDP).

Specific

o ES-5, Table ES-1:

- (1) The vertical line dividing the Shallow and Principal Aquifers could be clearer
- (2) Footnotes (b) and (c) are unclear

o The Executive Summary implies that only Alternatives 6A and 2A are effective and cost-effective; however, this is not clearly stated, nor is the information in Table ES-1 sufficient to support that conclusion.

o Figure 1-2: Footnote (b) presumes a removal could lead to a No-Action ROD; this appears to be premature. Reference to the ROD should be deleted.

o Page 2-3, last sentence in first paragraph in Section 2-2:

decisions for action are not made on the basis of MCLs; the decision whether to take response action is made based on risk levels; once such a decision is made, however, MCLs may be used to determine the type and extent of the response action.

o Page 2-4, first bullet under Section 2-2: Why are risks from source areas considered for an OU that is not intended to address source areas?

o Page 2-6 to 2-7: Clarify the concept of "freezing" ARARs.

o Page 2-7 bottom paragraph (going over to 2-8): The Navy should discuss the analysis leading to the conclusion that the VOC treatment facilities are considered reasonably close to the extraction wells and are therefore "on-site" whereas any additional treatment and distribution would be "off-site".

o Page 2-11, Second full paragraph, second sentence: insert "influent" between "estimated" and "water quality".

o Page 3-6 sentence immediately before Section 3.2.5.: Revise to state that feasibility of complete removal throughout the aquifer is less known or less certain rather than less likely?

o Page 3-8 Limitations of LGAC: First bullet -- what does "not cost-effective" mean? Third bullet -- what is meant by "the abundant" nontoxic organic compounds?

o Page 3-9 Third sentence under Section 3.2.5.2. -- is "physicochemical" spelled correctly (does the first c belong there)?

o Page 3-11 Section 3.2.6. Second paragraph, last sentence -- is "raise" correct? (It seems like it should say "lower"). The IAFS should explain further the regeneration/reactivation, disposal or destruction of spent carbon: the advantages/disadvantages of each method, including costs.

o Page 4-3 through 4-6 -- All of Section 4.1. seems unnecessary because the information is presented again (and more clearly) in Section 4.2. Section 4.1. doesn't distinguish between shallow and Principal aquifers when describing each alternative.

o Page 4-15, last full paragraph, third sentence: What does "if required" mean?

o Page 4-21, last sentence of third and fourth paragraphs under section 4.2.4.5.: Why are the discharge limits and water reclamation requirements considered administrative requirements rather than ARARs? Same question under Page 4-39, Section 4.2.10.5, second paragraph.

o page 4-23, second sentence of second paragraph under Section 4.2.5.5.: The SDWA requirements for serving water are not ARARs because they take place off-site, but it is not true that they are non-CERCLA actions. Sections 121(b)(1) and (d)(1) of CERCLA require that all remedial actions attain a degree of cleanup which assures protection of human health and the environment. Therefore, under CERCLA, any discharge of treated water from a Superfund site would have to ensure protection of human health and the environment, even if any requirements related to such protection are not ARARs because they take place off-site. I recommend replacing the phrase "classified as offsite, non-CERCLA" with the word "offsite".

o Page 4-27, last sentence of last paragraph under Section 4.2.6.5.: same comment as immediately above, re "non-CERCLA".

o Page 4-28, second bullet under Section 4.2.6.7.: is one purpose of IDP really to contain and control TADS?

o page 4-31, last sentence of first paragraph under Section 4.2.7.5.: This sentence should be deleted -- once contaminated groundwater is extracted as part of a CERCLA remedy, the ultimate disposal of that groundwater is part of the remedy (see discussion above re non-CERCLA). The second sentence of the last paragraph on this page (the sentence goes over to the next page) should be modified as discussed above re "non-CERCLA. Also, the third paragraph under Section 4.2.7.5. is missing something -- it is not a complete sentence (recommend replacing "that" with "of").

o Page 4-34, last sentence on the page: recommend replacing "that" with "of".

o Page 4-39 See above for Page 4-21.

o Page 5-5, first full sentence on the page (under Advection): is it necessary to repeat that particles were traced from the edges of the "highest TCE concentration zone (above 50 ug/L)" and is 50 correct there or should it be 500?

