



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105
SFD 8-3

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ALAMEDA POINT
SSIC NO. 5090.3

June 16, 2005

Thomas Macchiarella
BRAC Operations, Code 06CA.TM
Department of the Navy, Southwest Division
Naval Facilities Engineering Command
1230 Columbia Street, Suite 1100
San Diego, CA 92101

RE: Draft Soil Remedial Investigation Report, IR Site 30, Alameda Point

Dear Mr. Macchiarella:

EPA has reviewed the above referenced document, prepared by Bechtel Environmental, Inc and submitted by the Navy to the regulators on March 17, 2005. In reviewing the document, EPA factored in information from a number of documents provided by the Navy to the BCT on May 17th. These documents included evaluations for siting what would later become Marina Village Housing, a study on ground settlement at the Annex by USGS, and options for relocating certain base operations in the 1980's period prior to base closure. The information available from review of the documents would greatly enhance the understanding of past activities at Site 30 that may have resulted in soil and groundwater contamination and would provide a better understanding of nature and extent of contamination. I recommend that this information be incorporated into the Draft Final Remedial Investigation for Site 30.

EPA disagrees with screening any inorganic contaminant against the maximum background value for that contaminant. This approach underestimates risk and underestimates the nature and extent of the contamination. Rather, a screening against the 95th UCL should be used which, in the case of arsenic, substantially lowers the screening value from 15.6 mg/kg to approximately 8 mg/kg.

These major comments and additional comments are included in the enclosure. Please feel to contact me at (415) 972-3029 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Anna-Marie Cook".

Anna-Marie Cook
Remedial Project Manager
Federal Facilities Branch

enclosure

cc: Darren Newton, SWDiv
Marcia Liao, DTSC
Judy Huang, RWQCB
Elizabeth Johnson, City of Alameda
Peter Russell, Russell Resources, Inc
Jean Sweeney, RAB Co-Chair
Karla Brasaemle, TechLaw Inc
Sophia Serda, EPA

**Review of the Draft Soil Remedial Investigation Report
IR Site 30, Alameda Point**

GENERAL COMMENTS:

1. Some key information is missing from the description of the site background which is highly relevant as part of the conceptual site model and an understanding of the origins of the soil and groundwater contamination. The site was used as part of the San Francisco Bay Airdrome, Inc from 1929 until 1941. Many contaminants, including benzene, naphthalene, chromium, vanadium and iron are likely attributable to the operation of the Airdrome as well as to the later DRMO activities. Please review the available information on site history as well as that associated with the development of the Marina Village housing area and refine the conceptual site model and site description for the draft final RI.
2. EPA disagrees with screening any inorganic contaminant against the maximum background value for that contaminant. This approach underestimates risk and underestimates the nature and extent of the contamination. Rather, a screening against the 95th UCL should be used which, in the case of arsenic, substantially lowers the screening value from 15.6 mg/kg to approximately 8 mg/kg.
3. The extent of contamination in soil cannot be determined for some chemicals because a significant number of samples had quantitation limits (QLs) that exceeded their respective residential preliminary remediation goals (PRGs).

Chemical	Number of samples with QLs exceeding PRGs	Maximum QL (ug/kg)	PRG (ug/kg)
2,4 - dinitrotoluene	48 of 59	11,000	720
pentachlorophenol	51 of 59	55,000	3,000
dieldrin	49 of 59	68	30
Aroclor 1254	50 of 59	1,400	220

The argument made in the text in Sections 4.1.2.3 and 4.1.2.4, that the fact that the method detection limits (MDLs) are below the PRGs supports the conclusion that these constituents are not present, is invalid. MDLs are determined using laboratory prepared samples, not with real world samples that have matrix interferences and/or where high concentrations of one or more constituents makes it difficult to quantify the peaks for other analytes. Therefore, when the QL is elevated because of matrix interferences, the detection limit is also normally elevated for that sample and it cannot be assumed that an analyte is not present in the sample based on an MDL determined in pure water. It can be

concluded that meaningful comparisons with PRGs can be made for 11 samples that were analyzed for 2,4-dinitrotoluene, 8 samples that were analyzed for pentachlorophenol, 10 samples that were analyzed for dieldrin and 9 samples that were analyzed for Aroclor 1254. This is an insufficient sample size to determine the nature and extent of contamination. These data gaps should be discussed in the text. Please acknowledge the data gap associated with each of these contaminants in the text and discuss how and when this data gap will be addressed.

