



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

May 8, 2007

Mr. Thomas Macchiarella, Code 06CA. TM
Department of the Navy
Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Re: Review of the Draft Site Inspection Report for Western Bayside and Breakwater Beach, Alameda Point, Alameda, California, March 2007

Dear Mr. Macchiarella:

The U.S. Environmental Protection Agency (EPA) Region 9 has received the Draft Site Inspection Report for Western Bayside and Breakwater Beach, Alameda Point, Alameda, California, dated March 8, 2007. We have reviewed the aforementioned document and our comments are enclosed.

If there are any questions, please feel free to contact me at (415) 972-3002.

Sincerely,

A handwritten signature in black ink, appearing to read "Xuan Mai Tran".

Xuan-Mai Tran
Remedial Project Manager
Federal Facilities and Site Cleanup Branch

cc: Mary Parker, BRAC PMO
Erich Simon, SFRWQCB
Dot Lofstrom, DTSC Sacramento
George Humphreys, RAB Co-Chair
Peter Russell, Russell Resources, Inc.
John Chesnut, EPA

**Review of the Draft Site Inspection Report for Western Bayside and Breakwater Beach,
Alameda Point, Alameda, California
March 2007**

GENERAL COMMENTS

1. The finding of no further action in the Draft Site Inspection Report Western Bayside and Breakwater Beach (the SI Report) at this time is premature since the nature and extent of contamination have not been adequately evaluated or discussed. In addition, the detected contaminants have not been associated with likely contaminant sources. For example:

The site conception model indicates that the contaminant sources that contribute to sediment contamination are the discharge of contaminated groundwater and historical wastewater and stormwater discharges from the outfalls, but there is no discussion of how the distribution of contamination is related to the outfalls or to areas where groundwater is discharged. The data collected most closely to the outfalls and to the shoreline at the Western Bayside site were collected during a 1996 sampling event. Since the 1996 data generally has the highest concentration of many pesticides and some Aroclors, the outfalls may be the source of this contamination. Alternatively, groundwater discharge and direct transport in run-off from the Sites 1 and 2 landfills may be the source of some of this near-shore contamination, but this is not discussed. For example, this may be the source of the maximum concentration of mercury south of Landfill 2, since groundwater appears to discharge in this area during some seasons. These possible correlations should be discussed. Please revise the SI Report to include discussions of the distribution of contamination in relation to the location of the outfalls and to groundwater discharge areas. In addition, please consider whether contamination from these sources may have been spread by currents or longshore drift.

Similarly, throughout the text it is suggested that the fact that the 2005 data has lower contaminant concentrations is assumed to be an indication that these constituents do not pose a threat; however the fact that each of the 2005 sample locations are much farther from the outfall than the earlier sampling events alone could be the rationale for the lower concentrations. At the Western Bayside area the 2005 samples were collected at a distance of 500 to 600 feet beyond the outfalls. Therefore the 2005 data defines the lateral extent of contamination to the west and south of the Western Bayside area; but the extent to which this area is contaminated between these bounding data points (2005) and the outfalls has not been delineated. Please discuss this data gap in the text.

Further, the co-location of elevated detections of the anti-fouling metal additives arsenic, copper, mercury, and zinc (and common constituents of industrial and marine paints like lead and polychlorinated biphenyls [PCBs] that were used in the 1930s through 1960s) should be evaluated, since it is possible that disposal of used sandblast abrasive in the landfills or along the Sites 1 and 2 berms may have been the source of this contamination. Please revise the text of the SI Report to discuss whether elevated concentrations of the anti-fouling additives and constituents of paint are co-located. In addition, please

evaluate whether other chemicals that were detected at elevated concentrations from the same location are related to historical Alameda Point industrial activities (e.g., waste water discharge) or to disposal in the landfills.

The table below provides a list of chemicals that should be retained for consideration and included in the discussions specified above.

Chemical of Concern	Most recent Data Not Proximal to Outfalls	Exceeds Ecological Screening Criterion	Exceeds ER-M Criterion
Western Bayside			
Antimony	x	x	x
Arsenic	x	x	
Chromium	x	x	
Copper	x	x	
Mercury	x	x	
Nickel	x	x	x
Total 4,4-DDx		x	
Alpha Chlordane		x	
Dieldrin		x	
Gamma Chlordane		x	
Aroclor 1254	x	x	
Aroclor 1260	x	x	
4,4-DDD		x	
4,4-DDE		x	
4,4-DDT		x	x
Benzo(a)anthracene		x	
Benzo(a)pyrene		x	
Benzo(g,h,i)perylene		x	
Benzo(k)fluoranthene		x	
Chrysene		x	
Dibenzo(a,h)anthracene		x	
Fluoranthene		x	
Indeno(1,2,3-cd)pyrene		x	
Acenaphthene		x	
Anthracene		x	
Fluorene		x	
Total PCBs		x	x
Breakwater Beach			
Arsenic	x	x	
Chromium	x	x	
Copper	x	x	
Lead	x	x	
Mercury	x	x	