## ENCLOSURE C

EPA COMMENTS ON THE EL TORO OU 1  
DRAFT INTERIM ACTION FEASIBILITY STUDY (IAFS)

## GENERAL

1. On-base VOC hot spots should be the focus of an aggressive pump and treat action, either as an interim or removal action. The off-base principal aquifer plume does not present a significant threat to human health nor degrade the principal aquifer as a resource. The data presented shows that the off-base principal aquifers are at low concentrations and low risk levels (max. is about 30 ppb and  $10^{-5}$  risk). Additionally, the 20 year time steps indicate that the saturated zones of the VOC source areas will dewater. This would occur with the IDP. EPA recommends that the Navy/Marine Corps take aggressive action to contain the VOC source areas. In the likelihood of the shallow saturated zone becoming dewatered, the Navy/Marine Corps should be prepared to convert the extraction wells to SVE wells.
2. EPA recommends that the Navy/Marine Corps use the Cal EPA guidance "REPORTING HYDROGEOLOGIC CHARACTERIZATION DATA AT HAZARDOUS WASTE SUBSTANCE RELEASE SITES" recommendations for posting the data measured on a contaminant distribution map. The technique employed in this report does not accurately reflect the data reported in the September 1994 monitoring report. Have cross-sections along the major axis of the plume been prepared with the following depicted: lithology, measured water levels, contaminant concentrations, screen length, hydraulic conductivity, and interpreted hydrogeologic units?
3. It is not correct to conclude that a groundwater concentration level of 2 times (or 5 or 6) the MCL is twice the risk (or 5 or 6 times the risk).
4. The model presentation has some problems as follows. First, the scale used for graphical representations is difficult to review. As example, the figure showing the mesh fence interpretation is difficult to read and is not compared (graphically) to a hydrogeologic fence diagram. Second, how will the recent data collected by CLEAN II be incorporated into the Operable Unit 1 reports? The conceptual model of a 100 to 150 foot thick shallow aquifer is not supported by recent CPT data. The recent CPT data indicates that saturation and contamination is restricted to a couple of 10-15ft thick zones (24CPT-55, 24CPT-66). EPA assumes that this information will be incorporated during Remedial Design. Third, the block representation of hydraulic conductivities should be compared to actual field data. A hydraulic conductivity distribution map of measured and modeled data should be presented. This model should be compared to the actual stress data, i.e., pump tests. The DON should use the

model to simulate the actual pump tests performed and compare drawdowns. Without performing this analysis EPA can not agree that the model is validated and/or capable of reproducing flow (see Cal EPA guidance "GROUND WATER MODELING FOR HYDROGEOLOGIC CHARACTERIZATION").

5. If this model does represent flow and stress in the basin, then Figure 6-3/1a (20 year simulation) should be compared to a cross-section using recently obtained CPT data. EPA realizes that this will not be completed until the Remedial Design phase. It appears that if the IDP were to operate under Alternative 3 that the shallow groundwater within the VOC hot spot would become non-producing (drawdowns from 45 to 70 ft.). The Navy/Marine Corps should produce saturated thickness maps for the shallow zone at shorter time steps.

6. Appendix A, Section 8.5. Recommend that the Navy not refine the CFEST model. As previously stated this model has not been validated with stress data nor can EPA concur with model representation of the hydrogeologic conceptual model. EPA does recommend that the Navy use Phase II RI data to construct a capture zone analysis for an aggressive action at the shallow zone hot spots.

#### SPECIFIC COMMENTS

##### Vol. IV

1. Section 1.2 page 1-3. The placement of the IDP extraction wells do not appear to aid in the capture of VOCs. In fact, unless the shallow saturated zone is dewatered, the IDP does not present any benefit to capture of VOCs.
2. Section 1, page 1-31. Please identify which wells are in the AOC and which are in the source areas.
3. Section 1, page 1-51. This is not a geologic cross-section. Please see general comment 3 above and modify. Also, please add concentrations measured at OCWD wells.
4. Section 2.2.2, page 2-5. Please break out the AOC and source area wells in this discussion.
5. Section 2.5, page 2-16, first bullet; The VOCs in the AOC are at or below MCLs. This document does not clearly show the actual contaminant distribution in either the shallow or principal aquifer.
6. Section 4.1, page 4-3. Given the data available to the DON at this point in time, EPA recommends that the DON focus this action on the VOC hot spots. This would include an aggressive pump and treat action within the hot spots along with anticipated source removal actions (SVE and soil excavations). An action designed only for containment is considered too passive at this

time.

