FINAL
NAVAL AIR STATION ALAMEDA RESTORATION ADVISORY BOARD
MEETING SUMMARY

www.navybracpmo.org
Building 1, Suite 140, Community Conference Center
Alameda Point
Alameda, California

April 6, 2006

The following participants attended the meeting:

Co-Chairs:	
Thomas Macchiarella	Base Realignment and Closure (BRAC) Program Management Office (PMO) West, BRAC Environmental Coordinator (BEC), Navy Co-chair
George Humphreys	Restoration Advisory Board (RAB) Community Co-chair
Attendees:	
Doug Biggs	Alameda Point Collaborative (APC) Representative
Nancy Bonnevie	Battelle
Neil Coe	RAB
Anna-Marie Cook	U.S. Environmental Protection Agency (EPA)
Michelle Dalrymple	California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC)
Tommie Jean Damrel	Tetra Tech EM Inc. (Tetra Tech)
Jamie Hamm	Sullivan International Group (Sullivan)
Lisa Houlihan	U.S. Coast Guard (USCG)
Craig Hunter	Tetra Tech
Terry Iwagoshi	Western Solutions
Joan Konrad	RAB
James D. Leach	RAB
Patrick Lynch	Community Member
Frank Matarrese	Alameda City Council
John McGuire	Shaw Environmental and Infrastructure Inc. (Shaw)
Bert Morgan	RAB
Samantha Murray	Golden Gate Audubon Society
Peter Russell	City of Alameda
Christy Smith	U.S. Fish and Wildlife Service (USFWS)

Dale Smith	RAB/Sierra Club/Audubon Society
Michael John Torrey	RAB/Housing Authority of the City

The meeting agenda is provided in Attachment A.

MEETING SUMMARY

I. Approval of Minutes

Mr. Humphreys called the meeting to order at 6:30 p.m.

Mr. Humphreys asked for comments on the minutes from the RAB meeting held on March 2, 2006. Ms. Konrad, Mr. Leach, and Mr. Humphreys provided the following comments:

Ms. Konrad's comment

- Ms. Konrad will be added to the list of attendees during the March 2, 2006, RAB meeting.

Mr. Leach's comment

- Page 6 of 7, the last sentence of Section III will be revised to state, "Mr. Leach is worried about the effects of trace amounts of chemicals triggering sex changes in fetuses at about 6 weeks after conception. Mr. Leach also noted that a book called *Our Stolen Future*, presented three independent researchers who found that too much estrogen in a women's body can change the sex of a baby at approximately six weeks after conception. The book also noted that there are some chemicals, such as dioxins, which mimic estrogen in the body."

Mr. Humphreys' comments

- Page 5 of 7, Section III, fourth paragraph, after the second sentence, the following sentence will be added: "Mr. Humphreys noted that in Bangladesh, high levels of arsenic in alluvial soil resulting in high levels of arsenic in groundwater have caused many cancer deaths."
- Page 5 of 7, last paragraph, third sentence will be changed to, "Mr. Humphreys said he knew of an accident in Seveso, Italy, where the release of a dioxin like herbicide killed nearly every dog without apparent effects on humans. He asked if the opposite could occur, where animals are not affected but humans could be sensitive to certain chemicals."

The minutes were approved as amended.

II. Co-Chair Announcements

Mr. Humphreys distributed a list of reports and correspondence received by the RAB during March 2006 (Attachment B-1). He noted that he received a number of reports during the month. Notable documents issued include proposed plans (PP) for Site 14, Site 28, and Operable Unit (OU)-5/Installation Restoration (IR) 02 groundwater; the draft feasibility study (FS) for Site 27; and, the record of decision (ROD) for Site 26. He said that the PP for OU-5/IR02 is not listed on the handout because he did not receive it until April and the comment period for the OU-5/IR02 PP has ended. He also mentioned that a RAB focus group met on the Site 17 (Seaplane Lagoon) PP and also submitted a comments letter to the Navy (Attachment B-2). Additionally, Mr. Humphreys distributed to the RAB copies of his comments on the OU-5/IR02 PP (Attachment B-3).

Mr. Macchiarella distributed the list of significant Navy Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) documents planned for April and May 2006 (Attachment B-4).

Mr. Macchiarella announced that Judy Huang with the Regional Water Quality Control Board and Dot Lofstrom with DTSC were not able to attend the RAB meeting tonight. He also noted that he had sent the information on the technical assistance public participation (TAPP) grant to Mr. Humphreys several weeks earlier and that the Navy is willing to help the RAB apply for a grant if the members deem it necessary.

Mr. Macchiarella apologized for a problem with the mailing list that caused the OU-5/IR-02 PP to be delivered late to the RAB members. Others on the mailing list received the PPs on time, but the RAB members were accidentally omitted from the list and received the document late. Therefore, he is willing to extend the public comment period so that the RAB members have time to send in comments.
Mr. Macchiarella said that the RAB should have also received the PPs for Sites 14 and 28; the public meeting for these documents has been combined and will be held within the next month.
Mr. Macchiarella suggested that it might be beneficial to hold the public meetings on RAB meeting nights to ensure more comments are received and that more interest is generated. However, there might not be enough time in one night to hold both the PP public meeting and the normal RAB meeting.

III. Site 16 Removal Action Update

Mr. McGuire provided the RAB with a presentation on the full-scale in situ chemical oxidation removal actions at both Site 16 south and Site 16 north. Handouts of the presentations are included as Attachments B-5 and B-6.

Site 16 south
Mr. McGuire began his presentation with Site 16 south. He described its location on Alameda Point, near the southeastern corner of the base, and the previous site use. The 1-acre site was formerly occupied by an auto repair facility, an oil-water separator, and an aboveground storage tank (AST), and was used for aircraft fueling, defueling, maintenance, and washing. The main contaminants of concern at the site include vinyl chloride, cis-1,2-dichloroethylene (DCE), trichloroethylene (TCE), and tetrachloroethylene (PCE). The objective of the removal action was mass reduction of contaminants to below maximum contaminant levels (MCLs).

The initial extent of volatile organic compound (VOC) contamination had not been characterized along the north, south, and west portions of the site. The Navy contractor advanced cone penetrometer test (CPT) and Hydropunch borings at seven sampling locations. MCLs were exceeded for cis-1,2-DCE and vinyl chloride at two Hydropunch locations. Slides 7 through 10 show the baseline concentrations for TCE, PCE, 1,2-DCE, vinyl chloride, and their contaminant plumes in groundwater. Ms. Smith commented that vinyl chloride is one of the final products in the breakdown of TCE, PCE, and 1,2-DCE.

Six monitoring wells were installed in October 2003 and followed by four injection events and a fifth hotspot injection event. Approximately 90 direct-push injection points were advanced, and two additional monitoring wells were installed after the second injection event. The injection event used Fenton's reagent. The injection events were successful in reducing the original mass of contaminants. The reagent surfaced around some of the wells and within the underground storage tank (UST) excavation during the full-scale injection applications. A total of 6,509 gallons of reagent was injected, mostly north and northwest of Building 608. MCLs were not achieved at five monitoring well locations; hot spot injection applications were applied around those monitoring wells.

Post-oxidation injection samples were collected 1 to 2 weeks after an injection event. Four post-injection sampling events and one equilibrium sampling event were conducted. However, only the five wells in the hot spot area were sampled during the fifth sampling event. Slides 15 through 22 illustrate concentrations in samples from monitoring wells after the second and fifth injection events. Concentrations of TCE in the monitoring well where the initial concentrations were the highest were not reduced over the five injection rounds. The post-injection concentrations for PCE were reduced after the second injection but some rebound in concentrations was observed after the fifth injection event. The post-injection concentrations for 1,2-DCE were reduced after the fifth injection event, and the vinyl chloride concentrations were reduced in some of the wells. The following three slides, 23 through 26, show a summary of analytical results from the monitoring wells after the injection events for TCE, PCE, 1,2-DCE, and vinyl chloride. Shaded numbers are concentrations that are still above MCLs. Concentrations in some of the wells exceeded the original baseline sample concentration after the injection events.

The removal action was successful in reducing dissolved-phase contaminants, except that the area northwest of Building 608 and near the former UST excavation did not achieve reductions to below MCLs. It may be that contaminants are sorbed to the soil in the vicinity of the former UST and northwest of Building 608. Therefore, the extent of soil contamination needs to be delineated and the contaminated soil remediated before additional reagent is injected. These conclusions will be in the OU-1 PP, which will be issued in May 2006.

Mr. Humphreys asked about the depth of the wells. Mr. McGuire responded that the injection events targeted the 5- to 15-foot depth below ground surface. Mr. Humphreys asked if there is contamination below that depth. Mr. McGuire responded that he was not aware of any and that, if present, deeper contamination was not part of the scope of this removal action. Mr. Lynch asked if the PP would address the chlordane contamination found during an UST removal from the property. He added that it is suspected that the surface soil is contaminated from the former washdown area on the site.
Mr. Macchiarella responded that he could not recall how the chlordane is addressed in the PP but that he would look into it and noted that the PP will be submitted for public review in the near future.

Site 16 north

The second presentation began with a description of Site 16 north, its location on Alameda Point, and the previous site use. The site was formerly occupied by a storage yard, a scrap yard, airplane parking, and an AST. Approximately three-quarters of the site is paved; the main contaminants identified at the site include 1,2-dichlorobenzene (1,2-DCB) and 1,4-dichlorobenzene (1,4-DCB). The objective of the removal was a mass reduction of contaminants to below MCLs.

The extent of the VOC plume at the site had not been delineated in the west and southeast portions of the site. Therefore, Navy consultants advanced CPT and Hydropunch borings at seven sampling locations to a depth of 40 feet to delineate the extent of contamination. The MCLs were exceeded for VOCs at five of the sampling locations. Slides 6 and 7 show the groundwater plumes for 1,2-DCB and 1,4-DCB. Five additional monitoring wells were installed in October 2003, and three injection events occurred from December 2003 through May 2004. The reagent was injected using direct-push borings at more than 300 locations. Approximately 111,000 gallons of modified Fenton's reagent and hydrogen peroxide were injected, and six additional monitoring wells were installed after the second injection event.

Three remaining hot spot locations still exceeded MCLs; therefore, these areas were treated with two additional injection events at 61 locations. The on-site monitoring wells were sampled 1 to 2 weeks after injection events, for a total of five post-injection sampling events between January 2004 and February 2005. Slides 14 through 16 show the contaminant reductions after injection events for 1,2-DCB and 1,4-DCB. Slides 17 to 19 show the analytical summary tables for 1,2-DCB and 1,7-DCB and the sample

locations where concentrations were above MCLs. Originally, the removal action was designed to address dichlorobenzene in the first water-bearing zone. The removal action was successful at reducing the dissolved-phase contaminants to below MCLs for chlorobenzene isomers. However, there was only a slight change in concentrations of cis-1,2- DCE, which was not one of the compounds targeted in the removal action. It is therefore recommended that the DCE plume at the site still needs to be defined.

Ms. Konrad asked about the source of the contamination. Mr. McGuire responded that the source is likely former operations at the site. Mr. Humphreys asked why the groundwater plume tapers off at the site. Mr. McGuire responded that it could be a preferential pathway or may be a result of a different type of fill. Ms. Smith noted that this site still seems dirty. Mr. Macchiarella noted that this removal action is a start on the remediation and that the information gathered will be used to make the best recommendation in the PP. Ms. Smith noted that vinyl chloride will need different types of remediation. Ms. Cook commented that in situ chemical oxidation would help to breakdown vinyl chloride as well as the parent products.

IV. Sites 20 and 24 Draft Remedial Investigation Report Summary

Ms. Bonnevie presented a summary of the remedial investigation (RI) report for IR Site 20 (the Oakland Inner Harbor), and IR Site 24 (the pier area). A handout of the presentation is included as Attachment B-7. The topics included in the presentation are site location and history, the RI approach, a summary of the nature and extent, the ecological risk assessment, the human health risk assessment, and the conclusions of the RI. Slide 3 of the handout illustrates each site location.

IR Site 20 is located along the Oakland Inner Harbor, a heavily industrialized shipping channel. Potential sources include the shipping channel as well as storm water and industrial wastes discharged into the area from Alameda Point. The shipping channel was last dredged in 1993. Previous investigations from 1993 through 2001 included collection of 11 surface sediment samples near the sewer outfalls. Bioaccumulation and toxicity bioassays were conducted in 1993 and 1994 using sediment from four locations near the sewer outfalls. In 2005, 14 sediment cores were collected to further characterize the horizontal and vertical extent of contamination. Samples were evaluated at three depths (0 to 5 centimeters [cm], 5 to 25 cm, and 25 to 50 cm). Sample locations along the shoreline at IR Site 20 are shown on Slide 5.

IR Site 24 was potentially contaminated by storm water and wastewater discharged from storm drains and activities at the piers. The piers were periodically dredged until 1978. The proposed future reuse includes docking large-scale vessels such as ferries, cruise ships, and historical landmark vessels. Previous investigations included collection of 27 surface sediment samples between 1996 and 1998; bioaccumulation and toxicity bioassays were conducted at five stations evaluated in 1998. In 2005, 19 additional sediment cores were collected to characterize the vertical and horizontal extent of contamination. The samples were collected from depths at 0 to 5 cm, 5 to 25 cm, and 25 to 50 cm. Sampling locations at IR Site 24 are shown on Slide 7.

The RI was conducted in accordance with the offshore core study work plan. It was concluded that sediment was the primary medium for both human and ecological exposures. The RI evaluated direct contact and indirect exposure through consumption of aquatic organisms. The RI used all available data for sediment to calculate exposure point concentrations for the risk assessment. The 2005 data were also evaluated separately to represent current conditions; the 2005 sampling event was designed to both fill data gaps and to provide adequate spatial representation of the area if evaluated separately. Concentrations in tissue were based on available bioaccumulation data as well as on concentrations modeled from sediment bioaccumulation factors (BAFs).