Chemical of Concern	Most recent Data Not Proximal to Outfalls	Exceeds Ecological Screening Criterion	Exceeds ER-M Criterion
Nickel	X	X	X
Silver	X	X	
Zinc	X	X	
Dieldrin		X	
Gamma Chlordane		X	
Aroclor 1254		X	
Aroclor 1260		X	
Benzo(a)anthracene		X	
Benzo(a)pyrene		X	
Benzo(g,h,i)perylene		X	
Benzo(k)fluoranthene		X	
Chrysene		X	
Fluoranthene		X	
Indeno(1,2,3-cd)pyrene		X	
Pyrene		X	
Acenaphthene		X	
Anthracene		X	
Fluorene		X	
Total PCBs		X	X
Total 4,4-DDx		X	

2. The rationale for the selection, processing and use of various background sources throughout this document is unclear. The first concern is that it appears that three different ambient data sets were combined for some analytes. Before combining these data sets, it should be ascertained that the data are statistically similar enough to be considered one population for each analyte, but there is no indication in the SI Report that this analysis has been done. The second concern is that contamination that originates from Alameda Point may have contributed to elevated ambient contaminations, particularly since reference site location RL03 was in the Western Bayside Area. Without this potential contribution from the site, the ambient or background chemical concentrations may be lower. Please revise the SI Report to include an evaluation of whether the ambient data sets represent a single population for each analyte. Also, please indicate which data sets were included for each chemical, and whether any outliers were discarded from the ambient data. Also, please discuss why it is appropriate to include RL-3 in the ambient data set and provide the data for this location for comparison to the other Western Bayside data.

3. The legend for the bubble plots for the Western Bayside figures indicate that an asterisk represents the location of outfalls along the shore line, but there is only one outfall indicated on the map along the northern shore of the Alameda Point. There are three outfalls (Outfalls labeled EE, GG and HH on Figure 3-1) located along the western shoreline of the Western Bayside and three outfall (labeled outfalls U, T and S on Figure

3-1) located along the southern shoreline of the Western Bayside study area, that are not shown on these figures. Since the site conceptual model indicates that discharge from outfalls is the potential source of contamination, it is difficult to assess if the nature and extent of contamination has been adequately determined using these bubble plots when the outfalls are not shown. Please include all outfall locations on each bubble plot.

Similarly, each of the bubble plots for Breakwater Beach does not have the seven outfalls as shown on Figure 3-2 (labeled M, N, O, P, Q, Q1 and ZZ). Please include all outfall locations on each bubble plots.

4. The Bubble Plots for the Breakwater Beach Area do not extend far enough east to include Outfall Q or sampling location BB027. Please extend each of the Breakwater Beach bubble plots to show Outfall Q and sampling location BB027.

SPECIFIC COMMENTS

1. **Executive Summary, Site Setting, Western Bayside, Page i; Section 1.2.1, Western Bayside, Page 1-2; Section 8.1, Western Bayside, Page 8-1; and Figure 1-2, Location Map of Offshore Areas at Alameda Point:** There is a discrepancy between the description of Western Bayside in the text compared to Figure 1-2. The text states that the length of the site is 1.1 miles and includes the offshore areas west of IR Site 1 and 2 and south of IR Site 2, but the scale on Figure 1-2 appears to indicate that the distance along the shoreline is more than 2 miles in length. Please resolve this discrepancy.

Also, it would be helpful to include a delineation of the boundaries of the Western Bayside site on the map, since the width of the site is not discussed in the text other than as a reference to water depth. Please provide site boundary delineation for Western Bayside on Figure 1-2.

