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

October 10, 1996

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 finished review of the "Draft Final Interim Action Remedial Investigation/Feasibility Study Reports." The documents are acceptable without revision, however, the attached comments (Enclosures A & B) are provided for your incorporation into future Operable Unit (OU) 1 documents. The following major comments should be incorporated into the OU 1 draft final Proposed Plan (PP) and Record of Decision (ROD):

1) EPA can accept a draft final PP and ROD for a joint Navy/Orange County Water District (OCWD) project if the parties are able to reach agreement. The Navy is required to comply with the deadlines established under the Federal Facilities Agreement (FFA). Additionally, as discussed in prior meetings, the Longterm Groundwater Monitoring Plan must be approved by the regulatory agencies prior to the submittal of the draft ROD.

2) If the OCWD and the Navy/Marine Corps are unable to reach agreement and thus a joint project is not "Implementable" (as defined under the National Contingency Plan FS Nine Evaluation Criteria), EPA would require the installation of the additional monitoring wells at Culver Road (the leading edge of the plume) prior to signing a ROD for any Navy stand alone principal aquifer remediation alternative.

During the preparation of these comments, EPA also reviewed comments submitted from OCWD, including the report "Review of Ground Water Modeling Report and Potential Impacts of TCE Contamination," prepared by Geoscience Support Services Inc. If you have any questions regarding these comments, I can be reached at 415/744-2368.

Sincerely,

Bonnie Arthur
Remedial Project Manager
Federal Facilities Cleanup Office

cc: Tayseer Mahmoud, DTSC
Larry Vitale, RWQCB
Andy Piszkin, Southwest Div.

ENCLOSURE A

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

MAJOR COMMENTS

1) EPA can accept a draft final Proposed Plan (PP) and Record of Decision (ROD) for a joint Navy/Orange County Water District (OCWD) project if the parties are able to reach agreement. The Navy is required to comply with the deadlines under the Federal Facilities Agreement (FFA). Additionally, as discussed in prior meetings, the Longterm Groundwater Monitoring Plan must be approved by the regulatory agencies prior to the submittal of the draft ROD.

2) If Orange County Water District and the Navy/Marine Corps are unable to reach agreement and a joint project thus is not "Implementable" (as defined under the National Contingency Plan FS Nine Evaluation Criteria), EPA would require the installation of the additional monitoring wells at Culver Road (the leading edge of the plume) prior to signing a ROD for any Navy stand alone principal aquifer remediation alternative.

3) As discussed in EPA's 12/15/96 comments, the Navy should ensure that shallow aquifer extraction/remediation occurs prior to any significant principal aquifer extraction.

Comments to be Incorporated into Future OU 1 Reports

<u>Draft Final OU 1 Interim RI/FS Report Executive Summary</u>

1) Section 4.3.1; As mentioned in the report, the TDS plume is migrating (page ES-9). Please clarify that the estimates for TDS plume movement are based on OCWD estimates (applicable also for the IAFS Report).

<u>Draft Final Interim OU 1, Interim-Action Feasibility Study Report Addendum</u>

2) Pages ES-2, 1-9, 1-10; OCWD's sampling results must be presented consistently. On page ES-2, 34 ug/L, the maximum Navy detected level for TCE, is provided as the highest concentration. Pages 1-9 and 1-10 discuss the OCWD data, which include a few higher historical detections for TCE. Any discussion of maximum concentrations should include both OCWD and Navy/Marine Corps data with reference to each.

MINOR COMMENTS

1) Page 1-11; Is Table 1-3 missing? Also, the "area of regional groundwater investigation" is not depicted on Figure 1-

1. Please correct this in future reports.

2) Page 5-1, Section 5.1.1; It is assumed that the discussion under Alternative 7B stating "action in the Principal Aquifer under Alternative 7B would occur only as necessary to protect actual beneficial uses" is also applicable to Alternative 7A.

3) Page 5-2, Section 5.2.1; Typographical error. Should Figure 6-2 be changed to Figure 5-4?

4) Figure 7-13; Shading missing for the "Intermediate Risk" key.

5) Page 7-37, 4th paragraph; Typographical error. Should Figure 7-3 be stated as Figure 7-2?

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

October 10, 1996

MEMORANDUM

Subject: Review Comments on Draft Final Operable Unit 1 Interim Action Feasibility Study Report Addendum

From: Herbert Levine, Hydrogeologist
Technical Support Section, FFCO

To: Bonnie Arthur, RPM
Navy Section, FFCO

General Comments

This FS and the Addendum raise some interesting questions regarding addressing remediation of the off-base contaminant plume. Though there are some data gaps this document is sufficient for comparing remedial actions. The existing data gaps are critical and, in my opinion, should be filled prior to signing the ROD, if the Desalter is chosen. Those data gaps are, if natural attenuation is chosen, additional monitoring wells at Culver Road, as well as a long term monitoring plan.

