



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

April 15, 1997

Mr. Richard Powell
Mail Code 1832
Engineering Field Activities West
900 Commodore Drive
San Bruno, CA 94066-2402

SUBJECT: DRAFT FINAL PARCEL C REMEDIAL INVESTIGATION REPORT

Dear Mr. Powell:

Enclosed please find the Environmental Protection Agency's (EPA's) comments regarding the Subject document received on March 18, 1997. Overall, the Navy did a good job of addressing EPA's comments. There are a few minor comments remaining that still need to be incorporated into the document or require additional clarification from the Navy. If you have any questions regarding these comments, please call me at (415) 744-2387.

Sincerely,

A handwritten signature in cursive script that reads "Sheryl Lauth".

Sheryl Lauth
Project Manger

cc: Ms. Glenna Clark
Mr. Jim Sickles
Mr. Chein Kao
Mr. Rich Hiatt

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**COMMENTS ON THE PARCEL C
REMEDIAL INVESTIGATION DRAFT FINAL REPORT
HUNTERS POINT SHIPYARD**

1. **Section 4, Response to General Comment 3.** EPA disagrees with the Navy's response. EPA has requested that the migration pathways from source areas to soil and then to groundwater be evaluated for each of the RI reports. This information is important both for evaluating whether the nature and extent of contamination and fate and transport have been adequately defined and to define areas for remediation for the feasibility study. If the site-specific potential migration routes are not clearly understood, remediation may not address all of the existing contamination; as a result, the Navy may have to conduct additional remediation in some areas in the future.

In general, a good effort was made to tie soil contamination to source areas, however this same effort was not applied to the relationship between soil and groundwater contamination or between soil and sediment contamination, and an evaluation of the site specific potential migration routes has not been done. At a minimum, an evaluation of site specific migration routes should be done for areas with DNAPLs. This evaluation, which does not necessarily have to be included in the RI report (this could be included as part of the design phase), will help to clarify the most probable location of the most contaminated soil and groundwater, since even biased sampling locations may not have been placed in the most contaminated "hot spots." This analysis should also include an evaluation of the upper surface (slope, depressions, etc.) of less permeable soil or bedrock layers and bedrock fractures to help predict areas where DNAPL could be pooled.

2. **Section 4.3, Response to Comment 2.** There is still an order of magnitude error in the range of hydraulic conductivity of the B-aquifer cited on page 4-135 (third paragraph). The minimum was .093 ft/day, not .0093. This should be corrected.
3. **Section 4.3, Response to Comment 3.** The text in the fourth paragraph on page 4-134 still reads IR-29; please change to IR-28.
4. **Section 4.8, Response to Comment 3.** Berth 3 and Drainage Area G were not labeled on Figure 4.8-1 as stated in this response.
5. **Section 4.8, Response to Comment 5.** The reason that the original comment requested that the Navy discuss patterns of detected contaminant concentrations in sediment was so that the potential migration pathway between source areas at the other IR sites, storm drain sediment contamination, and sediment contamination in the Bay would be evaluated. It is not clear why the Navy has decided not to do a meaningful evaluation of this contaminant migration pathway given the potential for recontamination of the sediment.

6. **Section 4.11, Response to Specific Comment 6.** Sandblast grit was not added to the "Probable Source" column for lead and zinc.
7. **Section 4.12, Response to Specific Comment 2.** Sandblast grit was not added to Table 4.12-17 as a probable source for lead and zinc; this change was only made for mercury and copper.
8. **Section 5, Response to Specific Comment 3.** It does not appear that text was added to discuss the likelihood that PAHs were related to suspended sediment in turbid samples. Both Table 5.2-1 and the table on page 5-24 still contain PAHs and present a high likelihood of PAH DNAPL; these PAHs were not discussed in the text. Also, the text in the second paragraph on page 5-6 mentions potential PAH DNAPLs at six locations; this should be revised. As a result, the reader is still left with the impression that there is PAH DNAPL in several locations.
9. **Appendix C, Response to Comment 2.** The slug test data for these wells was reanalyzed, but the K and T values in Table L.2-6 have not been updated for these 4 wells (IR28MW273F, IR28MW287A, IR28MW299B, and IR29MW56F) as stated in the comment.
10. **Appendix P (now Appendix L), Response to Comment 2.** An understanding of the relationship between bedrock structure (cleavage, joints, etc.) and groundwater flow will likely be critical for a successful remediation of the TCE (and possible DNAPL) found in bedrock monitor well IR28MW211F. This information could be obtained as part of the design phase.

APPENDIX P

1. The effect of changing the values of the input variables is not clear. Ideally, a sensitivity analysis to determine the most critical variables should be done. Alternatively, a worst case calculation should be done. One way to approximate a worst case might be to do a calculation using the maximum concentration and maximum flow rate.
2. All discussion of uncertainty should be placed in a separate section. At present, the discussion of uncertainty is scattered throughout the text, which is confusing for the reader.
3. **Page 11, last paragraph.** The basis for the "density-driven pressure head" is not clear because Sepehr (1997) is not a public document. Additional support and documentation should be provided in an attachment so this concept can be evaluated.
4. **Page 12, Item 4, second paragraph.** The transition between the first and second paragraph leaves the reader with the impression that mass flux to the bay is influenced by dilution, which is untrue. Please revise the text to make it absolutely clear that dilution affects concentration but that mass loading is unchanged by dilution. This paragraph should be a distinct item, and

the discussion of mass loading and the effect of dilution on concentrations should be separated throughout the text.

5. **Page 17, last paragraph.** The concept of dilution is discussed in context with mass loading in this paragraph. Please make a clear distinction between mass loading, which is dilution independent, and concentration, which is dependent on dilution.
6. **Page 19, second paragraph.** The discussion of tidal dilution should be separated from the discussion of mass loading.
7. **Table D-8.** It appears that seepage velocities (rate) rather than discharge velocities (volume) were used to calculate groundwater discharge to the bay. The use of seepage velocities will likely overestimate the groundwater discharge by a factor of two or three. Please explain why seepage velocities were used in this analysis.