2. **Section 1.2.2, Breakwater Beach, Page 1-2 and Figure 1-2 Location Map of Offshore Areas at Alameda Point:** The western extent of the Breakwater Beach is not clear from the text or the figure. Please provide a clear description of the western extent of this site and include the boundaries of this site on Figure 1-2.
3. **Section 2.1.2, Breakwater Beach, Page 2-2:** The last sentence of this paragraph indicates that "... it is unlikely that much, if any, sediment has been transported away from the beach area." This conclusion is an over-simplification since beaches are dynamic environments and that significant sediment is transported seasonally and during storm events. Please remove this statement from the text, or provide evidence to support this conclusion.
4. **Section 2.3.1.3, Exposure Media, Page 2-4 and 2.3.2.3 Section, Exposure Media, Page 2-5:** In these sections, the argument is made that chlorinated and non-chlorinated solvents are not a chemical of potential concern (COPC) because their transitory nature in water would preclude the solvents from reaching the sediments. Since the conceptual

model for IR Site 1 indicates that COPCs are discharged in groundwater to San Francisco Bay, there is a potential that the volatile organic compounds (VOCs) can be sorbed to sediment, due to the high organic content of sediments in this environment. Chlorinated and non chlorinated solvents should be retained as chemicals of concern, due to the potential sorption of VOCs to organic rich sediment. Please retain VOCs as COPCs.

5. **Section 2.3.2.2, Transport Mechanism, Page 2-4:** It is unclear why the text in the “Food Chain Transport” paragraph states that “sediment characteristics are similar between Breakwater Beach and Western Bayside,” when text in Section 2.1.1 indicates that most sediment at Western Bayside is coarse grained (less than 40 percent fines) and text in Section 2.1.2 indicates that much of the sediment offshore and east of the marina at Breakwater Beach is fine grained. Please resolve this discrepancy.
6. **Section 3.1.1, Western Bayside, Page 3-2, and Section 4.1.1, Data Preparation, Pages 4-1 and 4-2:** It is unclear why the 2005 study is “considered best representative of the site,” when this study did not include sampling locations near the outfalls or along the shoreline where contaminants would be transported in longshore drift. The 2005 data is representative of conditions several hundred feet off-shore. Please delete the quoted statement or revise it to state that the 2005 data is most representative of conditions several hundred feet offshore.
7. **Section 4.1.1, Data Preparation, Page 4-2:** The fifth bullet point on this page refers to the application of zero for non-detects as consistent with the methods used by the State Water Resources Control Board (SWRCB) when calculating total PCB estimates for ambient conditions within San Francisco Bay. Please provide the specific citation for the use of this method by the SWRCB.
8. **Section 4.1.1, Data Preparation, Page 4-3:** In the first bullet point on this page it indicates that the skeet range data was not included in this analysis because the area is being addressed separately, however this data should be included in an additional analysis of all data including the skeet data because the constituents that were analyzed for during the skeet range area investigation apply to the Western Bayside investigation area. The exclusions of this data is not appropriate as it was collected within the area of concern. Please consider including the skeet data in an additional analysis which would include the “all data” analysis plus the skeet data.
9. **Section 4.1.2, Ambient Sediment Data Preparation, Page 4-5:** It is unclear if the Alameda and Hunter’s Pont sites are appropriate to be used for background/ambient, since a comparison of this data with the Bay Protection and Toxic Hot Spots Cleanup Program (BPTCP) and San Francisco Estuary Institute (SFEI) Regional Monitoring Program (RMP) data has not been done and it has not been demonstrated that all of the data in these three data sets represent a single population for each chemical. If more than a single population is observed, an explanation is needed and it is possible that that data set was impacted by other sources of contamination. Please revise the SI Report to compare the reference site data with the BTPCP and SFEI ambient data, demonstrate that

these data sets represent a single population for each chemical represented and discuss whether the reference site data is appropriate for use as ambient data.

10. **Section 4.1.3.1, Sediment Chemistry Box Plots, Page 4-5 and Appendix A, Summary of Analytical Data:** It is unclear why box plots have been presented for constituents whose data set consists entirely of non-detects. A box plot of analytical non-detects is not informative. Please delete the box plots of all constituents that contain only non-detects.
11. **Section 4.1.3.1, Sediment Chemistry Box Plots, Page 4-5 and Appendix A, Summary of Analytical Data:** In the second paragraph of this section the box plots are described as plotting each sampling event separately and next to a plot of all ambient data, however the plot that appears on the far right is identified as background. The terms “ambient” and “background” are not interchangeable. Since the term “background” implies sediments that have not been impacted by contaminant releases or by non-point source anthropogenic activity (e.g., urban runoff) and sediment in San Francisco Bay has been impacted by urban runoff, industrial discharges, maritime discharges, releases from mining in the Sierras and in the Bay Area, San Francisco Bay sediment data cannot be considered “background;” instead, data from the BPTCP, SFEI and reference sites should be considered “ambient.” For consistency, please revise the text and figures to use the term “ambient” to refer to the BPTCP/SFEI/reference site data.