There are some concerns with the ground water model which have not been adequately addressed. The initial condition for contaminant distribution in the principle aquifer is, and the Navy has admitted, an over-estimation by a factor of three to four. The Navy's contention that this is conservative is not true, it is merely an over-simplification and misrepresentation. It is appropriate to use field measured data which represents three dimensional data when constructing a three dimensional model.

A comment was raised previously and discussed with the Navy with regards to delineating risk with plume concentrations. The group had agreed to contour risk at order of magnitude intervals and overlay on the contaminant plume. This was not done. This would be an useful tool when comparing risk posed for alternative 1 and then comparing against other alternatives. It would also be useful for comparing dollar costs for risk reduction.

Specific Comments

1. Section 1.4 Scope OF-1 Interim Action, page 1-11. The second paragraph does not clearly distinguish between this action and the OU-2A action. The next section (1.5) does, so I recommend rewriting this paragraph.

2. Section 1.5 Relationship Between OU-1 and OU-2A, page 1-12. The discussion here identifies

the plume separation between the hydrogeologic units. This is not discussed elsewhere but should be discussed here. The Navy should state where these plumes actually are, and why they are separated. Or is this an artifact of sampling?

3. Section 6.1.2.2 Model Modifications, page 6-5. The practice of using the highest measured value for TCE for the entire saturated thickness when other depth specific data are present is not appropriate nor warranted. The unique feature which makes a three dimensional model more accurate than a two dimensional model is the ability to incorporate depth specific variability in aquifer parameters and contaminant distribution. The contention that the Navy's approach is conservative is misleading. In fact, conservatism is not what is being modeled. What is being modeled is an oversimplification of the subsurface hydrology and contaminant distribution. This in turn produces a plume distribution and movement prediction which is overly simplified and unrealistic. This is evidenced by the plume maps presented for each alternative. They are all two dimensional maps. For the off-base principle aquifer plume it is desirable to compare contaminant distribution in cross section with actual data. The statement that "*This conservative approach helps to compare modeling results....*" is actually wrong and should be deleted. There is no added benefit or help from this approach.

4. Section 6.1.2.2 Model Modifications, Biodegradation, page 6-7. The agency comments asked the Navy to evaluate natural attenuation for the off-base plume of TCE in the principle aquifer. During subsequent BCT meetings this comment was further explained to ask for the Navy to model the off-base plume with the hypothesis that the source is cut off via an action from OU-2A. Therefore, what was asked for was for the model to evaluate the degradation of the off base plume without further impact from the source area. During these discussions it was suggested that the Navy consider re-running the no action alternative without any continuing mass loading from the base. It appears that the Navy did not quite do this, but does evaluate something not too different for Alternative 7B (without biodegradation as shown in Figure 6-46). It is curious that this alternative predicts higher concentrations in the off-base principle aquifer than Alternative 1 (see Figure 6-10). Is this due to incomplete capture of the on base plume? Please explain.

5. Section 6.3.4 TCE Transport Simulations, page 6-15. Please compare and discuss Figure 6-10, TCE in principle aquifer with no action, with Figure 6-16. Table 6-6 identifies a distinction based on plume size greater than 5 ppb. What is the mass differential?(for the principal aquifer). Please make the distinction between SGU and PA in Table 6-6 for all alternatives.

6. Section 6.4.4 TCE Transport Simulations, page 6-18. Moderate shrinking of the TCE plume in the PA appears to be a very optimistic view. There does not appear to be significant reduction in size. When the Navy adds the additional data requested in comment 5 mass removal can be compared.

7. Section 6.7.2 Groundwater Flow Conditions and Capture Zone Mapping, page 6-24. This agency commented on the previous FS with regards to water level declines in the source area if the IDP was constructed. Of particular concern is the top 40 to 50 ft. of the SGU. This is the portion of the plume which contains the most mass of TCE. Since all of the alternatives are run out for 20 years it is appropriate to mention that the portion of the SGU of interest dewaters significantly in less than 20 years. Table 6-4 compares water level differences for 20 years only.

It would be appropriate to prepare a table which has more that one time step. As example, Figure A-3-5 shows simulated drawdown vs. time for 20 years. At time one year water levels drop ten feet in well 22_DBMW47, at the down gradient edge of the hot spot. At time step 2 years water levels have decline to over 15 ft., and at time step 6 years 30 ft. of drawdown has occurred and at the 10 year time step 40 ft. of drawdown has occurred in this well. This is very significant since most of the mass is in the upper 40 ft. This implies little value of pumping within this zone after 10 years. The comments to the previous document and discussions at BCT meetings stressed the importance of acknowledging this phenomenon and including this in the alternatives.

8. Section 6.8 Sensitivity Analysis if TCE Biodegradation, page 6-26. This sensitivity analysis is important, however one important step was excluded. The simulated plumes for this sensitivity analysis should be compared to Alternative 1. The best case, 100 year half life, is not presented in Figures 6-39 and 6-40. Figure 6-46 indicates that without biodegradation concentrations in the PA are greater than Alternative 1, which is also simulated without biodegradation. Please provide the missing Figures and compare all sensitivity analyses with Alternative 1.

