



March 13, 2001

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Attention: Ms. Glenna Clark, Code 06CA.GC

Contract: N62474-98-D-2076 Environmental Remedial Action Contract

Contract Task Order: 0060

Subject: Comments on Draft Installation Restoration, Site 4 and 5 Dense
Nonaqueous Phase, Liquid and Dissolved Source Removal Action,
Engineering Evaluation and Cost Analysis, Alameda Point, Alameda,
California, January 5, 2001

Dear Ms. Clark:

IT has reviewed the above referenced document per the Navy's request. Overall, the document develops and evaluates alternatives for removal of dense nonaqueous phase or high concentrations of dissolved phase chlorinated hydrocarbons at selected locations at Sites 4 and 5. Comments are presented below and focus primarily upon potential issues regarding future implementation of the preferred alternative (electrical heating with soil vapor extraction) or where there may be questions regarding the clarity of the document.

Comments:

- 1. Page 1-1; Paragraph 4; 3rd Sentence:** The sentence states the data gaps investigation will focus on delineating the vertical and lateral extent of the DNAPL and groundwater contaminant plumes. The investigation should also evaluate the extent of the plumes relative to the various geologic strata or units in which the plumes are present. In addition, the distribution and variation in permeability values within the lithologic units need to be determined at the site. This is essential to effectively capture vapors and associated contaminants generated during the electrical heating process proposed for the various plumes at the sites. IT would be happy to further discuss this issue with the Navy and CLEAN contractor at their earliest convenience.
- 2. Page 1-2; Paragraph 2; 4th Sentence:** This sentence states that source areas were defined for this removal action as chlorinated solvent concentrations exceeding 10,000 micrograms per liter (ug/L). It is not clear if this is 10,000 ug/L per every individual chemical constituent or the sum total of all the chlorinated hydrocarbon concentrations at a site. Suggest a brief sentence clarifying this issue.

3. **Table 1-1; “Notes” at bottom of table:** Add “1,1,1-“ in front of “Trichloroethane” in the notes at the bottom of the table.
4. **Page 2-1; Paragraph 2; 1st Sentence and Figure 2-1:** The text implies the locations of sites 4 and 5 are shown on the figure. However, the actual locations of the sites are difficult to ascertain. Suggest that the sites be clearly delineated and labeled in bold letters on the figure to allow the public to easily determine the locations of the sites.
5. **Page 2-1; Paragraph 2; 2nd Sentence and Figure 2-3:** Text states the physical features of Site 5 are shown on the figure. However, the writing describing the various shop units within Building 5 is so small it cannot be read. Suggest either enlarging the writing or deleting it. In its current state, the writing only raises questions.
6. **Page 2-2; Paragraph 3; “IR Site 4”:** The text discusses several different units at the site including: artificial fill, the Merritt Sand Formation, the eolian and alluvial Merritt Formation, the Upper San Antonio formation, the Lower San Antonio Formation, and the upper, middle and lower portion of the FWBZ. It would be useful to furnish a schematic stratigraphic column showing the various geologic and hydrogeologic units listed and the relationships between them.
7. **Page 2-2; Paragraph 3; 7th Sentence:** Some of the readers may not understand what is meant by “low-conductivity” clayey sand. Suggest either explaining what the “low-conductivity” refers to (e.g., some readers may confuse this with electrical conductivity) or re-writing the sentence.
8. **Page 2-2; Paragraph 4; 3rd Sentence:** The text states that groundwater (in this portion of the base) generally flows to the west and southwest, towards the Seaplane Lagoon and San Francisco Bay, and is affected locally near industrial buildings by preferential flow paths such as storm drains and underground utility trenches. Review of Figure 2-4 shows the longitudinal axes of several dissolved phase plumes at the site oriented towards the northwest. This raises the issue of whether there is localized groundwater flow at Site 4 to the northwest as the orientation of the longitudinal axes of plumes commonly follows the general direction of groundwater flow. A review of Figure 2-2 shows no utility lines running in this general direction at the locations of the plumes either. This issue will most likely need to be further evaluated as part of the data gaps investigation.
9. **Page 2-3; Paragraph 1; 2nd Sentence:** The text states the storm water conveyance pipes act as potential groundwater sinks at low tide. Do they act as infiltration points during high tide? This may be an important issue relative to future SVE system design.
10. **Page 2-2; Paragraph 3; “IR Site 4”:** See comment number 6 above. Though there are fewer geologic units listed in the text here, a schematic stratigraphic column would also be useful in conveying relationships to the readers.