Also it appears from the description of the box plots in the text that the plot on the far right side of the graph could represent any or all of the identified sources identified in this document as potential background. Please clearly identify the source of each of the “ambient” plots on the figures and in the text and appendices of the SI Report.

12. **Section 4.2.1.1, Distributions of Inorganic Constituents in Surface Sediments, Page 4-8:** This section indicates that it is unknown why the concentrations as detected in 1993/1994 were high, and the text provides various potential rationales for this disparity with subsequent samples, however the reasons identified in the text neglect the most likely explanation, namely that the concentrations were the highest during the 1993 and 1994 sampling events because some of these samples were collected near outfalls. Although some subsequent data was collected closer to the shoreline, this data is not closer to the outfalls, which are the likely source of sediment contamination according to the site conceptual model. Further, the text does not explain the significance of the grain-size difference, specifically that contaminants are more likely to sorb to fine-grained sediment. Please revise the list of explanations to include proximity to the outfalls and also revise the text of the first bullet to explain the significance of the finding that the 1993/1994 samples were finer-grained than samples collected in subsequent events.
13. **Section 4.2.2.1, Distribution of Organic Constituents in Surface Sediment, Page 4-9:** It is unclear why the text in the last paragraph states that the 2005 samples were collected in close proximity to the 1993/1994 sample locations when an examination of Figure 3-1 indicates that very few of the 2005 samples were collected in the vicinity of the 1993/1994 samples. It appears that the sampling locations were at least 100 or more feet

apart, which cannot be considered “close proximity.” Please delete the quoted statement from the text or provide evidence (e.g., GPS coordinates) that demonstrate that the 2005 samples were collected within 10 feet of the 1993/1994 samples.

14. **Section 4.2.5, Summary of Western Bayside Sediment Data, Page 4-11:** It is unclear why the text indicates that only 1993/94 data were included in the data sets. Conclusions from the 1996 data should also be included, since the 1996 sampling locations were in close proximity to the outfalls and also included samples collected along the shoreline that could indicate whether discharge of contaminated groundwater impacted sediment. Please revise the summary to include an assessment of the 1996 data.
15. **Section 4.3.2.2, Distribution of Organic Constituents in Subsurface Sediment, Pages 4-12 and 4-13:** The text does not state that Total PCBs in subsurface sediment exceeded the ER-M. Since the previous section, for surface sediment, includes a comparison of analytes to ER-M values, the discussion of subsurface sediment should also discuss constituents that exceeded their respective ER-M values. Please revise the text to include a discussion of constituents that exceeded ER-M values.
16. **Table 4.1 and 4-2, Summary of Chemical Concentrations for Western Bayside, and Tables 4-5 and 4-6 Summary of Chemical Concentrations for Breakwater Beach:** It would be helpful if the location of the maximum concentration was listed for each of the sampling events. Please include the location of each maximum concentration for each analyte listed in these tables.
17. **Section 6.4.4.1, Western Bayside, Least Tern, Page 6-31 and Section 6.4.4.2, Breakwater Beach, Least Tern, Page 6-34:** The site use factors for the least tern were estimated for both sites based on percent of time observed, versus spatial extent. No information is provided to detail the amount of time the sites were examined to arrive at the percentages provided in the document (57.4% and 3.8%, respectively). Please revise the SI Report to clarify how these figures were obtained (e.g., number of hours per 24-hour period that sites were observed).
18. **Section 6.4.4.1, Western Bayside, Reference Fish Forage, Page 6-32:** Reference forage fish tissue concentrations were estimated using Equation 6-7, which include data obtained from both the investigative sites and the reference locations. Given this approach, it appears that the resulting dose values represent cumulative values, versus actual reference location dose values. Please revise the SI Report to include additional discussion on this approach, or revise the dose formula to include only data from reference location to estimate reference forage fish tissue concentration.
19. **Section 8.1, Western Bayside, Page 8-1:** It is unclear why the text states that there are only 3 outfalls in the Western Bayside area when 6 outfalls are shown on Figure 3-1. Please resolve this discrepancy.
20. **Table 4.1 Page T-6 and Table 4.2 Page T-9:** The footnote (h) states that “Upper-bound estimate of nearshore ambient as recommended by U.S. EPA, 2004b.” EPA proposed

200 ug/kg as a cleanup goal for Total PCB at Seaplane Lagoon, not as representative of ambient. Please revise this footnote.