9. Section 6.9 Cleanup Time to TCE MCL Simulations, page 6-28 and Table 6-9. The Table 6-9 should breakout the mass and risk difference between the SGU and the PA. The agencies asked for a risk based comparison for each alternative with risk contours shown on plume maps (for the PA). This is necessary for making many comparisons. When comparing time for each alternative the risk contours are likely to indicate the relative risk reduction along with time. As presented the discussion of relative difference of alternatives adds little to the ability to chose a remedy based on time. The statement that Alternatives 6A and 8 are distinguished from other alternatives might be irrelevant if risk were considered.

10. Section 6.11 Summary, page 6-34, item 2. The concept presented here for containment of the SGU is considered conceptual only. This agency does not approve the proposed well placement as presented in this document. This will be addressed in the OU-2A FS.

11. Section 6.11 Summary, page 6-34, item 3. The contention that 18_TIC113 contains the plume is documented by water levels, but not particles (see Figures 6-8, 6-26, 6-32, 6-38). Please clarify. What is the effect of plume movement without these wells pumping?

12. Section 6.11 Summary, page 6-35, item 4. Another concern with the numeric solution is the low value of longitudinal dispersivity used. Anderson and Woessner (1992) state "dispersivity seems to increase with the size of the contaminant plume; i.e., dispersivity seemingly increases as the plume moves down gradient." Also, Fetter (1993) suggests that while the potential range is rather large, the longitudinal dispersivity can be estimated to be about 0.1 of the flow length. Fetter (op.cit.) also states that the few field studies available indicate a ratio of longitudinal to transverse dispersivity ranging from 6 to 20. Please explain why a relatively low longitudinal dispersivity of 50 feet and a lateral dispersivity of zero was used to represent large plumes ranging from 2,000 to 10,000 feet.

13. Section 6.11 Summary, page 6-35, item 5. As stated in comment 10 above, this agency considers the design for the SGU as presented here as conceptual only. We anticipate major changes in the design as presented here and will address our concerns with the OU-2A FS.

14. Section 6.11 Summary, page 6-35, item 6. This agency can not concur since significant

figures were not presented (100 yr. Half life) and the no biodegradation term differs from the no action(see comments 4 & 8).

15. Section 6.11 Summary, page 6-36, item 7. The discussion of cleanup times should include relative risk. What is the difference between these cleanup times?

16. Attachment G, page G-1. The primary purpose of the existing Groundwater Monitoring Plan is to determine the nature and extent of contamination.

17. Attachment G, page G-2. Agree that the objective during a remedial action are different than during a remedial investigation. The primary objective of monitoring during remedial action is to determine if the designed performance and remedial goals are actually met (see Methods for Monitoring Pump-and-Treat Performance, EPA/600/R-94/123, June 1994). Cost-effectiveness is of course always a concern, but is not the only or major concern as presented here. This Attachment should focus on OU-1A, i.e., the contaminant plume in the principle aquifer.

18. Attachment G, page G-2. Add as a monitoring objective, *Evaluate the performance of the chosen remedial action.*

19. Attachment G, Section G-2 Monitoring Phases, page G-3. Suggest changing Compliance to Performance. Agree with the need to collect additional data during the Reconnaissance Phase. The data collection frequency during the Reconnaissance Phase is acceptable. Please add Redox and dissolved oxygen to the parameter list.

20. Attachment G, Section G-2 Monitoring Phases, page G-5. What is the frequency for this phase?

21. Attachment G, Section G-3 Monitoring Well Network, page G-6. This section can not be reviewed since the Tables and Figures were not included.

22. Section 7.2.3.4 Reduction in Toxicity, Mobility, or Volume Trough Treatment- Alternative 6A, page 7-21. The reference to and data presented in Table C-1c poses an interesting question. If the influent concentrations from the off-site principle aquifer plume are below drinking water standards why is treatment proposed?

23. Section 7.2.4.3 Long-Term Effectiveness and Permanace--Alternative 7A, page 7-26. Please add the previously requested risk contours to Figures 7-3 and 7-4. What is the difference in risk reduction, appears negligible, within the PA for each alternative and what is the dollar amount associated with risk reduction?

24. Section 7.4.2 Conclusions, page 7-58. The presentation of risk reduction based on length of a 5 ppb plume is not acceptable. The Navy was asked, and agreed, to prepare risk contours for the off-base plume in the PA. The presentation here is misleading since the total mass reduced is presented along with the cost estimates with no realistic presentation of risk reduction. Figure 7-11 makes an attempt to compare risk with alternatives after 20 years. What is the difference? Why is plume area important? The risk is within an acceptable range for all alternatives presented including alternative 1. According to the data presented in Table C-1c the influent concentrations

to a treatment plant for wells in the PA are below drinking water standards. If the Navy proposes an action within the PA then actual risk and risk reduction must be demonstrated. Figure 7-7 should breakout the difference between the SGU and the PA (as in Figures 7-5 and 7-6).