As part of the nature and extent evaluation, data are presented in side-by-side box plots to depict temporal and vertical distribution. The box plots depict surface samples across years as well as the 2005 subsurface data. Additional information is provided for comparative purposes such as screening thresholds, background data, and ambient concentrations. Bubble plots depict the spatial distribution, with each year denoted by different colors. The bubble size is proportional to concentration: thick lines indicate values that exceed the risk-based ecological threshold limit. Examples of side-by-side box plots and bubble plots are shown on Slides 10 and 11.

The sediment chemistry at IR Site 20 based on the 2005 data indicated that no inorganic constituents exceeded risk-based ecological threshold limits in surface sediments, except for mercury at one location. Similarly, polycyclic aromatic hydrocarbons (PAHs), total polychlorinated byphenyls (PCBs), and pesticides were also at concentrations below the risk-based ecological threshold limit in surface sediments. Using the older data sets, total PCBs and DDX were at concentrations above risk-based ecological threshold limits at several locations; however, similar results were not obtained at these locations in 2005. In general, concentrations of most chemicals were higher at the lower depths, however; only three inorganic constituents (copper lead, and nickel), PCBs, DDx, and a few PAHs exceeded their risk-based ecological threshold limits.

Sediment chemistry at IR Site 24 using the 2005 data indicated that no constituents exceeded risk-based ecological threshold limits in the surface or subsurface except nickel, silver, total PCBs, and benzo(a)pyrene at a few locations. Using the information from the older data sets, there were several constituents that exceeded at various locations, but similar results were not obtained near these locations in 2005.

The ecological risk assessment (ERA) was conducted under the tiered approach following Navy and EPA guidance. The screening-level ERA (SLERA) was conducted to provide a conservative screen and to focus additional assessments, followed by a baseline ERA (BERA) that refined the exposure and effects assessment and characterization of risk. Slide 15 presents a flow diagram of the food chain and shows how similar ecological exposure pathways were identified at both sites. The two pathways include direct exposure with surficial sediments and indirect exposure through the food chain. The measurement endpoints evaluated during the ERA included the benthic invertebrate, fish, and avian communities. The ERA evaluated the impacts to the surf scoter, double-crested cormorant, and least tern within the avian communities.

The results of the ERA at Sites 20 and 24 indicated that there is limited toxicity observed in the benthic community; however this toxicity is not supported by sediment concentrations, suggesting that the test results may not reflect actual conditions. None of the modeled fish tissue concentrations exceeded the risk-based thresholds at either site. Risks to the avian community were generally comparable to reference levels at both sites, and risks were relatively low when realistic exposure parameters were used. The results also showed that risks associated with the 2005 data are much lower. Based on these results, there is no significant risk to ecological receptors, and no further action is recommended at either site.

The conceptual site model used in the human health risk assessment (HHRA) for Site 20 established three exposure pathways: consumption of shellfish, direct contact with sediment while harvesting shellfish, and consumption of fish. At Site 24, no complete exposure pathways were identified because of the limited access to the shoreline and the limited habitat for shellfish, therefore, no further evaluation is warranted.

The HHRA for Site 20 was based on standard exposure equations and evaluated both a central tendency exposure and a reasonable maximum exposure. Ingestion rates for fish and shellfish were based on data published by the San Francisco Estuary Institute for the San Francisco Bay area. The results of the HHRA

indicate that the cancer and non-cancer risk estimates were either below the acceptable risk range or comparable to reference conditions for all exposure pathways evaluated. Cumulative site risks were less than the reference risk for all pathways evaluated as well. Based on these results, it was concluded that no further action was required at Site 20 to address human health.

Slides 27 and 28 provide a more in-depth summary of the ERA and HHRA results for both sites. Conclusions of the RI indicated that concentrations were lower in recent sediment investigations than in historical data at both sites. Risks to ecological receptors are insignificant and are comparable to reference conditions at both sites. Risks to human health are consistent with reference conditions at both sites. Based on these results no further action is recommended for both sites.

Mr. Humphreys asked about the depth of sediment sampling. Ms. Bonnevie responded that samples were collected at four depths and that the top two samples were evaluated to assess whether the two additional lower samples need to be analyzed. Mr. Humphreys asked why concentrations were lower in the 2005 samples than in the previous sampling events. Ms. Bonnevie responded that deposition of sediments would naturally lower the chemical concentrations in surface samples as long as the sediments being deposited were not impacted by contamination. She added that the top two layers were evaluated because they would be the most readily available to the potential receptors, according to the conceptual site model. Mr. Humphreys noted that higher concentrations might be below the sediments that were collected for laboratory analysis. Ms. Bonnevie responded that it is possible, but the top-most layer of sediment will act as a natural cap over the more-contaminated sediments, if present. Mr. Coe asked about the distance from the shore that the samples were collected. Ms. Bonnevie stated that samplers remained on the shelf and out of the ship channel. Mr. Iwagoshi asked where dredged materials from this area would be disposed of in the future. Ms. Bonnevie replied that this study was not conducted to evaluate the sediments for disposal. Ms. Smith asked about the rate of deposition in the area and sample spacing. Ms. Bonnevie replied that she did not know the deposition rate; she said, however, that a grid system was used to cover the entire area of the site, but she did not know the exact distance between sample locations. Ms. Smith asked about the depth of the water column above the sediment at Site 24, and Ms. Bonnevie responded that it was probably at least 20 feet, although she could not be sure. Mr. Humphreys asked about the groundwater plume from Site 27 migrating into the bay at Site 24. Mr. Macchiarella responded that the groundwater plume investigation is part of the cleanup at Site 27 and that Site 24 is a sediment site. Ms. Smith asked about the extent of the evaluation of shoreline groundwater during the Site 27 investigation. Ms. Cook responded that the eastern side of the sheet pile wall that runs along the western side of Site 27 has relatively high concentrations of VOCs in groundwater, but the concentrations are significantly lower on the western side of the sheet pile wall. She added that the Regional Water Quality Control Board has decided that these concentrations do not pose a threat to Seaplane Lagoon.
Mr. Iwagoshi asked if the HHRA was based on the 2005 data set or the older data set because some of the sample locations were not near the old sampling locations. Ms. Bonnevie replied that both sets of data were used. She continued that some of the sample locations from 2005 at Site 24 are not the same as the historical sampling events because large ships are berthed at locations that were not present during previous sampling events. Mr. Iwagoshi asked if any of the conclusions for areas against the piers would be different using the historical data sets. Ms. Bonnevie replied that she does not believe that the different sample locations would change the conclusions.

V. BCT Activities

Ms. Cook provided an update on the BRAC Cleanup Team (BCT) activities for March. A handout was provided and is included as Attachment B-8.

Ms. Cook said that the BCT started March with an OU-2C data gap meeting with the agencies and the Navy. The agencies have asked for further sampling and a revised RI report. A site walk of OU-2C will

be conducted later in April to select appropriate soil sample locations from beneath the Building 5 floor slab. In addition, funding was received to continue removal of dense nonaqueous phase liquid from the site.

There was a public meeting for the OU-5 PP, and only two members of the community attended.

The RI report for Sites 20 and 24 was presented during the monthly BCT meeting. The agencies are concerned that human health risks from fish consumption have not been evaluated thoroughly. There was a brief presentation on the results of soil gas sampling from beneath buildings on OU-2B. The sampling evaluated the levels of VOCs from the groundwater plume underneath the building that were migrating upward through the soil and into indoor air. There will be further discussion between the City of Alameda and the Navy on these data.

The agencies also received the draft final FS for IR Site 27 and have no major comments. The BCT also received an update on IR Site 35 sample results. There are low level contaminants in groundwater and soil but nothing that indicates a source of contamination or a plume. The BCT is attempting to identify the best way to address these hotspots. Ms. Smith asked if samples were analyzed for PCBs inside the houses on the site. Ms. Cook responded that the lease between the Navy and the City of Alameda required a number of tests on the buildings before the City of Alameda would lease them to the public, and she believes that analysis for PCBs might have been part of that lease agreement. Ms. Smith said that she does not remember a report on PCBs in the housing units. Ms. Cook added that the BCT had a last-minute conference call on the OU-1 PP before it went to press for distribution to the public.

VI. Community and RAB Comment Period

Mr. Coe mentioned that there have been articles in the local newspaper concerning sites at the base. Mr. Macchiarella said that a reporter wrote a story on the groundwater plume at OU-5. Mr. Torrey said that he also saw an article in the local newspaper on the base but did not bring the article. Mr. Macchiarella did not know what article Mr. Torrey was discussing.

Mr. Humphreys commented that advertising the public meetings for PP in the local newspapers is not effective in encouraging the public to attend the meetings. Ms. Smith suggested that the RAB have some time during its meetings to comment on the PPs. She also would like an opportunity to comment on the OU-5 PP. Mr. Macchiarella responded that the RAB members will be allowed more time to review this PP. Ms. Smith noted that this extra time does not help the RAB members formulate an opinion as a group because of conflicting schedules. Ms. Smith would like to have a RAB presentation of the PP and a public meeting for the PP. Mr. Coe agreed with Mr. Humphreys that the means of advertising the PP is not effective. Mr. Macchiarella called for suggestions on how to get the public more involved in the PP process. Mr. Coe and Mr. Humphreys noted that there is a “coming events” schedule in the local newspaper and it might help to have the public meeting added to this schedule.

Mr. Humphreys noted that the RAB had an OU-5 RI presentation 2 to 3 years ago that generated comments from the RAB members. The RAB has not received any updates on the RI since, and it makes more sense to him to have the PP presented to the RAB for comment before it is issued to the public. He would like the opportunity to comment on the preferred remedy before it is described in the PP. Mr. Macchiarella noted that the Navy must follow the CERCLA process with respect to the PP schedule. Ms. Smith said she would like to have a presentation during the RAB meeting that falls within the public comment period. Ms. Cook asked if the RAB would like to have the public meeting before or after the RAB meeting that discusses the PP. Mr. Coe feels that RAB members should not have to attend the public meeting to present their opinions; rather the Navy should take their concerns into consideration before the PP is submitted to the public. Mr. Torrey said that he would like to hear the community

viewpoints before the information is presented to the RAB. Mr. Humphreys noted that the RAB could have reviewed the PP for OU-5 during the March 2006 RAB meeting before it went to press.

Mr. Macchiarella said that several PPs will be issued in 2006 and he would like to address how the Navy can better approach the public comments on the PPs. Since there are so many, it will consume RAB meeting time if the Navy presents all of these PPs during the RAB meetings. Ms. Smith noted that other Navy RABs receive presentations when the PPs are issued.

Mr. Lynch noted that changing the venue of the public meeting would increase attendance because the community is not familiar with the base. He noted that DTSC had a successful public meeting at an elementary school that is well known. Mr. Matarrese agreed that the RAB should discuss the PPs and he does not think that the PP presentations to the RAB would consume much time if some of the updates were omitted from the agenda. He thinks that the Navy should present the RAB with the PP so that members can provide input to the Navy. Mr. Humphreys noted that public meetings for City of Alameda planning were well attended and they were held at the senior center in Alameda.

Mr. Macchiarella noted that the current public meeting for the OU-1 PP is planned for April 26, 2005. He asked the RAB members if they would like to change the date for the public meeting. However, he also must ask the agencies to extend the schedule for this PP, but he thinks that they will agree to the change in schedule for this scenario. He asked if the RAB would like to have the RAB meeting occur before or after the public meeting. Mr. Humphreys said that he is in favor of a presentation of the PP in the schedule for the May RAB meeting. Ms. Smith seconded that motion. Mr. Humphreys also mentioned that he would like to have an opportunity for the RAB to comment on a PP before it goes out to the public, so that the Navy can incorporate any changes the RAB suggests. Mr. Macchiarella responded that, although the PP is a final document when it is issued for public comment, the proposed remedy within the PP is still open for change based on the comments the Navy receives from the public and the RAB. He added that this timeline follows the CERCLA process for the public comment period for the PP. Ms. Konrad said she would like to have received the PP before she meets with the RAB members at the monthly meeting. Mr. Morgan noted that the RAB knows a good deal about the sites that are in the PP stage and thinks that the RAB should have its opinion heard before the public meeting. The motion previously made was approved by the RAB members, with Mr. Torrey abstaining from voting.
Mr. Humphreys asked if members could receive the draft PP before it is presented to the RAB during the meeting. Mr. Macchiarella responded that he cannot change the PP schedule for OU-1 without consent from the participating agencies. Ms. Smith asked if it would be acceptable to present the PP at a RAB meeting so that the members could more readily comment as a group. Mr. Matarrese asked whether the PP is a final document and whether the proposed action or preferred alternative within the PP can be changed based on input from the public. Ms. Smith stated that she would just like to have an opportunity to meet as the RAB and discuss their opinion on the PP and she does not need a draft version before the RAB meeting. Mr. Macchiarella responded that this idea would be easier to implement than the previous. Ms. Konrad said that she would like to have the PP sent to the RAB members along with the agenda for the next month's RAB meeting. Mr. Macchiarella responded that the Navy will mail the PP to the RAB and then will have a presentation during the next RAB meeting as well as a separate public meeting specific to the PP. Mr. Leach noted some of his concerns with the Site 28 PP and he thinks that it would be uncomfortable for the Navy to have the RAB members bring up all of their comments during the public meeting.

Mr. Torrey announced that the East Bay Conversion and Reinvestment Commission are sponsoring its annual small business golf classic on June 16, 2006. Mr. Torrey distributed an announcement flyer and signup sheet for the event.

The meeting was adjourned at 8:45 p.m.