SPECIFIC COMMENTS

- 1. Executive Summary, Page ES-1:** The location of OU 5 in relation to IR Site 30 is not described when OU-5 is first mentioned nor is it shown on either Figure ES-1 or on Figure ES-2. Although the text does discuss the location of OU-5 on a later page, please include this information on Page ES-1 when it is first mentioned. It would also be helpful to add OU-5 to Figure ES-2, since it is discussed several times in relation to IR Site 30.
- 2. Section 1.3.2, Site Description and History, Page 1-4:** The date Alameda Point was placed on the National Priorities List (NPL) is not specified. Please include this information.
- 3. Section 1.3.6.2, Tidal Influences, Page 1-13:** The text cites two different ranges of results for the tidal study in the shallow aquifer: “Consistent tidal fluctuations of 0.03 to 0.08 foot were recorded in the shallow aquifer wells; in shallow aquifer wells consistent tidal fluctuations of 0.08 to 1.1 feet were recorded.” Please check the fluctuation values and clarify or reconcile the apparent differences.
- 4. Section 2.3.1, Alameda Island Geology, Page 2-2:** Since the cross section does not show any boreholes penetrating the Lower Bay Sediment Unit paleochannel, the basis for its placement on Figure 2-3 (Schematic Geologic Cross Section A-A’) is unclear. Text on both Pages 2-2 and 2-6 refers to the paleochannel as located north of the site. Figure 2-3, however, shows the paleochannel with its central lowest point approximately on the north boundary of IR Site 30 with approximate margins on the south boundary of IR Site 31, which is south of IR Site 30, and in the center of IR Site 25. Please revise either text or figure to make them consistent regarding the location of the paleochannel and also expand the discussion in the text to include the basis for the paleochannel’s location and the degree of certainty associated with that location.
- 5. Section 2.3.2, IR Site 30 Geology, Page 2-4:** The discussion of the Cross Section D-D’ (Figure 2-7) states that boring C3S030B027 has 10 feet of clay. As shown on the figure, the actual thickness of clay in that borehole is 12 feet. Please check the original borehole log for this location and resolve this discrepancy.