7. Section 4.1.2, page 4-5. Please note that 18\_IDP4 is also outside of the regional TCE plume.

8. Section 4.2.1.5, page 4-8. Please note that groundwater contamination in the AOC has not migrated to wells on Culver Drive.

9. Table C-2c in Appendix C contains errors for the reported 1993 data. Please forward the 1994 and 1995 data reports to EPA.

10. Section 4.2.6.3, page 4-26. Please clarify the significance of the 'S' wells. Are they in hydraulic communication with the OCWD wells?

**Specific Comments**  
Vol. VI Appendix A

1. Section 3.1.1.3, page A3-6. Please include the referenced hydrogeologic cross-section. Recently obtained data using CPT indicates a much different shallow aquifer than what is interpreted here. Please clarify how these recent collected data will be incorporated into the Operable Unit 1 reports.

2. Section 3.1.2, page A3-8. The pump tests referred to should be reproduced by the model to confirm validation.

3. Section 3.1.1.4, page A3-6. The data presented in here does not support the interpretation that the intermediate zone is discontinuous. The cross-sections A-A' and C-C' in fact show that the intermediate zone is continuous. The Navy/Marine Corps should consider the likelihood of cross contamination through wells screened across multiple saturated zones.

4. Section 3, Figure 3-16. This Figure is confusing since it represents data from each saturated zone. This Figure and Figures 4-4a,b,& c should be overlain to document how these data were incorporated into the model.

5. Section 4.4.4, page A4-5. The data in Table A4-1 does not compare to the data presented in Section 3.1.2.3.

6. Section 4.2.2, page A4-5. Please present the data set from Table 3-1 as a distribution map and compare to model inputs. As presented it is difficult to review.

7. Section 4.2.5, page A4-11. EPA agrees with the approach for initial conditions, but as presented the discussion of contaminant sources is confusing. This could be presented with the use of a map. Also, Figure 3-18 is a hydrograph.

8. Section 4, Figures 4-1, 4-2, 4-4a, 4-4b, 4-4c. These Figures should be redrawn at a scale which allows the reader to visualize the data. EPA recommends that the use of the Cal EPA guidance "REPORTING HYDROGEOLOGIC CHARACTERIZATION DATA AT HAZARDOUS SUBSTANCE RELEASE SITES." This report recommends using a scale of one inch equal 200 feet.

9. Section 4, Figure 4-2. This Figure should be compared to a similar fence diagram using lithology logs.

10. Section 5.2, page A5-3. The Navy/Marine Corps should consider the occurrence of cross contamination between the shallow and principal aquifer resulting from wells screened across these zones.

11. Section 5.3, page A5-4 and Table 5-1a. The actual ranges of head difference within the shallow aquifer is almost 60 feet and the principal aquifer is 40 feet. Both are excessive and exceed the typical goal of 10%. As previously stated, EPA can not consider this model validated without comparing simulated stresses with pump tests.

12. Section 6.3, Figures 6-2A/1a, through 6-2D/1d and Table 6-3. Please explain why there is such a significant difference in head values in the vicinity of the Site 24 VOC hot spot.

13. Section 6.3, Figure 6-6A/1a. This Figure suggests that after 20 years the drawdown in the vicinity of Site 24 VOC hot spot would decline by about 60 feet. The wells installed in that area have a 40 foot length which crosses the several 10 to 15 foot thick saturated sand stringers in this area. The model predicts that these saturated zones will be dewatered in 20 years. Please produce this Figure at shorter time steps to determine time of dewatering.

#### APPENDIX G

1. Appendix G, Section G1. EPA agrees with the objectives presented in Table G-1 but not with the proposed new monitoring wells. It is the opinion of the EPA that sufficient wells exist in the principal aquifer off-site. After a capture zone analysis is completed for the VOC source areas the Navy should propose monitoring locations.