ATTACHMENT A

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING AGENDA
April 6, 2006

(One Page)

RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

APRIL 6, 2006, 6:30 PM

ALAMEDA POINT – BUILDING 1 – SUITE 140
COMMUNITY CONFERENCE ROOM
(FROM PARKING LOT ON W MIDWAY AVE, ENTER THROUGH MIDDLE WING)

TIME	SUBJECT	PRESENTER
6:30 - 6:45	**Approval of Minutes**	**Mr. George Humphreys** ***RAB Community Co-Chair***
6:45 - 7:00	**Co-Chair Announcements**	**Co-Chairs**
7:00 – 7:30	**Site 16 (Shipping Container Storage) Removal Action Update**	**Mr. John McGuire,** ***Shaw Environmental, Inc.***
7:30 – 8:00	**Sites 20 and 24 (Sediments in Oakland Inner Harbor and Piers 1 & 2) Draft Remedial Investigation Report Summary**	**Ms. Nancy Bonnevie** ***Battelle Memorial Institute***
8:00 – 8:10	**BCT Activities**	**Ms. Anna-Marie Cook** ***U.S. EPA***
8:10 – 8:30	**Community & RAB Comment Period**	**Community & RAB**
8:30	**RAB Meeting Adjournment**	

ATTACHMENT B

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING HANDOUT MATERIALS

B-1 List of Reports Received during March 2006, George Humphreys, RAB Community Co-Chair. (2 pages)

B-2 Comments on Draft Final Proposed Plan for Seaplane Lagoon (IR Site 17), submitted by RAB focus group. Dated March 14, 2006. (4 pages)

B-3 Comments on Proposed Plan for OU-5/IR-02 Groundwater, submitted by George Humphreys, RAB Community Co-Chair. Dated April 3, 2006. (1 page)

B-4 Significant Navy CERCLA Documents Planned for April/May 2006, presented by Thomas Macchiarella, Navy. (1 page)

B-5 Full Scale In Situ Chemical Oxidation Removal Action Site 16 South, presented by John McGuire, Shaw. (14 pages)

B-6 Full Scale In-Situ Chemical Oxidation Removal Action Site 16 North, presented by John McGuire, Shaw. (10 pages)

B-7 Draft Remedial Investigation Report IR Site 20 and IR Site 24, presented by Nancy Bonnevie, Battelle. (13 pages)

B-8 March 2006 BCT Activities, presented by Anna-Marie Cook, EPA. (1 page)

ATTACHMENT B-1

RESTORATION ADVISORY BOARD REPORTS RECEIVED DURING MARCH 2006

(Two Pages)

Restoration Advisory Board
Reports and Correspondence
Received During March 2006

Reports

1. Fall 2005/Winter 2006, "Alameda Point Focus, BRAC PMO West" Issue 4.

2. March 9, 2006, "Draft Remedial Investigation Report, IR Site 20 (Oakland Inner Harbor) and IR Site 24 (Pier Area), Alameda Point, Alameda, California", prepared by Battelle, Duxbury, MA, Blasland, Bouck, and Lee, Inc, Carpenteria, CA, and Neptune & Company, Los Alamos, NM for BRAC Program Management Office.

3. March 14, 2006, "Final Feasibility Study Report for Operable Unit 1, Sites 6, 7, 8 and 16, Alameda Point, Alameda, California", (CD copy) from SuiTech, San Diego, to BRAC Program Management Office, San Diego, CA.

4. March 17, 2006, "Summer 2005, Quarterly Groundwater Monitoring Data Report", (on CD), from Innovative Technology Technical Solutions, Inc. to Base Realignment and Closure Program Office, San Diego, CA 92108-4310.

5 March 24, 2006, "Draft Final Feasibility Study Report Installation Restoration Site 27, Dock Zone, Alameda Point, Alameda, California", from Mr. Thomas L. Macchiarella, Department of the Navy to Ms. Anna-Marie Cook, U. S. EPA; Ms. Dot Lofstrom, DTSC; and Ms. Judy Huang, SF Bay RWQCB.

6. March 2006, "Proposed Plan for Site 14, Former Fire Fighter Training Area, Former NAS Alameda', (3 copies received separately), published by Navy BRAC Program Management Office West, San Diego, California.

7. March 2006, "Proposed Plan for Site 28-Todd Shipyards, Former NAS Alameda" published by Navy BRAC Program Management Office, San Diego, California.

Correspondence

1. Feb. 22, 2006 (received March 2, 2006), "Comments on the Draft Remedial Investigation Report, IR Site 2, West Beach Landfill and Wetlands, Alameda Point, Alameda, California", from Ms. Dot Lofstrom, P.G., DTSC to Mr. Thomas L. Macchiarella, Department of the Navy

2. March 13, 2006, "Final Remedial Investigation Study Work Plan for Site 35, Alameda Point, Alameda, California", cover, title page and spine insert, plus replacement pages, from Mr. Thomas L. Macchiarella, Dept of the Navy to Ms.

Substances Control to Mr. Thomas L. Macchiarella, Department of the Navy.

Anna-Marie Cook, U. S. EPA; Ms. Dot Lofstrom, DTSC; and Ms. Judy Huang, S. F. Bay RWQCB

3. March 17, 2006,"Revised Responses to Regulatory Agency Comments on the Draft Proposed Plan Former Fire Fighter Training Area, Installation Restoration Site 14, Alameda Point, Alameda, CA", (2 copies) from Sullivan Int'l Group, Inc. to Restoration Advisory Board, Alameda, CA.

4. March 17, 2006, "Review of Draft Final Site Inspection Report, Transfer Parcel EDC-3, Alameda Point, Alameda, California", from Ms. Dot Lofstrom, P. G., DTSC to Mr. Thomas L. Macchiarella, Department of the Navy.

5. March 21, 2006, "Review of Draft Final Site Inspection Report, Transfer Parcel PBC-1A, Alameda Point, Alameda, California", from Ms. Dot Lofstrom, P.G., DTSC, to Mr. Thomas L. Macchiarella, Department of the Navy.

6. March 22, 2006, "Final Site Inspection Report, Transfer Parcel PBC-1A, Alameda Point, Alameda, California", cover, title page, and spine insert only from Mr. Thomas L. Macchiarella, Department of the Navy to Ms Anna-Marie Cook, U. S. EPA; Ms. Dot Lofstrom, DTSC; and Ms. Judy Huang, S. F. RWQCB.

7. March 22, 2006, "Final Site Inspection Report, Transfer Parcel EDC-3, Alameda Point, Alameda, California", cover, title page and spine insert only, from Mr. Thomas L. Macchiarella, Department of the Navy to Ms. Anna-Marie Cook, U. S. EPA; Ms. Dot Lofstrom, DTYSC; and Ms. Judy Huang, S. F. Bay RWQCB.

8. March 23, 2006, "Draft Record of Decision Site 26, Alameda Point", with attached comments from Ms. Anna-Marie Cook, U. S. EPA, to Mr. Thomas L. Macchiarella, Department of the Navy.

9. March 27, 2006, "TAPP Application, DD Farm 2749" two copies of TAPP application and CD, from Mr. Thomas L. Macchiarella, Department of the Navy to Mr. George B. Humphreys, RAB Community Co-chair.

10. March 28, 2006, "Draft Feasibility Study Report for OU-2A, Site 9, 13, 19, 22 and 23, Alameda Point", from Ms. Anna-Marie Cook., U. S. EPA to Mr. Thomas Macchiarella, Department of the Navy.

11. March 29, 2006, "Request for Additional Information Pertaining to the Draft Feasibility Study for Operable Unit 2A, Sites 9, 13, 19, 22 and 28, Alameda Point, Alameda, California", from Ms. Judy C. Huang, P. E., California Regional Water Quality Control Board to Mr. Thomas L. Macchiarella, Department of the Navy.

12. March 29, 2006, "Review of Draft Record of Decision Site 26, Alameda Point, Alameda, California", from Ms. Dot Lofstrom, P. G., Department of Toxic Substances Control to Mr. Thomas L. Macchiarella, Department of the Navy.

ATTACHMENT B-2

COMMENTS ON DRAFT FINAL PROPOSED PLAN FOR IR SITE 17

(Four Pages)

George B. Humphreys
25 Captains Drive
Alameda, CA 94502-6417
March 14, 2006

Mr. Thomas Macchiarella
BRAC Environmental Coordinator
Department of the Navy
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Subject: Draft Final Proposed Plan for Former Naval Air Station Alameda, Seaplane Lagoon (IR Site 17)

Dear Mr. Macchiarella:

I have reviewed the draft proposed plan for the seaplane lagoon and offer the following comments:

1. Based on the footprint of the proposed remediation areas in the northwest and northeast corners of the lagoon, the recommended alternative 5 appears to be the most appropriate of those summarized in Table 2. However, this concurrence is subject to the reservations and concerns expressed in the comments which follow.

2. The remediation goals were based on a site use factor of 10 percent for the least tern (Page 6 of 17). This assumption appears to have been reached by assuming different use factors until a desired smaller remediation footprint was obtained. Reference is made to the draft Remedial Investigation Report (ref. 1) Figures 7-3 through 7-8, in which site utilization factors (SUF's) of 1, 0.5, 0.25, and 0.094 were tried successively in computing the hazard quotients for various ecological receptors. Apparently, the least tern was selected as the most sensitive fishing bird. While an SUF of 0.5 could have been justified, based on the seasonal migration patterns of the least tern, the selection of 0.1 (or perhaps 0.094) seems to have been arbitrary. Note that while the least terns may move around to other feeding areas, some of these other sites, including those at Alameda Point, may also be contaminated to an extent comparable to the seaplane lagoon. For example, site utilization factors have also been employed by the consultants at the former skeet range (Site 29), and at the Site 2 west beach landfill and wetlands. Other possibly contaminated Navy sites include the beach and near shore area at Site 1, Site 20 (Oakland Inner Harbor), and Site 24 (the Pier Area adjacent to the Seaplane Lagoon). The remedial goals for the Seaplane Lagoon are in effect setting a cleanup standard for other similarly contaminated sites at Alameda Point and around the Bay. It does not reduce the total ecological risk if a bird spends only10% of its time at the seaplane lagoon, but the balance feeding at other similarly contaminated sites. Another consideration is that the contaminated fish, on which the birds are feeding, also are mobile. In fact, as the

tainted fish move out of the seaplane lagoon, the least terns (or other fishing species) are likely to follow. Flocks of feeding birds often are seen congregated over schools of migrating fish. It does not mean the fish are any less contaminated, simply because they've left the seaplane lagoon. Finally, the least terns are not likely to fly too far away from their nesting area as they are feeding their young. This reviewer would like to see what the remediation footprint would be if a justifiable SUF of 0.5 had been used.

3 The draft RI (ref. 1) in Section 3 shows a number of hotspots in areas of the lagoon away from the northwest and northeast corners. See for example PCB concentrations in Figures 3-16, 3-17 and 3-18 and Ra-226 in Figures 3-20 and 3-21. Other than cost considerations, why wasn't complete excavation of the lagoon evaluated as suggested by the Sierra Club and Arc Ecology (Refs. 2 and 3). Is spot excavation of hot spots, in addition to the selected corners a possible alternative which could be adopted?

4. The proposed plan does not mention the two plumes of contamination which currently appear to be entering the Seaplane Lagoon from the adjacent OU 2B and IR Site 27 Dock Zone. The east side of the lagoon is bounded by a seawall (see page 2 of 17 of the proposed plan). Would excavation of 5 ft of sediment (4 ft, plus 1 ft of over-dredging) in the northeast corner weaken or undermine the adjacent seawall? Would the flow of contaminants be increased from the OU 2B plume and by how much? During the discussion of OU 2B in May 11, 2004, I suggested that a slurry cut-off wall be considered to stop the OU 2B plume from entering the seaplane lagoon (ref. 4). This was said to be infeasible because of he depth to older bay mud (40 or 50 ft) into which the cut-off wall could be tied. Note that dense non-aqueous phase liquids could be dispersing under the seawall and entering sediment layers at depths below what has been sampled and at depths greater than what is proposed to be excavated by the proposed plan (ref. 5, page 7 of 11 wherein OU 2B is incorrectly referred to as OU 2A).

5. A general shortcoming of the Navy's studies is caused by fragmentation of the sites and failure to consider the interactions among the various sites. As noted above, the seaplane lagoon is impacted by contaminant plumes from OU 2B and Site 27. Note also that the recent draft RI on IR Site 20 and IR Site 24 (Pier Area) shows hot spots in the northeast corner of the Pier Area which could be coming from the Site 27 contaminant plume (see for example, Figures 4-15 through 4-18 of ref. 6).

6. The proposed plan states (pg. 5 of 17), "In addition, it was determined that areas of the lagoon associated with unacceptable risks to human health coincided with those identified as posing an unacceptable risk to ecological receptors. Therefore, <u>addressing ecological risks will also address human health exposures</u>" (emphasis added). From this quoted statement it may reasonably be implied that it will be safe for people to eat fish caught from the lagoon. If this is true, will

signs warning people not to eat fish caught in the lagoon be removed after the remedial action is complete? If it is not true, then how can it be said that the proposed remedy protects human health?

7. Regarding the ecological and human health risk assessment, were harbor seals and sea lions evaluated? The impact on harbor seals of eating contaminated fish from the lagoon should be similar to, or greater than, that on humans as a larger portion of the seals' diet consists of fish. Also, regarding bottom feeding fish, were flounder, halibut, and sturgeon evaluated? Flounder and halibut are among fish sought after by people fishing along the nearby breakwater beach.

8. Bay Farm was one of the reference sites stations used in the RI for comparing calculated risks to reference conditions (see ref. 1 pg. 165). It should be noted that as early as 1872 there were oyster farms on submerged land near the Bay Farm Island Bridge. However by the late 1880's the Alameda oysters had become tainted by pollution from the Pacific Oil Refinery located on the west end of Alameda. Oyster farming on Bay Farm ceased in the early 1890's. (see ref. 7) This demonstrates that Bay Farm is not an uncontaminated reference site.