6. **Figure 2-3, Schematic Geologic Cross section A-A’:** The cross section states that CH-11 has been projected 66 feet from the south, but Figure 2-2 shows it to be projected approximately 200 feet from the west. Please confirm the location of CH-11 on Figure 2-2 and revise the projected value on Figure 2-3 as necessary.
7. **Figure 2-12, Bottom of Clay Elevation Map:** It is not possible to distinguish locations where no clay was observed in the boring from those where the bottom of the clay layer was not observed. One possible solution is to use a colored shading to designate locations where no clay was observed and to post <x.x (where x.x is the elevation of the bottom of the borehole) to designate locations where the bottom of the clay layer was not observed.
8. **Table 3.1, Data Quality Objectives for IR Site 30:** The description under Step 1 appears to contain a contradiction. In Step 1 - State the Problem, the following statements appear in the third paragraph: "...a limited amount of recent valid soil gas data collected within the boundary of IR Site 30 exists" and "...soil gas samples must be collected from the vadose zone and at a minimum of 5 feet bgs to be valid for HHRA purposes. Groundwater at the site is expected to be encountered between 4 and 5 feet bgs; therefore, soil gas data from IR Site 30 are not considered a valid source of usable data.." Please resolve this apparent contradiction and state (1) whether the previous soil gas data collected from IR Site 30 are valid or not and (2) if they are, why additional soil gas data were not collected during the IR sampling in 2004.
9. **Section 4.1.1.5, OU-5 Remedial Investigation, Page 4-4:** The description of sample collection in previous sections included the number of duplicate samples collected, but the text in this section does not include this information. Please include the number of duplicate samples collected during this part of the OU-5 RI.
10. **Section 4.1.3.2, Other Semivolatile Organic Compounds, Page 4-10:** The statement that "2,4-dinitrotoluene was reported at a concentration exceeding the detection limit in 1 of 59 soil samples" is misleading because 48 of the 59 samples had elevated detection limits. Please revise the text to also cite the number of samples with elevated detection limits.
11. **Section 4.1.3.3, Pesticides, Page 4-10:** The statement that "dieldrin was reported at a concentration exceeding the detection limit in 2 of 59 soil samples" is misleading because 49 of the 59 samples had elevated detection limits. Please revise the text to also cite the number of samples with elevated detection limits.
12. **Section 4.1.3.4, Polychlorinated Biphenyls Page 4-10:** The statement that Aroclor 1254 was only reported in one sample is somewhat misleading because 50 of 59 samples analyzed for Aroclor 1254 had elevated detection limits. Please revise the text to include the number of samples with elevated detection limits.
13. **Section 4.1.3.5, Metals, Page 4-15:** The extent of metals contamination in the vicinity of boring C3S030B068 is unclear. The RI Report states that the Navy excavated around

boring C3S030B068 in November 2004 as a time critical removal action, following the sample results from the RI which showed isolated, anomalously high values for a large selection of analytes at this one location, but it is not clear that confirmation sampling was conducted. Please discuss whether confirmation samples were collected and analyzed for metals and if so, discuss the results.

14. **Section 4.1.3.6, Summary of Chemicals in Exposed Shallow Soil, Pages 4-16 through 4-18:** The discussion of the various analytic results for different chemicals in shallow soils from unpaved areas focuses on average concentrations for different chemicals. The text points out that shallow exposed soils have the potential to be exposure pathways, especially for young children from the school and/or child development center on the site. Since a child's activities might be more likely to result in exposure to a point source, please explain the rationale for using average values in the discussion.
15. **Table 4-4 Concentration Ranges for Organic and Inorganic Analytes Reported in Groundwater:** Because the data related to metals (the bottom part of page 2 of 4 plus pages 3 of 4 and 4 of 4) are grouped by pairs of filtered and unfiltered samples, it is not clear whether criteria should be applied to both filtered and unfiltered data. Please add lines to the table separating the metals for clarity.
16. **Section 5.2.5 Migration by Groundwater Flow, Page 5-5:** The RI Report states that "Horizontal migration due to groundwater flow and tidal fluctuation is considered an active transport pathway for the site. However, it is unlikely that dissolved concentrations of contaminated groundwater will reach the bay or harbor at significant concentrations due to natural attenuation mechanisms that would reduce chemical concentrations." The RI Report previously stated that groundwater flow was to the northeast and northwest toward Oakland Inner Harbor. Oakland Inner Harbor is about 1250 feet north of the site. While it is certainly possible that natural attenuation, coupled with dilution, would reduce concentration to safely low levels before the harbor was reach by the plume, it would be helpful to have information on velocity of shallow groundwater flow in that area. Please discuss the groundwater velocity and the time it would take site groundwater to reach the Oakland Inner Harbor.
17. **Section 5.2.6, Groundwater Migration Via Preferential Pathways, Page 5-6:** The RI Report states that "...groundwater flow patterns suggest that buried estuarine channels may influence groundwater flow direction beneath and in areas adjacent to IR Site 30," but further information is not provided. Please expand in this statement and specify channel location and orientation.
18. **Section 5.3.1.4, Transformation Mechanisms, Page 5-9:** A three order range of half lives (3 days to 5 years) is reported for the biodegradation of naphthalene in groundwater of various types and chemistries. However, no analogous range of half lives is included for the biodegradation of benzene in groundwater, merely some factors, namely aerobic versus anaerobic environments, which can have a general impact on the rate or