11. **Page 2-5; Paragraph 3 and 4; “IR Site 4” and “IR Site 5”:** The order of listing of investigations and removal actions for each of the sites in the text and in Tables 2-3 and 2-4 should be consistent. They currently are not.
12. **Page 2-6; Paragraph 2; 1st Sentence:** Should reference a figure showing the location of groundwater sample point S05-3B-C. Otherwise, the listing of the sample point in the text doesn't have much meaning to the readers.
13. **Page 2-6; Paragraph 2; 3rd Sentence:** The second half of this sentence is confusing. Suggest striking “central portion of the NAPL in the” from the sentence, or re-writing entirely.
14. **Page 2-7; Paragraph 5; 1st and Last Sentences:** The text gives the impression that the steam injections reduced all petroleum hydrocarbons including SVOCs. However, the last sentence of the third paragraph on page 2-6 states the pre-SEE groundwater total SVOC concentrations ranged from non-detection to 2,694 ug/L; the post-SEE total SVOC concentrations ranged from 26 ug/L to 5,500 ug/L. This would be considered evidence of an increase in SVOC concentrations.
15. **Page 2-8; Paragraph 3; 4th Sentence:** The use of the term “anomalous data” within the context of the sentence is cryptic and raises questions. Suggest either re-writing or explaining what “anomalous” means.
16. **Page 2-9; Paragraph 3; 1st Sentence:** This sentence and subsequent text discuss shop operations at the former plating shop in building 360 and may give the impression that the plating shop was the source of the chlorinated plumes at Site 4. However, three of the four plumes at the site are nowhere near the location of the plating shop. Suggest clarifying.
17. **Page 2-9; Paragraph 5; 1st Sentence:** A 1,1-DCE DNAPL plume is stated to be southwest of Building 360. Comparison between Figures 2-2 and 2-4 shows the potential DNAPL removal action area for the 1,1-DCE to be mostly under the paint shop portion of the building. Please clarify.
18. **Page 2-11; Paragraph 4 and Figure 2-5:** The first sentence of the paragraph states that aqueous concentrations of chlorinated hydrocarbons exceeding 1% of solubility or 10,000 ug/L are present at four locations at Site 5. It would be useful to cite in the subsequent text a sample location number on Figure 2-5 corresponding to each of the four potential DNAPL areas. This allows the readers to identify each of the areas on the figure relative to the detailed information provided in the text.
19. **Page 2-12; Paragraph 1; 2nd Complete Sentence:** The location of a DNAPL plume is given to be “northwest of the former plating shop inside Building 5.” The plating shop is not clearly labeled on either Figure 2-3 or 2-5 and therefore, this reference to the location of the plume is confusing to the readership.

- 20. Figure 2-4:** Contamination is listed directly on the figure as extending to 10-15 feet bgs at the northernmost removal action area. Review of the data in Table A-1 shows TCE at concentrations greater than 10,000 ug/L at depths from 25 to 35 feet at hydropunch point S04-4-3 (located within this removal action area). This discrepancy needs to be resolved.
- 21. Figure 2-4:** 1) It is not clear what a "surface location point type" is. Is this a surface soil sample location? Please clarify. 2) Several of the surface location symbols are shown east of the DNAPL removal area under the paint shop. If these were surface samples and were not used in the delineation of the DNAPL or dissolved phase plumes they should be removed from the figure. They only add to the clutter. 3) Would be useful to show the groundwater flow direction on the figure. 4) It would also be useful to clearly show the outline of Building 360 on the figure, suggest using a bold line.
- 22. Figure 2-5:** The important information (i.e., the removal action areas, concentration contours, and sample points) on this figure are cluttered and hard to read. The actual area of interest near and around the removal action areas comprises roughly only one-fifth of the total figure area. Suggest enlarging the figure and concentrating on the actual area of interest. Those portions of Site 5 without removal action areas aren't that important relative to this EE/CA and don't really need to be covered on this figure.
- 23. Figure 2-5:** 1) Symbols consisting of blackened disks show on the figure are not explained in the legend. They need to be. 2) "Surface location" symbols are shown in the legend but are not on the figure. Suggest deleting this symbol from the legend as it only raises questions. 3) Would be useful to show the groundwater flow direction on the figure. 4) It would also be useful to clearly show the outline of Building 5 on the figure, suggest using a bold line.
- 24. Page 3-4; Paragraph 3; 4th Sentence:** Suggest changing "site stabilization" to "DNAPL or source removal". Site stabilization may be confused with fixation or stabilization technologies commonly applied to metals or PCBs in soils.
- 25. Page 4-1; Paragraph 1; 2nd Sentence:** Should state that the No Action alternative is developed for comparison as a baseline.
- 26. Page 4-1; Paragraph 3; 1st Sentence:** Please note that the data gaps investigation may also need to collect data to evaluate other parameters for the design of the preferred removal action (electrical heating with SVE). This information may include but not be limited to the following:
- The horizontal and vertical distribution of DNAPL relative to the various stratigraphic units at each site
 - The distribution and variation in permeability of the formation at the site (including utility corridors and backfill)
 - Diurnal and seasonal variations in the position of the water table