9. There are two areas of debris located approximately midway along the north bank of the seaplane lagoon. During presentations on the seaplane lagoon, it was stated that these debris piles would be removed as part of the remediation action. Nevertheless, they are not shown in blue on Figure 4 of the proposed plan From Figure 3 of the proposed plan, it doesn't appear that any samples were taken from these debris piles.

Thank you for the opportunity to comment on the proposed plan.

Sincerely,

George B Humphreys

George B. Humphreys
Community Co-chair, Restoration Advisory Board

Neil Cox
Joan Konrad
H. Bert Morgan
James W. Sweeney

Copies to:

Dot Lofstrom, DTSC
Judy Huang, RWQCB
Mark Ripperda, U. S. EPA
Dale Smith, Sierra Club/Audubon Soc.
Frank Matarrese, Alameda City Council

References:

1. "Draft Remedial Investigation Report Seaplane Lagoon, Alameda Point, California", Prepared by Battelle, Entrix, Inc. and Neptune & Company, January 28, 2003.

2. Letter from William J. Smith, Co-chair, Sierra Club Northern Alameda County Regional Group, to Mr. Steven Edde, U.S. Navy, May 6, 2003.

3. Letter from Lea Loizos, Arc Ecology to Mr. Andrew Dick, "Draft Remedial Investigation for the Seaplane Lagoon, Alameda Point, California", May 5, 2003.

4. 4. RAB Meeting Minutes of May 11, 2004 page 7 of 9.

5. RAB Meeting Minutes of Jan. 6, 2005 page 7 of 11.

6. "Draft Remedial Investigation Report IR Site 20 (Oakland Inner Harbor) and IR Site 24 (Pier Area) Alameda Point, Alameda, California, Battelle, Blasland, Bouch and Lee Inc., Neptune & Company March 2006.

7. Alameda Magazine, Volume 4, Issue 6, "Alameda on the Half Shell", by Woody Minor, Nov. 2005.

ATTACHMENT B-3

COMMENTS ON PROPOSED PLAN FOR OU-5/IR-02 GROUNDWATER

(One Page)

George B. Humphreys
25 Captains Drive
Alameda, CA 94502-6417
April 3, 2006

Mr. Thomas Macchiarella
BRAC Environmental Coordinator
BRAC Program Management Office
1455 Frazee Road, Suite 900
San Diego, CA 92108-4310

Subject: Comments on Proposed Plan for Operable Unit 5/
IR-02 Groundwater, March 2006

Dear Mr. Macchiarella:

After reviewing the alternatives presented, the Navy's preferred alternative (Alternative 4) appears to be satisfactory. My concern after reading the newspaper article on the "public meeting" was that gases generated by the biosparging process could carry benzene, naphthalene and other hazardous gases up through the soil to the surface. This concern has been addressed by the conceptual design shown in Figure 3. The soil vapor extraction wells, if appropriately located and spaced, should take care of that potential problem.

A remaining concern is the areal extent of the plume. The current map (Figure 2) shows the plume extending into the former warehouse area (IR-01) tangent to the boundary of the former East Housing area (Bayport development) and near the boundary of the College of Alameda. In addition to the Marsh Crust issue, have the residents of new homes in Bayport been informed that their homes may possibly be located over a contaminated groundwater plume? Also, is it possible that the plume extends under the College of Alameda? In the discussion of site background, the proposed plan mentions gas plants, an oil refinery, the San Francisco Bay Airdrome and the Navy's scrap yard. The presence of MTBE in some samples from the plume indicates that some of the contamination may be of more recent origin. Also, the RAB was told of a burn pit located under Kollman Circle in the Coast Guard Housing area. If organic liquids were dumped into such a pit, some of these liquids could have percolated into the groundwater between burn events.

Regarding cleanup levels and human health risks, it is important that risks from the soil, soil gas and groundwater be added together, even though these media have been separated for evaluation purposes.

Sincerely,

George B Humphreys

George B. Humphreys,
RAB Community Co-chair

Copies to
Anna-Marie Cook, U. S. EPA
Henry Wong, DTSC
Judy Huang, RWQCB
Frank Matarrese, Alameda City Council

ATTACHMENT B-4

SIGNIFICANT NAVY CERCLA PROGRAM DOCUMENTS FOR APRIL/MAY 2006

(One Page)

Alameda Point Restoration Advisory Board Meeting
April 6, 2005

Significant Navy CERCLA program documents planned for
April/May 2006

- PBC-1A Final Site Inspection Report
- EDC-3 Final Site Inspection Report
- Site 27 Final Feasibility Study Report
- Site 30 Draft Feasibility Study
- Site 31 Draft Remedial Investigation Report
- OU-1 Proposed Plan
- Site 2 Draft Final RI Report
- Site 15 Final ROD
- OU-2A Draft Final FS
- Site 2 Final RI Report

ATTACHMENT B-5

FULL-SCALE IN-SITU CHEMICAL OXIDATION REMOVAL ACTION PRESENTATION FOR SITE 16 SOUTH

(Fourteen Pages)

Full-Scale In-Situ Chemical Oxidation Removal Action Site 16 South

Shaw The Shaw Group Inc.

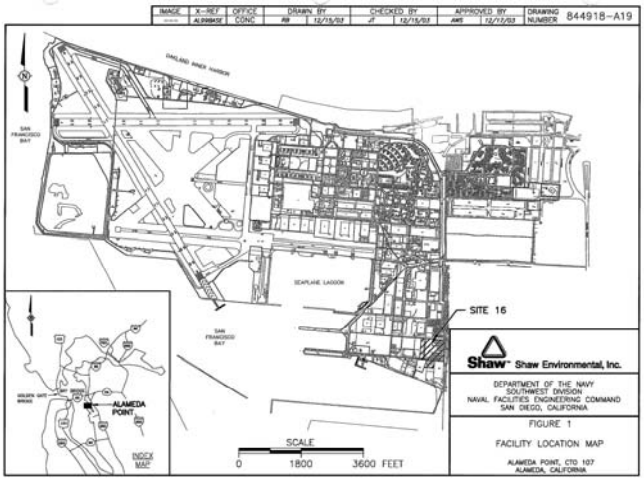
Site 16 South

Glenna Clark, Navy RPM
John McGuire, Shaw Environmental and Infrastructure

RAB Presentation

April 6, 2006

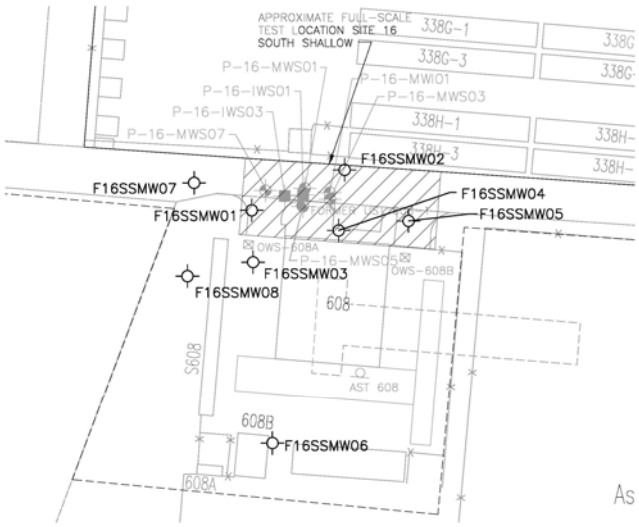
Location of Site 16



Site 16 South Site Summary

- Consisted of auto repair facility, OWS, aircraft fueling and defueling, aircraft maintenance, aircraft washing, and AST
- 1 acre site paved with concrete/asphalt
- Main contaminants TCE, PCE, Vinyl Chloride, and cis-1,2-DCE
- Objective - mass reduction of shallow zone (5-15’ bgs) contaminant concentrations until below MCLs

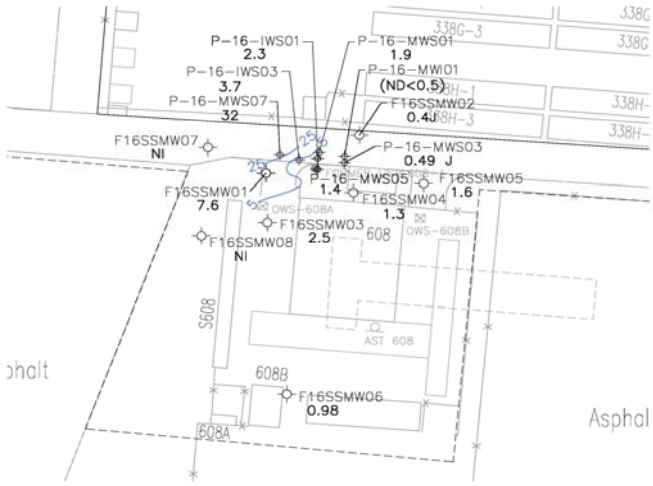
Site 16 South Site Layout



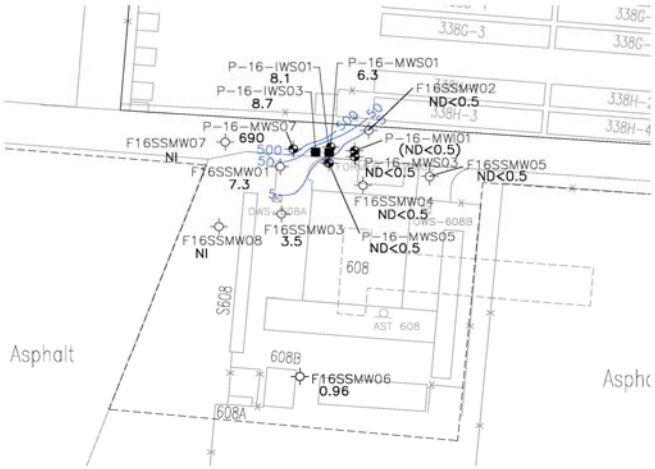
Plume Delineation

- Initial Extent of VOCs not characterized to MCLs North, South, and West
- Conducted CPT and Hydropunch Sampling at 7 locations
- Exceeded MCLs for cis-1,2-DCE (6ug/L) and VC (0.5ug/L) at 2 of the hydropunch locations

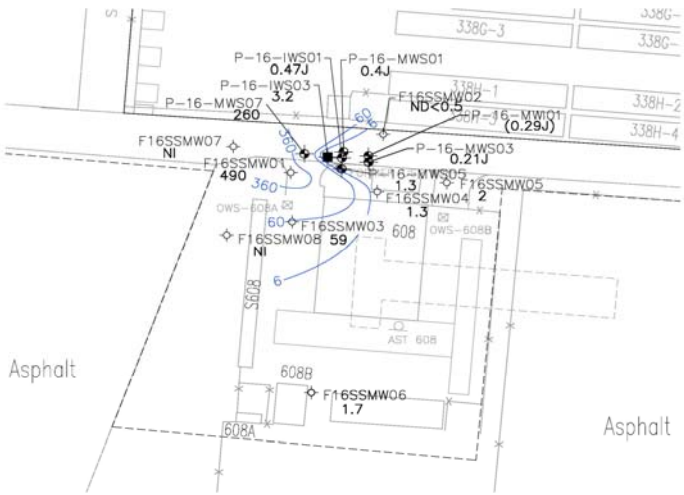
Baseline TCE Concentrations



Baseline PCE Concentrations

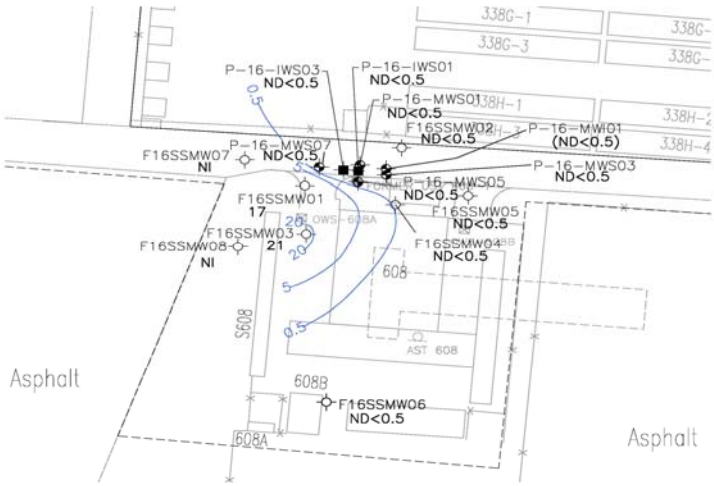


Baseline 1,2-DCE Concentrations



Page 9

Baseline Vinyl Chloride Concentrations



Page 10

Full-Scale Application

- Four planned injection events (11/03-5/04)
- Used Direct-Push Technology
- Approximately 90 injection points
- Injected approximately 6,500 gallons of reagent
- Following 2nd injection event installed wells F16SSMW07 and F16SSMW08 for further plume characterization to the west

Full-Scale Application (cont'd.)