- 21. Appendix A, Bubble Plot of Aroclors and PAHs in Western Bayside and Breaker Beach:** The figures for the Aroclors indicated that there is no effects range median (ER-M) for however the ER-M listed in the National Oceanic and Atmospheric Administration *Screening Quick Reference Table: Organics* (1999) for PCBs can be used as a conservative ER-M. Please use 180 micrograms per kilogram as the ER-M for all aroclor figures.

Similarly the low molecular weight (LMW) polynuclear aromatic hydrocarbons (PAHs) and the high molecular weight (HMW) PAHs can use the ER-M values from this table. Please use 3160 for LMW PAHs and 9600 for HMW PAHs.

Human Health Risk Evaluation

1. It does not appear that laboratory reporting limits were compared to human health screening levels (i.e., USEPA Region 9 Preliminary Remediation Goals [PRGs]) to determine whether the former were sufficiently sensitive for use in development of a site-specific COPC list. A discussion should be included to indicate that all non-detect results were reviewed to ensure that the associated reporting limit was sufficiently sensitive (in comparison to the most relevant health-based screening criterion) to ascertain whether or not the contaminant at issue was present at a concentration capable of eliciting an adverse human health effect. Non-detect results associated with an elevated reporting limit (e.g., a sample quantitation limit [SQL], rather than a method detection limit [MDL]) should identify that associated target analyte as a site COPC. Please revise the SI Report to include a comparison of laboratory reporting limits with the PRGs and identify target analytes as site COPCs based on elevated reporting limits.
2. Food-related ingestion pathways may represent significant potential exposure to COPCs (such as PCBs), due primarily to bioaccumulation potential and food chain impacts. Based on local survey data (compiled by the San Francisco Estuary Institute [SFEI]) which indicate that children under the age of six are unlikely to consume shellfish, this report attempts to minimize the impact of and potential for ingestion exposure attributable to children. Arguments to support exclusion of child exposures based on small exposed population sizes are not relevant given that the pathways associated with these exposures are reasonable and complete. No controls exist to preclude the exposure of children based on ingestion of sport-caught fish. This risk evaluation should present an assessment of the baseline condition, assuming children are exposed. An associated uncertainty analysis may be presented to address the likelihood of these exposures. Please revise the human health risk evaluation (HHRE) to address shellfish ingestion by children. Additional routes, such as infant exposure to PCBs via the ingestion of mother's breast milk, also may be considered viable pathways of exposure. This pathway has not been considered in the Conceptual Site Model (Figures 5-1 through 5-2. Human Health Conceptual Site Model for Western Bayside and Human Health Conceptual Site

Model for Breakwater Beach, respectively). Addition of this pathway to the quantitative analysis does not appear to be critical. However, please consider adding a qualitative assessment of the associated potential risk to a nursing infant to the Uncertainty Analysis (Section 7).

3. Exposure via contact with surface water is not addressed in the HHRE. Although exposures via surface water may not represent the most significant pathways of exposure, the reasoning underlying the elimination of this potential pathway of exposure is insufficient (i.e., rapid dilution of chemicals resulting from tidal action and currents in addition to activities related to shellfish collection would occur at low tide, further limiting contact with surface water). However, by eliminating the inclusion of this potentially complete exposure pathway, such as dermal contact with surface water due to wading and/or shellfish collection, the resulting risks for a recreator at Westside Bayside and Breakwater Beach may be underestimated. Recreational user exposures to surface water in this type of scenario are a common component of risk evaluations advanced under the auspices of USEPA programs. A complete assessment of recreational exposures should incorporate an assessment of risk due to direct and indirect exposure to all potentially contaminated media, including the surface water. The HHRE should address the potential for surface water exposures within the risk characterization and uncertainty sections. Such characterization may be limited to a qualitative discussion. If off-site receptors are indeed considered a plausible exposure scenario, please modify the CSM to capture exposures incurred by off-site receptors such as a recreator (who may be a beach user or shellfish collector). Please revise the SI Report to include this characterization.
4. Please consult USEPA's Child-Specific Exposure Factors Handbook (ChEFH) (2006) during the selection of pertinent exposure parameter values (e.g., fish tissue ingestion rates) during deliverable development in the future.
5. Care should be taken to differentiate between risk and hazard, in particular, in Tables 5-5 through 5-20 and Tables 7-2 through 7-6. These terms are not interchangeable and proper terminology usage will facilitate understanding. Please use the correct terminology in the next version of the SI report.
6. The discussion of the risk characterization results does not provide sufficient detail. In Section 5.4.4 (Risk Characterization Results), please provide additional discussion pertaining to the comparison of analytical results to ambient and/or reference concentrations. Additionally, please consider revising the risk characterization section so that it provides additional discussion regarding the results of the quantitative evaluation.