- Variations and depth of the freshwater saltwater interface
- Depth, location and composition of pilings for plumes under the buildings
- Lateral and vertical distribution of groundwater conductivity

In addition, information from other sites using this technology has shown that PVC wells are usually destroyed when applying this technology. Therefore, existing monitoring wells in the vicinity of the removal actions may need to be replaced with stainless steel casing and well screens or removed altogether. This may also be done during the data gaps investigation.

- 27. Page 4-2; Paragraph 4; “five effectiveness criteria”:** The text just lists the criteria. Most EE/CAs and FFSs usually provide descriptions of each of the criteria and describe how they are applied in the analysis. As this EE/CA is public document suggest this be done in Section 4.1.2 or in previous text. Otherwise, the public and readership have no idea as to how the criteria are uniformly applied for each of the alternatives.
- 28. Page 4-13; Paragraph 2 and Page 4-16; Paragraph 4 – “Implementability”:** The depth to groundwater at Site 4 can be as shallow as two feet bgs. This may make collection of vapors through the SVE system problematic due to the limited vadose zone, particularly during the wet season. This will need to be evaluated during system design and is the reason for the third bullet in comment number 26 above.
- 29. Page 5-1; Paragraph 2 and Table 5-1:** The assignment of actual numerical values for the scores shown on Table 5-1 for the various criteria seems arbitrary and may generate considerable public and regulatory comment. For example, the Short-term Effectiveness score of 6 for A3 versus the score of 8 for A4 suggests that the impact to human health of an electrical shock is less detrimental than that of a steam burn. In fact, since electrical heating generates steam, A4 also involves the risk of scalding. Suggest providing an explanation showing the standards or criteria used in assigning the numerical scores in either the text or as an appendix that can be referenced at the end of the table.
- 30. Page 5-1; Paragraph 4 - “Overall Protection of Human Health and the Environment”;** **3rd Sentence and Page 1 of Table 5-1:** The text states that A4 would be more effective than A3 because hydraulic short-circuiting would not occur. Please note that electrical heating process generates steam, and that pilings, utility corridors or other high permeability pathways may potentially effect convective heat transfer, and with it, steam and vapor phase transport/recovery. At the least, these pathways will need to be identified during the data gaps investigation if sufficient data do not already exist.
- 31. Page 5-3; Paragraph 1 - “Short-term Effectiveness”;** **1st Complete Sentence and Page 2 of Table 5-1:** Please note that A4 also generates steam and that construction or site workers may be subjected to either steam or scalding water, including during sampling events. At the

least, this will have to be addressed in the Health and Safety Plan for implementation of the pilot tests and removal actions.

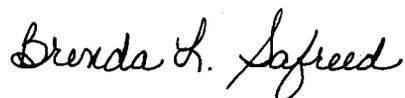
- 32. Table 5-1; Criteria 1 – “Overall Protection of Human Health and the Environment”; Alternative 2:** The table states that the in situ chemical oxidation is “more effective when DNAPL is not present.” Isn’t DNAPL removal one of the main objectives of the removal actions? If so, this begs the question of why this alternative was evaluated in the first place. Suggest re-wording.
- 33. Page 4-13; Paragraph 3 and Page 4-17; Paragraph 2 and Table 5-1 – “Cost”:** The backup and assumptions for a cost estimate, including vendor quotes, are usually supplied in an appendix for an EE/CA and FFS. This is essential to support and validate the cost estimate and comparative analysis in the text and table. Suggest including this information. Also, it is not clear if the vendor quotes supplied in roughly November or December account for the recent increases in electrical power rates. This may be an issue with the public relative to implementation of the electrical heating (including the use of scarce electrical power in general), and need to be considered relative to submission of the document for public review. Suggest including a statement within the text about the potential use of portable power generators as opposed to tapping into the local/regional power grid. This should also be evaluated as part of the design effort.

This completes the comments for the Draft EE/CA. Please feel free to call Dan Baden at 925.288.2014 if there are any questions or clarifications needed regarding these comments.

Sincerely,
IT CORPORATION



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Brenda L. Safreed
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PMO

cc: Dan Baden, IT
Project File