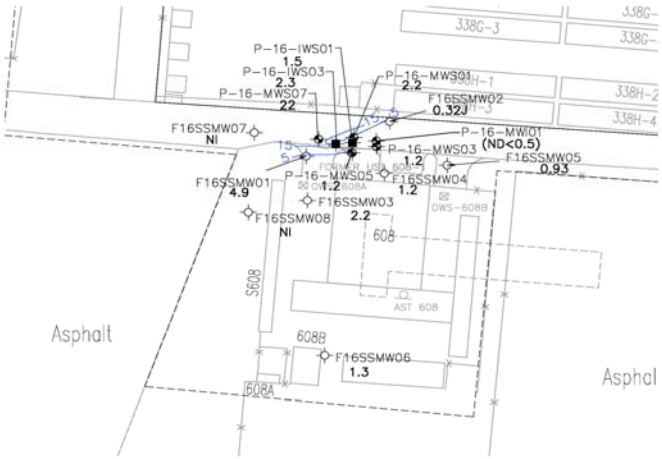
- Surfacing around some wells and within the UST excavation area mainly North and Northwest of Bldg 608 and near P-16-IWS03
- MCLs not achieved in 5 wells (F16SSMW01, F16SSMW03, P-16-IWS03, P-16-MWS01, and P-16-MWS07)
- Conducted one additional "hot spot" injection event (11/17/04 -12/30/04) near these wells

Temporary Injection Locations

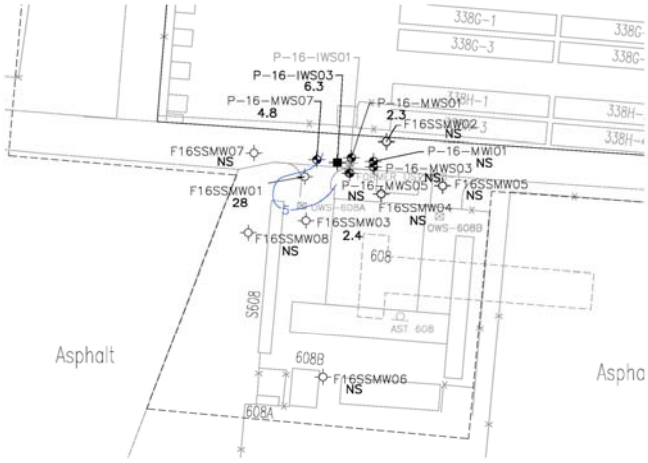
Post-Oxidant Injection Sampling

- Samples collected 1-2 weeks following injection events
- Conducted 4 post injection sampling events
- MCLs not achieved in 5 wells (F16SSMW01, F16SSMW03, P-16-IWS03, P-16-MWS01, and P-16-MWS07)
- One additional injection round conducted near these “hot spot” wells
- Only sampled the “hot spot” wells during the 5th post injection sampling event

Post-Injection II TCE Concentrations (results presented since first time all well sampled)



Post-Injection V TCE Concentrations



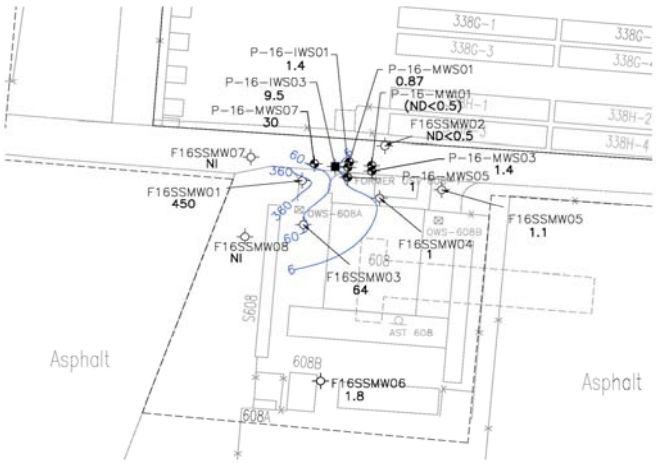
Post-Injection II PCE Concentrations (results presented since first time all well sampled)

Page 17

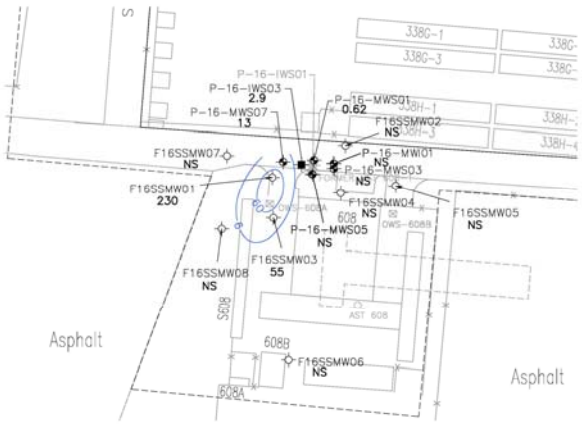
Post-Injection V PCE Concentrations

Page 18

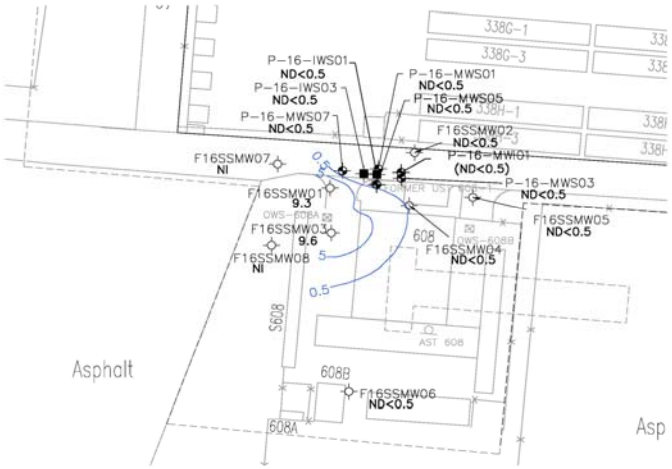
Post-Injection II 1,2-DCE Concentrations (results presented since first time all well sampled)



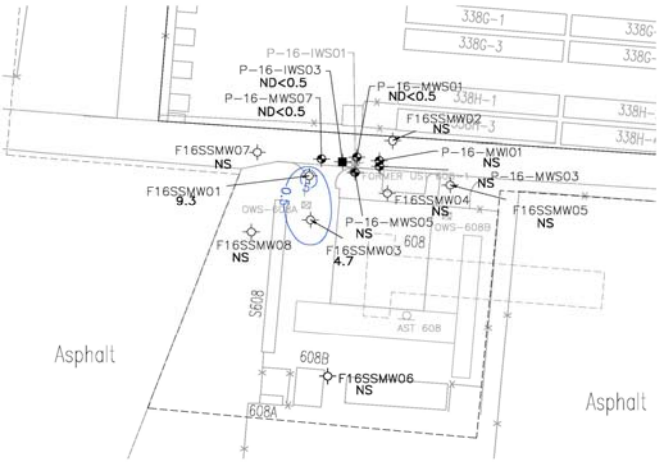
Post-Injection V 1,2-DCE Concentrations



Post-Injection II Vinyl Chloride Concentrations (results presented since first time all well sampled)



Post-Injection V Vinyl Chloride Concentrations



Summary Analytical Table TCE

Monitoring Well	Baseline (11/12/03)	Post 1st (12/01/03)	Post 2nd (01/27/04)	Post 3rd (04/01/04)	Post 4th (05/24/04)	Post 5th (12/14/04)
F16SSMW01	7.6	4.9	2.9	1.6	2.8	28
F16SSMW02	0.4	0.32	0.25	0.94	0.32	NS
F16SSMW03	2.5	2.2	1.2	1.5	1.8	2.4
F16SSMW04	1.3	1.2	0.42	0.87	0.68	NS
F16SSMW05	1.6	0.93	0.69	0.81	0.54	NS
F16SSMW06	0.98	1.3	0.53	0.58	0.57	NS
F16SSMW07	---	---	---	0.25	0.25	NS
F16SSMW08	---	---	---	0.25	0.25	NS
P-16-IWS01	2.3	1.5	NS	NS	NS	NS
P-16-IWS03	3.7	2.3	1.7	11	5.9	7.4
P-16-MWI01	0.25	0.25	0.25	0.48	0.26	NS
P-16-MWS01	1.9	2.2	1.3	1.3	1.4	2.3
P-16-MWS03	0.49	1.2	0.5	1.2	0.95	NS
P-16-MWS05	1.4	1.2	1.3	1.7	0.98	NS
P-16-MWS07	32	22	4.2	2.4	5.6	4.8

Notes:

0.25 - Non-detect (value shown in blue is 1/2 of detection limit)

Concentration above State Maximum Contaminant Levels (MCLs)

--- - Data not available (monitoring wells were installed during 3rd injection field activities)

* - Average does not include results from wells abandoned or installed after baseline sampling

BOLD - indicates baseline well

NS - Not Sampled

State MCL

TCE = 5 ug/l

Summary Analytical Table PCE

Monitoring Well	Baseline (11/12/03)	Post 1st (12/01/03)	Post 2nd (01/27/04)	Post 3rd (04/01/04)	Post 4th (05/24/04)	Post 5th (12/14/04)
F16SSMW01	7.3	4.7	3.1	1.9	4.7	94
F16SSMW02	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW03	3.5	3.2	2.7	2.7	2.9	4
F16SSMW04	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW05	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW06	0.96	1.2	0.53	0.6	0.56	NS
F16SSMW07	---	---	---	0.25	0.25	NS
F16SSMW08	---	---	---	0.25	0.25	NS
P-16-IWS01	8.1	1.5	NS	NS	NS	NS
P-16-IWS03	8.7	2.1	1.1	23	44	28
P-16-MWI01	0.25	0.25	0.25	0.25	0.25	NS
P-16-MWS01	6.3	4.9	9.9	8	8.2	12
P-16-MWS03	0.25	0.25	0.25	0.25	0.25	NS
P-16-MWS05	0.25	0.3	0.51	0.75	0.59	NS
P-16-MWS07	690	110	33	6.4	24	21

Notes:

0.25 - Non-detect (value shown in blue is 1/2 of detection limit)

Concentration above State Maximum Contaminant Levels (MCLs)

--- - Data not available (monitoring wells were installed during 3rd injection field activities)

* - Average does not include results from wells abandoned or installed after baseline sampling

NS - Not Sampled

State MCL

PCE = 5 ug/l

Summary Analytical Table 1,2-DCE

Monitoring Well	Baseline (11/12/03)	Post 1st (12/01/03)	Post 2nd (01/27/04)	Post 3rd (04/01/04)	Post 4th (05/24/04)	Post 5th (12/14/04)
F16SSMW01	490	450	100	12	19	230
F16SSMW02	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW03	59	64	23	14	25	55
F16SSMW04	1.3	1	0.41	0.45	0.38	NS
F16SSMW05	2	1.1	0.89	1	0.82	NS
F16SSMW06	1.7	1.8	0.91	0.73	0.73	NS
F16SSMW07	---	---	---	0.25	0.25	NS
F16SSMW08	---	---	---	0.38	0.31	NS
P-16-IWS01	0.47	1.4	NS	NS	NS	NS
P-16-IWS03	3.2	9.5	7.7	6.2	3.6	3.7
P-16-MWI01	0.29	0.25	0.25	0.25	0.23	NS
P-16-MWS01	0.4	0.87	0.54	0.28	0.29	0.62
P-16-MWS03	0.21	1.4	0.37	0.63	0.43	NS
P-16-MWS05	1.3	1	1.8	1.7	0.85	NS
P-16-MWS07	260	30	3.2	6.1	3.5	13

Notes:

0.25 - Non-detect (value shown in blue is 1/2 of detection limit)

Concentration above State Maximum Contaminant Levels (MCLs)

--- - Data not available (monitoring wells were installed during 3rd injection field activities)

* - Average does not include results from wells abandoned or installed after baseline sampling

BOLD - indicates baseline well

NS - Not Sampled

State MCL

cis-1,2-DCE = 6 ug/l

Shaw

Summary Analytical Table Vinyl Chloride

Monitoring Well	Baseline (11/12/03)	Post 1st (12/01/03)	Post 2nd (01/27/04)	Post 3rd (04/01/04)	Post 4th (05/24/04)	Post 5th (12/14/04)
F16SSMW01	17	9.3	6.5	0.38	0.4	9.3
F16SSMW02	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW03	21	9.6	9.5	3.4	3.3	4.7
F16SSMW04	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW05	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW06	0.25	0.25	0.25	0.25	0.25	NS
F16SSMW07	---	---	---	0.25	0.25	NS
F16SSMW08	---	---	---	0.25	0.25	NS
P-16-IWS01	0.25	0.25	NS	NS	NS	NS
P-16-IWS03	0.25	0.25	0.25	0.25	0.25	0.25
P-16-MWI01	0.25	0.25	0.25	0.25	0.25	NS
P-16-MWS01	0.25	0.25	0.25	0.25	0.25	0.25
P-16-MWS03	0.25	0.25	0.25	0.25	0.25	NS
P-16-MWS05	0.25	0.25	0.25	0.25	0.25	NS
P-16-MWS07	0.25	0.25	0.25	0.25	0.25	0.25

Notes:

0.25 - Non-detect (value shown in blue is 1/2 of detection limit)

Concentration above State Maximum Contaminant Levels (MCLs)

--- - Data not available (monitoring wells were installed during 3rd injection field activities)

* - Average does not include results from wells abandoned or installed after baseline sampling

BOLD - indicates baseline well

NS - Not Sampled

State MCL

Vinyl chloride = 0.5 ug/l

Shaw

Full-Scale Application Summary

- Observed reductions of dissolved-phase contaminants in select areas
- Area Northwest of Building 608 and near the former UST excavation area did not achieve reductions below MCLs
- Soil overlying and in the vicinity of the former UST and Northwest of Building 608 may still have unknown volumes of sorbed mass
- Recommend further evaluation of the nature and extent of soil contamination in this area
- Recommend remediate contaminated soil (if necessary), followed by further groundwater treatment with ISCO

ATTACHMENT B-6

FULL-SCALE IN-SITU CHEMICAL OXIDATION REMOVAL ACTION PRESENTATION FOR SITE 16 NORTH

(Ten Pages)

Full-Scale In-Situ Chemical Oxidation Removal Action Site 16 North

Shaw The Shaw Group Inc.