degradation. While biodegradation is cited as “likely a primary transformation mechanism for organic chemicals at IR Site 30,” there are no site specific data to estimate how long these chemicals will persist. Persistence of these chemicals is uncertain with the available data, since it is likely that the benzene and naphthalene that were adsorbed by the free-phase hydrocarbons associated with the marsh crust and are now slowly diffusing and will continue to diffuse out of the free-phase hydrocarbons for an indefinite period. Please consider whether a discussion of half lives is meaningful under these conditions and modify the text to discuss the impact of the presence of the marsh crust on the persistence of these chemicals.

19. **Section 6.2.1.4, Identification of Chemicals of Potential Ecological Concern, Page 6-17:** Chemicals that were not reported above the detection limits were removed from further consideration at the site. Based on the text provided in the document, it is unclear if “detection limit” refers to the MDL or the Reporting Limit (RL). It is not appropriate to use MDLs in this fashion, as MDLs represent a statistical estimate of theoretical method detection capabilities. RLs, the minimum level at which a laboratory can confidently report analytical data, should be used for comparison to appropriate screening criteria for the selection of chemicals of potential concern (COPCs). It should be noted that analytes should be carried forward and assessed as COPCs in instances where RLs exceed screening criteria. Please revise the document to provide further clarification as to whether MDLs or RLs were used for selecting COPCs. If MDLs were used, then the document should be revised to use RLs for data classified as “non-detects”.
20. **Section 7.1.1, Soil, Page 7-1** The RI Report identifies PAHs, arsenic, iron and vanadium in soil as the “only COPCs reported in a significant number of samples,” but other chemicals of interest are discussed in Section 4. Please quantify the term “significant number.”
21. **Section I3, Page I-5 and Table I3-3:** It is unclear why the maximum concentrations of benzene, 375 micrograms per liter (ug/l), and naphthalene, 3180 ug/l, in shallow groundwater, were not used for the risk assessment; instead, Table I3-3 indicates that the maximum concentrations used in for risk assessment calculations were 41 ug/l for benzene and 560 ug/l for naphthalene. Since these concentrations are 5 to 10 times less than the maximum concentrations, it appears that the risk assessment is not conservative. It is possible that the maximum concentrations for other chemicals were also not used. Please explain why the maximum concentrations detected in shallow groundwater were not used and provide comparison of the maximum concentrations used in the risk assessment with the actual maximum concentrations of the data collected from shallow groundwater.
22. **Section I6, Risk Characterization, Page I-12.** The first paragraph of this section states that calculations for each exposure pathway are presented in Tables I6-1 through I6-36. Although the calculated risk estimates are presented in these tables, a presentation of the equations used to generate quantitative risk estimates for each exposure pathway are not

included, nor are they presented within the text of the RI Report. Please revise the RI Report to present the equations used to generate quantitative estimates of risk and hazard.

Comments from Dr. Sophia Serda, EPA toxicologist

- 1. Section 6.1.6.3 and Section 17.3.1.** The use of the Anaconda, Montana site specific arsenic information and identification of an arsenic level of 250 mg/kg as an concentration "acceptable" is neither appropriate, applicable or relevant reference for IR Site 30. Anaconda, Montana is a mine site and the arsenic level was developed in part with a cost benefit analysis. In Region 9 a better reference would be the Lava Cap mine site residential level of 20 mg/kg. It would be best if the Navy conduct an Alameda Point bioavailability assessment similar to what was done for Anaconda, Montana. Delete references.
- 2.** The exposure point concentrations (EPC) for arsenic in soil are better represented by log normal distributions. In fact the arsenic data are log normal and the corresponding EPC would be higher (19mg/kg) than what was used to quantify risk (17 mg/kg).