Site 16 North Presentation

Glenna Clark, Navy RPM
John McGuire, Shaw Environmental and Infrastructure

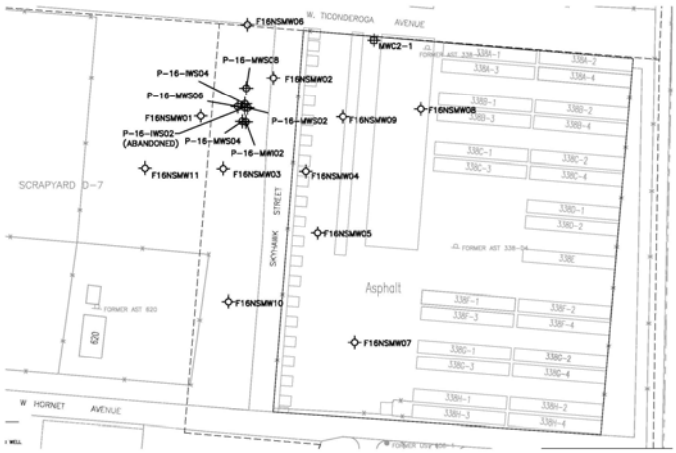
RAB Presentation

April 6, 2006

Site 16 North Site Summary

- Consisted of storage yard, scrap yard, airplane parking, and AST
- 11 acre site, 6 acre treatment area
- 73% paved with concrete/asphalt
- Contaminants mainly dichlorobenzene isomers and VOCs
- Objective - mass reduction of shallow zone (5-15' bgs) contaminant concentrations until below MCLs

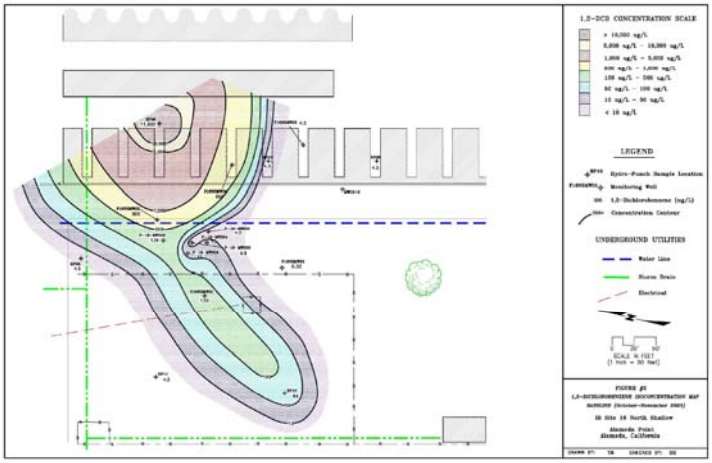
Site 16 North Site Layout



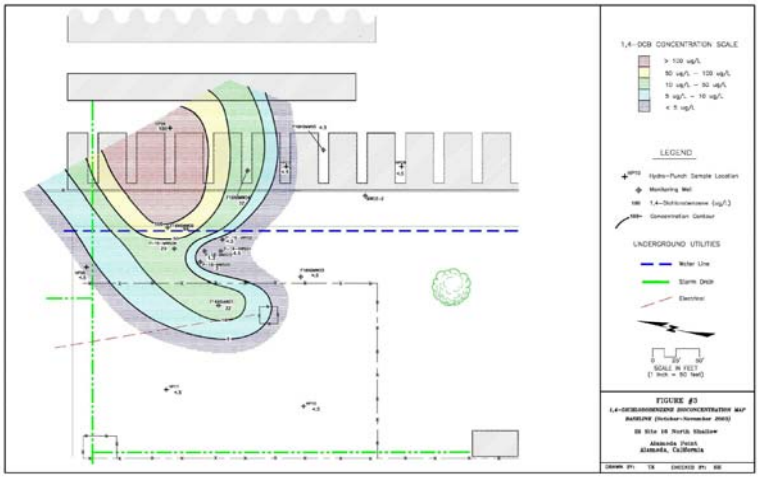
Plume Delineation

- Initial extent of VOCs not characterized to MCLs West and Southeast
- Conducted CPT and Hydropunch Sampling at 7 locations (collected at 4 depth intervals to 40 feet)

Baseline 1,2-DCB Plume (based on well and hydropunch sample results)



Baseline 1,4-DCB Plume (based on well and hydropunch sample results)



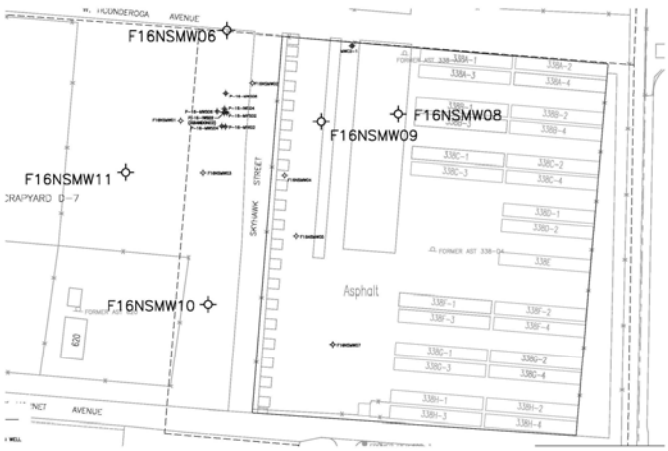
Full-Scale Application

- Three planned injection events (12/03-5/04)
- Direct-Push Injection Points
- 6 acre treatment area
- Approximately 300+ injection locations
- Injected 111,000 gallons reagent

Full Scale Application (cont'd)

- Based on additional plume information from other contractor, 6 new wells (F16NSMW06 thru F16NSMW11) were installed after the 2nd injection event
- MCLs (1,2-DCB = 600ug/L, 1,4-DCB = 5ug/L) exceeded at locations 16NSHP06, 16NSHP08, 16NSHP09, 16NSHP10, and 16NSHP11 (approx 8-13 feet bgs zone)

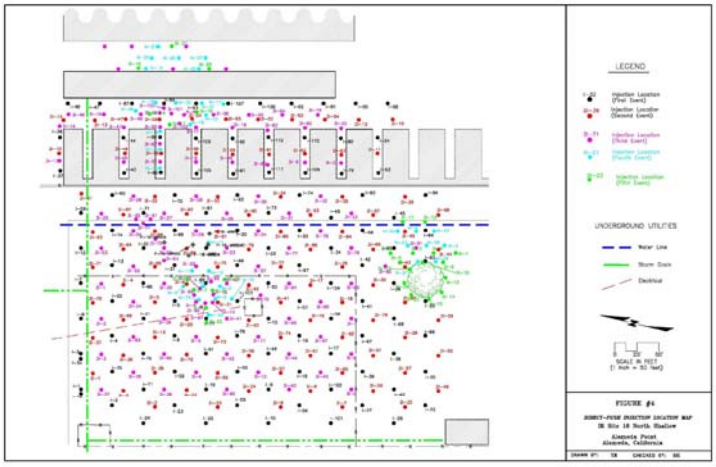
Wells Exceeding MCLs



“Hot-Spot” Application

- Some areas continually exceeded MCLs
- Mainly near wells F16NSMW-01, F16NSMW-09, and F16NSMW-10
- 2 Additional Hot-Spot Injection events
- (1st) 4th Event – 34 injection points
- (2nd) 5th Event – 27 injection points
- Injected 21,000 gallons reagent

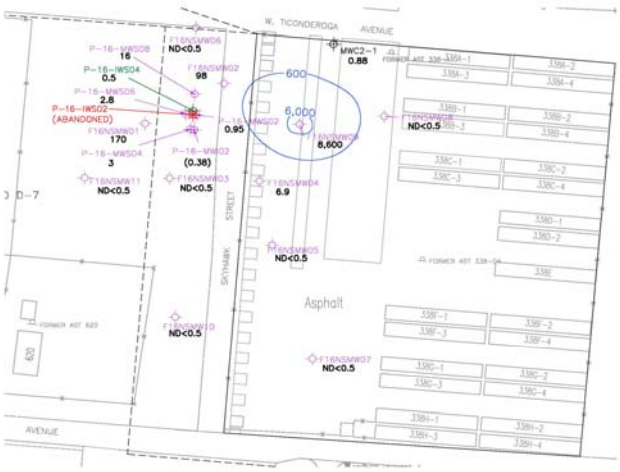
Direct-Push Injection Points



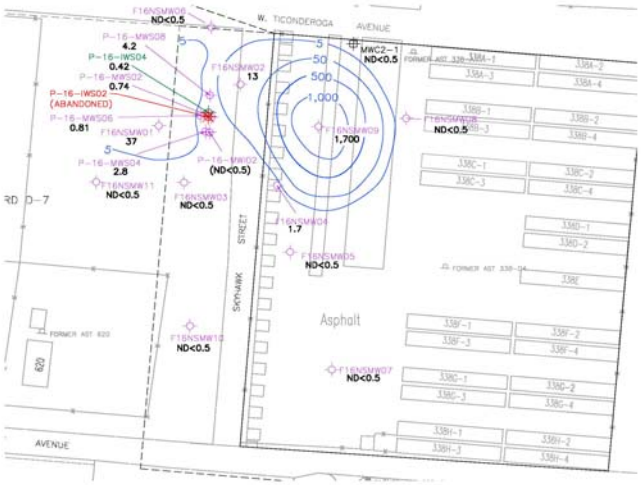
Post-Oxidant Injection Sampling

- Sampling 1-2 weeks following injection event
- Sample existing monitoring wells
- 5 Post-Injection Sampling Events (3 planned and 2 hot spot rounds)
  - January, March, May, and December 2004 and February 2005

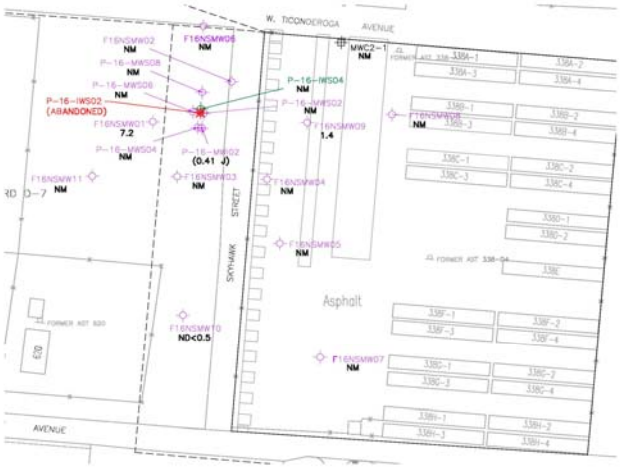
1,2-DCB Post-Injection II Concentrations (these results presented because first time all installed wells sampled)



1,4-DCB Post-Injection II Concentrations (these results presented because first time all installed wells sampled)



1,2-DCB Post-Injection V Concentrations



Summary Analytical Table 1,2-DCB

Well	Baseline Concentration (11/11/03)	Post 1st Injection Concentration (01/14/04)	Post 2nd Injection Concentration (03/31/04)	Post 3rd Injection Concentration (05/20/04)	Post 4th Injection Concentration (12/15/04)	Post 5th Injection Concentration (2/16/05)
F16NSMW01	130	110	170	20	29	7.2
F16NSMW02	900	230	98	12	NS	NS
F16NSMW03	0.33	0.51	0.25	0.25	NS	NS
F16NSMW04	660	360	6.9	0.47	NS	NS
F16NSMW05	0.25	0.25	0.25	0.25	NS	NS
F16NSMW06	---	---	0.25	0.25	NS	NS
F16NSMW07	---	---	0.25	0.25	0.25	NS
F16NSMW08	---	---	0.25	0.25	NS	NS
F16NSMW09	---	---	8,600	2,500	3.4	1.4
F16NSMW10	---	---	0.25	0.25	0.25	0.25
F16NSMW11	---	---	0.25	3.1	NS	NS
P-16-IWS04	73	5.8	0.5	0.42	NS	NS
P-16-MWI02	0.25	0.25	0.38	0.51	0.41	NS
P-16-MWS02	4.6	4.8	0.95	0.56	NS	NS
P-16-MWS04	15	25	3	0.22	NS	NS
P-16-MWS06	15	0.78	2.8	0.25	NS	NS
P-16-MWS08	130	4.3	16	0.22	NS	NS
MWC2-1	0.25	0.25	0.88	0.25	NS	NS

NOTES

0.25 - Non-detect (value shown in blue is 1/2 of detection limit)

Concentration above State Maximum Contaminant Level (MCL)

--- - Data not available (monitoring wells were installed during 2nd injection field activities)

* - Average does not include results from wells installed after the second injection event

BOLD - indicates baseline monitoring wells

Concentrations are in micrograms per liter (ug/L)

NS- Monitoring well not sampled.

State MCL

1,2-DCB = 600 ug/l

Shaw

Summary Analytical Table 1,4-DCB

Well	Baseline Concentration (11/11/03)	Post 1st Injection Concentration (01/14/04)	Post 2nd Injection Concentration (03/31/04)	Post 3rd Injection Concentration (05/20/04)	Post 4th Injection Concentration (12/15/04)	Post 5th Injection Concentration (2/16/05)
F16NSMW01	22	25	37	8.4	6.3	3.5
F16NSMW02	99	30	13	1.6	NS	NS
F16NSMW03	0.25	0.25	0.25	0.25	NS	NS
F16NSMW04	32	24	1.7	0.38	NS	NS
F16NSMW05	0.25	0.25	0.25	0.25	NS	NS
F16NSMW06	---	---	0.25	0.25	NS	NS
F16NSMW07	---	---	0.25	0.25	0.25	NS
F16NSMW08	---	---	0.25	0.25	NS	NS
F16NSMW09	---	---	1,700	890	1.4	1.1
F16NSMW10	---	---	0.25	0.25	0.25	0.25
F16NSMW11	---	---	0.25	0.29	NS	NS
P-16-IWS04	15	1.9	0.42	0.2	NS	NS
P-16-MWI02	0.25	0.25	0.25	0.25	0.25	NS
P-16-MWS02	1.3	3.5	0.74	0.28	NS	NS
P-16-MWS04	4.5	7.1	2.8	0.25	NS	NS
P-16-MWS06	3	0.37	0.81	0.25	NS	NS
P-16-MWS08	20	0.85	4.2	0.29	NS	NS
MWC2-1	0.25	0.25	0.25	0.25	NS	NS

NOTES

0.25 - Non-detect (value shown in blue is 1/2 of detection limit)

Concentration above State Maximum Contaminant Level (MCL)

--- - Data not available (monitoring wells were installed during 2nd injection field activities)

* - Average does not include results from wells installed after the second injection event

BOLD - indicates baseline monitoring wells

Concentrations are in micrograms per liter (ug/L)

NS- Monitoring well not sampled.

State MCL

1,4-DCB = 5 ug/l

Shaw

Summary Analytical Table cis-1,2-DCE

Well	Baseline Concentration (11/11/03)	Post 1st Injection Concentration (01/14/04)	Post 2nd Injection Concentration (03/31/04)	Post 3rd Injection Concentration (05/20/04)	Post 4th Injection Concentration (12/15/04)	Post 5th Injection Concentration (2/16/05)
F16NSMW01	4.8	5.2	9.3	1.3	11	1.7
F16NSMW02	7.3	3.4	4.2	2.7	NS	NS
F16NSMW03	0.44	0.36	0.62	0.32	NS	NS
F16NSMW04	6.6	2.4	2.1	0.52	NS	NS
F16NSMW05	20	3	3.9	1.7	NS	NS
F16NSMW06	---	---	1	0.92	NS	NS
F16NSMW07	---	---	6.4	5.7	6.4	6.4
F16NSMW08	---	---	0.25	0.25	NS	NS
F16NSMW09	---	---	0.25	0.71	0.21	0.25
F16NSMW10	---	---	9	10	19	7.1
F16NSMW11	---	---	1.3	0.87	NS	NS
P-16-IWS04	1.2	1.2	0.82	0.75	NS	NS
P-16-MWI02	8.3	6.9	5.5	6.1	6.5	NS
P-16-MWS02	0.24	1.2	0.99	0.25	NS	NS
P-16-MWS04	0.51	1.1	0.49	0.23	NS	NS
P-16-MWS06	0.8	0.29	0.86	0.25	NS	NS
P-16-MWS08	2.7	3	2.2	1.7	NS	NS
MWC2-1	0.25	0.25	0.25	0.25	NS	NS

NOTES

0.25 - Non-detect (value shown in blue is 1/2 of detection limit)

Concentration above State Maximum Contaminant Level (MCL)

--- - Data not available (monitoring wells were installed during 2nd injection field activities)

* - Average does not include results from wells installed after the second injection event

BOLD - indicates baseline monitoring wells

Concentrations are in micrograms per liter (ug/L)

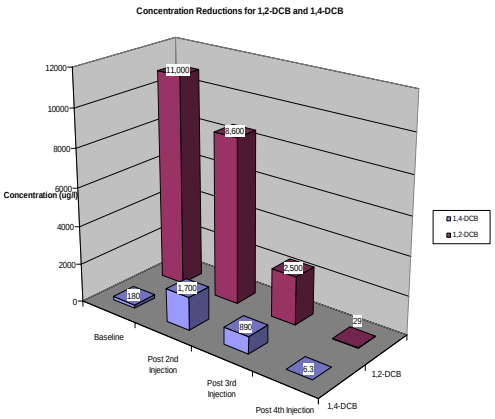
NS- Monitoring well not sampled.

State MCL

cis-1,2-DCE = 6 ug/l

Full-Scale Application Summary

- Originally only addressed DCB in the first water-bearing zone
- Achieved MCLs for target dichlorobenzene compounds
- Only slight change in cis-1,2-DCE concentrations
- Cis-1,2-DCE plume needs to be defined to MCLs



ATTACHMENT B-7

DRAFT REMEDIAL INVESTIGATION REPORT PRESENTATION FOR IR SITE 20 AND IR SITE 24

(Thirteen Pages)

BRAC PMO

SUMMARY OF DRAFT REMEDIAL INVESTIGATION REPORT
IR SITE 20 (OAKLAND INNER HARBOR)
AND IR SITE 24 (PIER AREA)
ALAMEDA POINT,
ALAMEDA, CALIFORNIA

RAB Meeting
April 6, 2006

Mary Parker
Navy Remedial Project Manager

Nancy Bonnevie
Battelle

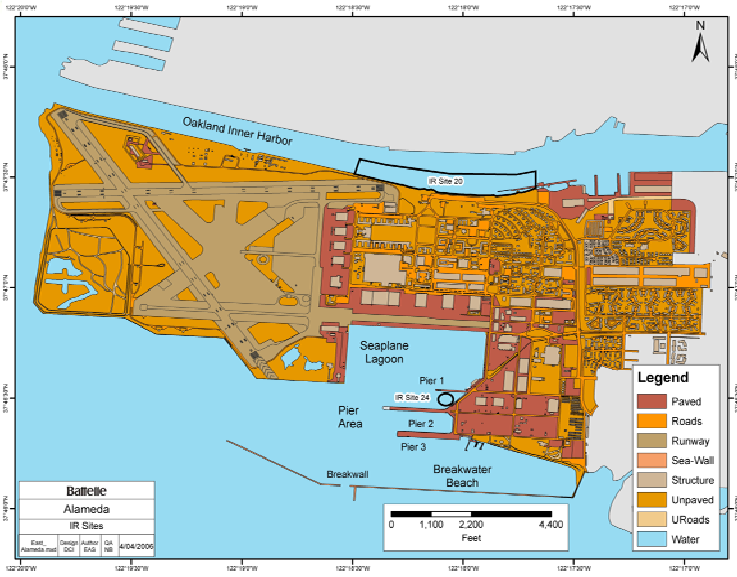
BRAC PMO

LIST OF TOPICS/AGENDA

- **Site Location and History**
- **Remedial Investigation Approach**
- **Summary of Nature and Extent**
- **Ecological Risk Assessment**
- **Human Health Risk Assessment**
- **Conclusions of the Remedial Investigation (RI)**

SITE LOCATION MAP

BRAC PMO



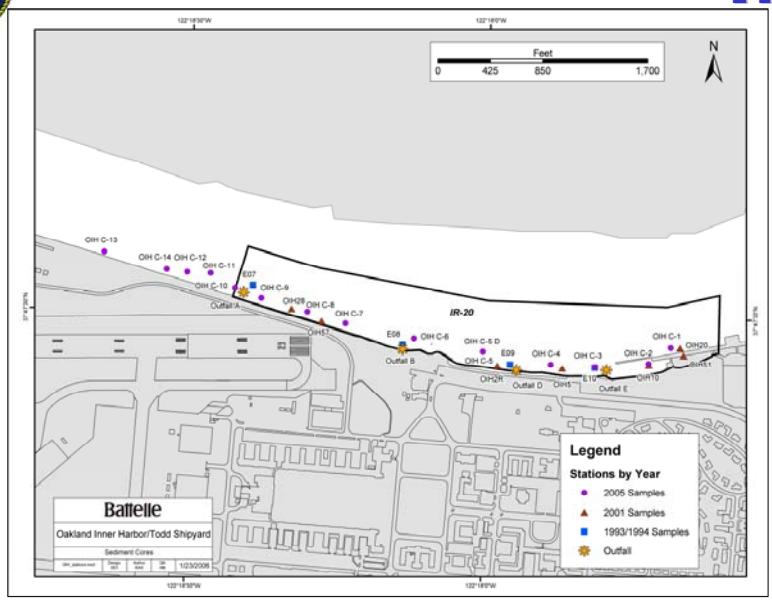
IR SITE 20 HISTORY

BRAC PMO

- Located along heavily industrialized shipping channel
  - Stormwater and industrial wastes also discharged from NAS Alameda
  - The shipping channel was dredged to 12 m in 1993
- Summary of Investigations:
  - Between 1993 and 2001, 11 surface sediment samples were collected adjacent to outfalls
    - In 1993/94, the toxicity and uptake of contaminants was evaluated in laboratory tests using sediments from 4 locations near the sewer outfalls
  - In 2005, 14 additional sediment locations were evaluated
    - 3 depths (0-5 cm, 5-25 cm, 25-50 cm)

SAMPLING LOCATIONS AT IR SITE 20

BRAC PMO



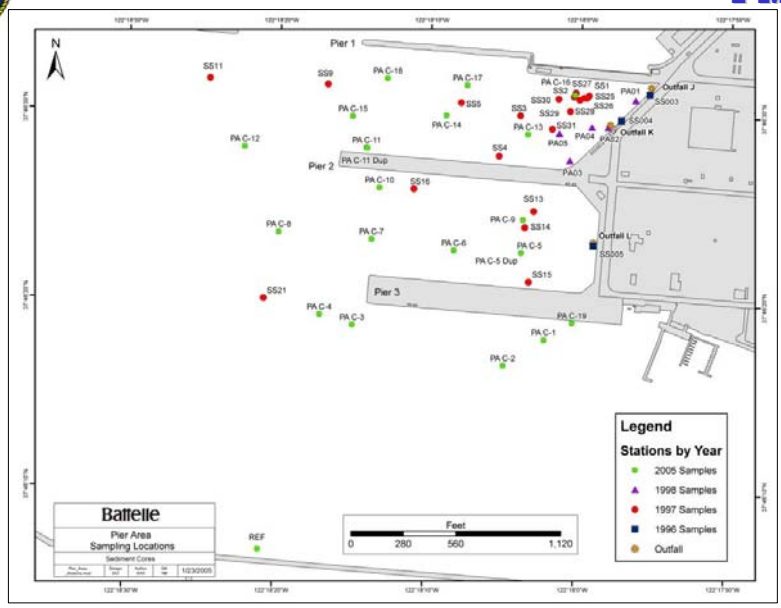
IR SITE 24 HISTORY

BRAC PMO

- Primary sources include stormwater and wastewater discharged from storm drains, as well as activities at the piers
- The piers were periodically dredged until 1978
- The proposed future reuse includes docking large scale ships such as ferries, cruise ships or historical landmark vessels
- Summary of Investigations:
  - A total of 27 surface sediment samples collected from 1996 through 1998
    - In 1998 the toxicity and uptake of contaminants was evaluated in laboratory tests using sediments from 5 locations near the sewer outfalls
  - In 2005, 19 additional sediment locations were evaluated
    - 3 depths (0-5 cm, 5-25 cm, 25-50 cm)

LOCATION OF IR SITE 24 SAMPLES

BRAC PMO



REMEDIAL INVESTIGATION APPROACH

BRAC PMO

- The RI was conducted in accordance with the Offshore Core Study Workplan (May, 2005)
- Sediment is the primary medium for both human and ecological exposures
  - Evaluated direct contact to sediment and uptake from consumption of aquatic organisms
- Used all available sediment data to calculate risks
  - All Years
  - 2005 Surface (0-5 cm)
  - 2005 Subsurface (5-25 cm)
- Tissue concentrations based on data from laboratory tests as well as concentrations estimated from sediment

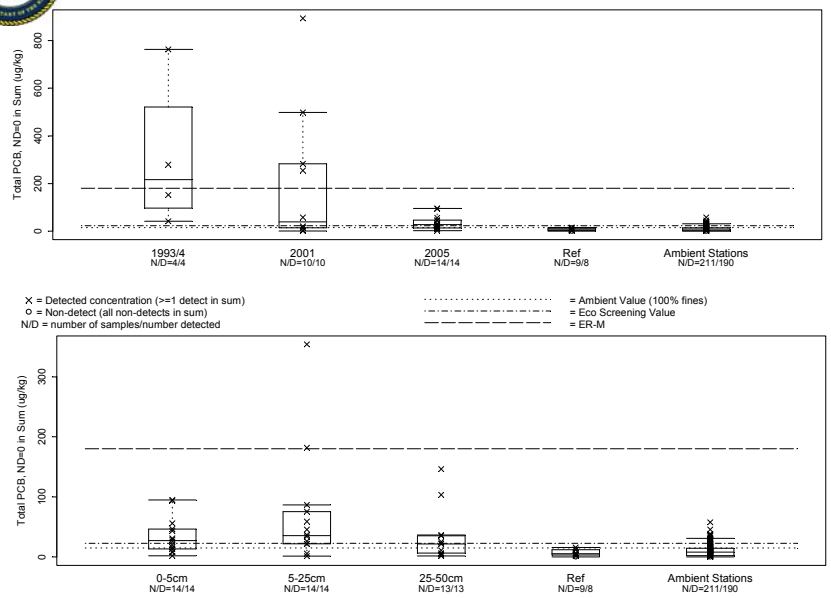
NATURE AND EXTENT EXPLORATORY DATA ANALYSIS

BRAC PMO

- Data are presented in side-by-side box plots to evaluate distribution across time and depth
  - Surface samples across years
  - 2005 surface and subsurface
  - Values for risk-based thresholds and ambient concentrations presented for comparison
- Bubble plots depict spatial distribution in surface sediments
  - Each year denoted by different colors
  - Bubble size proportional to concentration
  - Thick lines indicate value exceeds risk-based thresholds

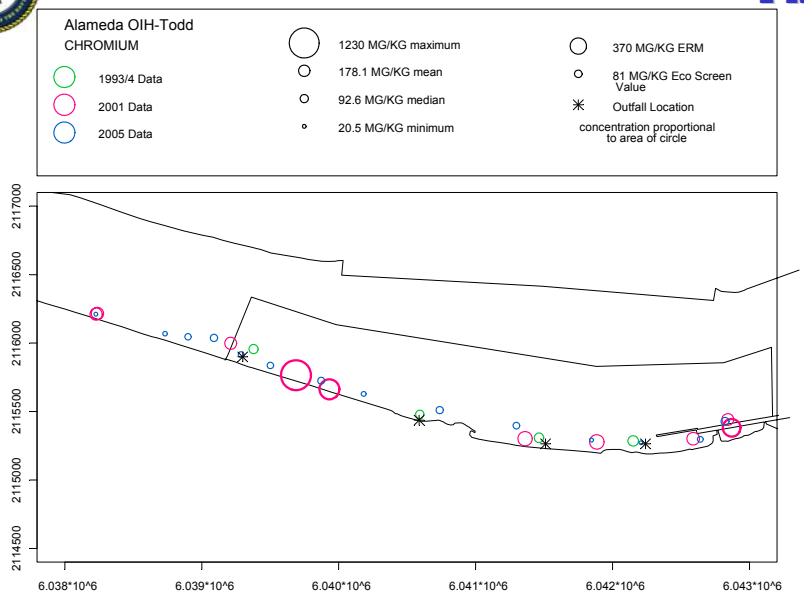
EXAMPLE SIDE-BY-SIDE BOX PLOT

BRAC PMO



EXAMPLE BUBBLE PLOT

BRAC PMO



SEDIMENT CHEMISTRY FINDINGS – IR SITE 20

BRAC PMO

- **Based on evaluation of the 2005 data:**
  - **No inorganic constituent exceeded risk-based sediment benchmarks except mercury at one location**
  - **PAHs, PCBs and pesticides were all below risk-based sediment benchmarks**
- **Based on the older data sets:**
  - **Total PCBs and DDX were above risk-based sediment benchmarks at some locations; however, similar results were not obtained near these locations in 2005**
  - **No PAHs exceeded risk-based sediment benchmarks**

SEDIMENT CHEMISTRY FINDINGS – IR SITE 24

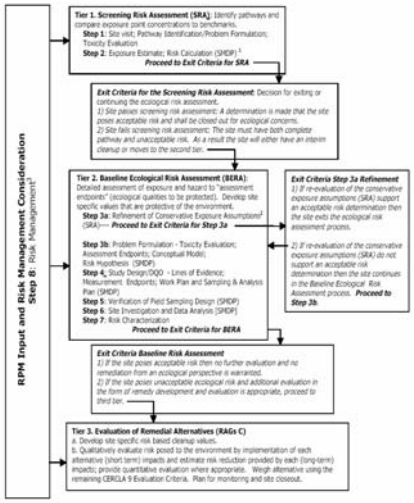
BRAC PMO

- Based on evaluation of the 2005 data:
  - No inorganic constituent exceeded risk-based sediment benchmarks except nickel and silver
  - Total PAHs and pesticides were below risk-based sediment benchmarks
  - Total PCBs were below risk-based sediment benchmarks except at one location
- Based on the older data sets:
  - Exceedances of risk-based sediment benchmarks for inorganic constituents and total PAHs in the northeast corner and for alpha-chlordane and 4-4' DDT at two locations
  - Total PCBs were above the risk-based sediment benchmarks at several locations in 1996 and 1998
  - Similar results were not obtained near these locations during 2005 sampling Similar results were not obtained near these locations during 2005 sampling

ECOLOGICAL RISK ASSESSMENT

BRAC PMO

- Tiered Approach following Navy and EPA Guidance:
  - Screening-level ecological risk assessment (SLERA) to provide a conservative screen and focus additional assessment activities
  - Baseline ecological risk assessment (BERA) representing a refinement of exposure and effects assessment and characterization of risk

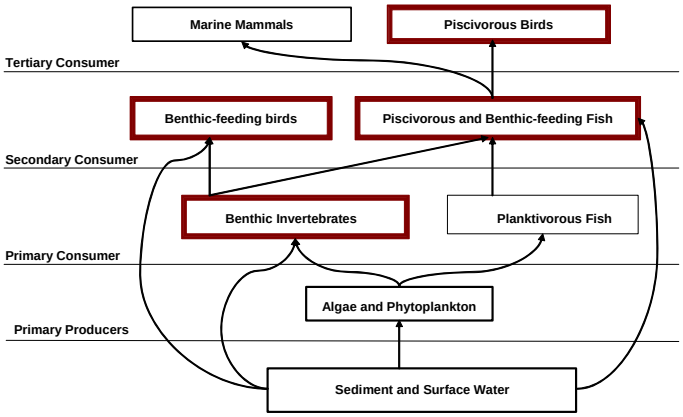


(from CNO, 1999)

Notes: 1) See EPA's 8 Step ERA Process for requirements for each Scientific Management Decision Point (SMDP).
2) Refinement includes but is not limited to background, bioavailability, detection frequency, etc.
3) Risk Management is incorporated throughout the tiered approach.

ECOLOGICAL RISK ASSESSMENT PROBLEM FORMULATION

BRAC PMO



- Similar Ecological Exposure Pathways were identified at both sites
  - Direct exposure with surface sediments
  - Indirect exposure through the food-chain

ECOLOGICAL RISK ASSESSMENT ASSESSMENT & MEASUREMENT ENDPOINTS

BRAC PMO

- Benthic Invertebrate Community
  - Toxicity in acute and chronic sediment bioassays
- Fish Community
  - Forage fish tissue concentrations compared to literature-based effects thresholds and reference
- Avian Community
  - Estimated dietary doses in birds compared to risk-based benchmarks and reference
    - Surf scoter
    - Double-crested cormorant
    - Least tern

ERA: SUMMARY OF RESULTS FOR SITE 20

BRAC PMO

- Benthic Invertebrate Community
  - -Limited toxicity observed is not supported by sediment concentrations
- Fish Community
  - -None of the estimated fish tissue concentrations exceeded the risk-based thresholds
- Avian Community
  - -Risks were generally comparable to reference
  - -Using realistic exposure parameters, risks were relatively low
  - -Risks associated with 2005 data were much lower
- Based on these results, there is no significant risk to ecological receptors so no further action is recommended

ERA: SUMMARY OF RESULTS FOR SITE 24

BRAC PMO

- Benthic Invertebrate Community
  - -There is evidence to suggest that the toxicity observed was not associated with site conditions
  - -Based on 2005 results, most sediment concentrations were below risk-based thresholds and/or reference
- Fish Community
  - -The estimated fish tissue concentrations were generally below risk-based thresholds and/or reference
- Avian Community
  - -Risks were generally comparable to reference
  - -Using realistic exposure parameters, risks were relatively low
  - -Risks associated with 2005 data were much lower
- Based on these results, there is no significant risk to ecological receptors so no further action is recommended

HUMAN HEALTH RISK ASSESSMENT CONCEPTUAL SITE MODEL

BRAC PMO

- IR Site 20
  - Three exposure pathways identified
    - Consumption of shellfish
    - Direct contact with sediment while harvesting shellfish
    - Consumption of fish
- IR Site 24
  - Because of the limited access to the shoreline and limited habitat for shellfish, no complete exposure pathways were identified so no further evaluation was warranted

Exposure Factors

BRAC PMO

- Human health risk assessment based on standard exposure equations
  - Evaluated both a Central Tendency Exposure (typical) and Reasonable Maximum Exposure
- Fish and shellfish ingestion rates were based on data published by the San Francisco Estuary Institute for San Francisco Bay area

HUMAN HEALTH RISK ASSESSMENT RESULTS

BRAC PMO

- Direct Contact Exposure Pathway
  - Non-cancer Hazard Quotients (HQ) were all below one
  - Cancer risks were either below 10^{-6} or comparable to reference risks
  - Cumulative site risk was similar to reference risk
- Shellfish Ingestion
  - HQ's were all below one
  - Cancer risks were either below 10^{-6} or comparable to reference risks
  - Cumulative site risk was less than reference risk
- Consumption of Fish
  - HQ's were all below one or comparable to reference risks
  - Cancer risks were either below 10^{-6} or comparable to reference risks
  - Cumulative site risk was less than reference risk

SUMMARY OF RISK ASSESSMENT CONCLUSIONS FOR IR SITE 20

BRAC PMO

Assessment Endpoint	Summary of Risk Characterization	Conclusions
HUMAN HEALTH RISK ASSESSMENT		
Direct Contact	•Hazard Quotients (HQ) all below one •Cancer risks were either below 10^{-6} or comparable to reference risks	No unacceptable risks associated with direct contact exposures
Adult – shellfish ingestion	•HQ's all below one •Cancer risks were either below 10^{-6} or comparable to reference risks	No unacceptable risks associated with shellfish ingestion exposures
Adult – fish ingestion	•HQ's all below one or comparable to reference risks •Cancer risks were either below 10^{-6} or comparable to reference risks	No unacceptable risks associated with fish ingestion exposures
ECOLOGICAL RISK ASSESSMENT		
Benthic Invertebrate Community	•Limited toxicity observed in the 1993/94 bioassays is not explained by sediment concentrations •Based on 2005 results, most sediment concentrations are below risk-based thresholds and reference	No unacceptable risk posed to benthic community at IR Site 20
Fish Community	None of the estimated fish tissue concentrations exceeded the risk-based thresholds for any constituent	No unacceptable risk posed to fish at IR Site 20
Avian Community – surf scoter	•In general, chemicals were below risk-based dose thresholds and/or reference, particularly in 2005 dataset	No unacceptable risk posed to birds at IR Site 20
Avian Community – least tern	•No exceedance of highest risk-based thresholds at realistic site use factors. •Risks generally comparable to reference •Small exposure areas relative to total foraging area.	
Avian Community – double-crested cormorant	•No exceedance of highest risk-based thresholds at realistic site use factors •Risks generally comparable to reference •Small exposure areas relative to total foraging area	

SUMMARY OF RISK ASSESSMENT CONCLUSIONS FOR IR SITE 24

BRAC PMO

Assessment Endpoint	Summary of Risk Characterization	Conclusions
HUMAN HEALTH RISK ASSESSMENT		
None	•No complete exposure pathways identified	No unacceptable risk posed to human health at IR Site 24
ECOLOGICAL RISK ASSESSMENT		
Benthic Invertebrate Community	•High variation observed in the 1998 toxicity test results does not appear to be associated with site-specific conditions, particularly given that the reference stations also exhibited significant toxicity •Based on 2005 results, most sediment concentrations below risk-based thresholds and reference concentrations	No unacceptable risk posed to benthic community at IR Site 24
Fish Community	•None of the estimated fish tissue concentrations exceeded the risk-based thresholds based on the All Years data set •None of the estimated fish tissue concentrations exceeded the risk-based thresholds for any constituent based on the 2005 results	No unacceptable risk posed to fish at IR Site 24
Avian Community–surf scoter	•Lead was the only chemical that exceeded the most conservative risk-based threshold, however, the risks are comparable with reference	No unacceptable risk posed to birds at IR Site 24
Avian Community–least tern	•No exceedance of highest risk-based thresholds •Risks based on 2005 results were lower •Site use factors applied likely to overestimate actual site use	
Avian Community–double-crested cormorant	•No exceedance of highest risk-based thresholds •Lead was the only chemical that exceeded the most conservative risk-based threshold, however, the risks are comparable with reference	

REMEDIAL INVESTIGATION CONCLUSIONS

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- **Sediment investigations indicate that concentrations in more recent sediments at both IR Site 20 and 24 are lower than in historical sediments**
- **Risks to ecological receptors are insignificant and comparable to reference at both IR Site 20 and 24**
- **Risks to human health are consistent with reference conditions at both IR Site 20 and 24**
- **No further action is recommended for both sites**

QUESTIONS

BRAC PMO

ATTACHMENT B-8

MARCH 2006 BCT ACTIVITIES

(One Page)

March 2006 BCT Activities

I. **OU 2C Data Gap Meeting**: The BCT met with the Navy RPM, Steve Peck, on March 7th to go over the deficiencies with the RI report for OU 2C submitted in August 2005. The agencies have asked for further sampling in OU 2C and a revised RI report. We will walk through the site later in April to determine the best locations for follow-on soil sampling. On a related note, after funding came through last week, the six-phase heating removal action started back up on a second and larger DNAPL plume beneath Building 5.

II. **OU 5 (Groundwater beneath Coast Guard Housing and Annex) Proposed Plan Public Meeting:** The Navy presented the OU 5 PP to the public at a meeting held on Wednesday March 15 from 6:30 to 8:00 pm. Representatives from the regulatory agencies and the City of Alameda were on hand to answer questions before and after the meeting. Only two members of the public came to the meeting.

III. **Monthly BCT Meeting June 21, 2005**

The following items were covered during the meeting:

A. **Remedial Investigation Report for IR Sites 20 and 24**: This RI was submitted on March 10th and contains the results of sediment sampling in the Oakland Inner Harbor and around the Pier Area. Initial review of the RI indicates only very levels of contamination in both areas. Although there appears to have been a thorough evaluation of the risk to ecological receptors, the agencies are concerned that human health risks from fish consumption have not been evaluated. Comments are due to the Navy on May 9, 2006.

B. **Sub-slab Soil Gas Sampling beneath OU 2B Buildings:** The Navy performed sub-slab soil gas sampling beneath buildings currently occupied by tenants within the OU 2B footprint to ascertain whether contaminants in groundwater were volatilizing into the buildings at levels that would present a health threat to the occupants. Concurrently, the City of Alameda performed indoor air sampling over a 12 hour period to assess the quality of the indoor air. The results have recently come in from both sampling efforts . The two sampling events will have to be correlated and building specific confounding factors (such as use of VOCs by building occupants) will have to be factored in to understanding sampling results. We will learn more about the results in the next few weeks.

C. **IR Site 27 Draft Final Feasibility Study**: We briefly discussed the submittal of the draft final FS report for IR Site 27. The document is scheduled to go final on April 24, 2006.

D. **IR Site 35 update**: The BCT and the risk assessors from EPA, DTSC and the Navy contractors spent the afternoon discussing the RI/FS for Site 35. The sampling results show no widespread contamination, but rather isolated hits, at mostly low levels, of VOCs and PCBs. The group is working out how best to deal with these small areas of contamination. The discussion is complicated by the ongoing early transfer negotiations between the City and Navy where such factors as who will carry out any clean up are part of the negotiations.

IV. **OU 1 Proposed Plan Conference Call**: The Navy held a conference call with the BCT on March 28th to go over last minute changes to the OU 1 PP before it goes to press and gets distributed to the public.