FINAL
NAVAL AIR STATION ALAMEDA RESTORATION ADVISORY BOARD
MEETING SUMMARY

www.bracpmo.navy.mil
Building 1, Suite 140, Community Conference Center
Alameda Point
Alameda, California

January 4, 2007

The following participants attended the meeting:

Co-Chairs:	
George Humphreys	Restoration Advisory Board (RAB) Community Co-chair
Thomas Macchiarella	Base Realignment and Closure (BRAC) Program Management Office (PMO) West, BRAC Environmental Coordinator (BEC), Navy Co-chair
Attendees:	
Jim Barse	Community member
Doug Biggs	Alameda Point Collaborative (APC) Representative
Neil Coe	RAB
Anna-Marie Cook	U.S. Environmental Protection Agency (EPA)
Tommie Jean Damrel	Tetra Tech EM Inc. (Tetra Tech)
Tony Dover	RAB
Alona Davis	Sullivan International Group (Sullivan)
Diana Davis	Environmental Management Services, Inc. (EMS)
Michelle Hurst	BRAC PMO-West Remedial Project Manager (RPM)
Joan Konrad	RAB
James Leach	RAB
Dot Lofstrom	California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC)
John McGuire	Shaw Environmental and Infrastructure, Inc. (Shaw)
John McMillan	Shaw
Bert Morgan	RAB
Dale Smith	RAB/Golden Gate Audubon Society
Jean Sweeney	RAB
Jim Sweeney	RAB
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.

Ms. Smith provided the following comments:

- Page 4 of 10, third full paragraph, fifth sentence, the word "that" will be removed.
- Page 4 of 10, fifth full paragraph, first sentence, the word "shows" will be changed to "showed."

Mr. Humphreys provided the following comments:

- Page 9 of 10, first full paragraph, the number "266" will be replaced with "226."
- Page 9 of 10, third full paragraph, fifth line, the word "to" will be removed.

The minutes were approved as amended.

II. Co-Chair Announcements

Mr. Humphreys distributed the list of documents and correspondence the RAB received during December 2006 (Attachment B-1). Noteworthy documents include the final field activity report, the free petroleum product removal report for Installation Restoration (IR) Site 9, and the draft work plan for data gap sampling at Operable Units (OU) 1, 2A, and 2B. Mr. Humphreys noted that several comment letters were received on December 27, 2006.

Mr. Humphreys said that the IR Site 2 focus group met in December with Mr. Peter Strauss, the technical assistance for public participation (TAPP) grant consultant. He noted that the focus group's main conclusion was that the site was not adequately characterized to evaluate the alternative remedies. One comment of note was that the 2006 draft Alameda Point annual basewide groundwater monitoring report shows that the main contaminant plume extends into the wetlands area of IR Site 2. Mr. Humphreys provided a copy of the letter commenting on the draft feasibility study (FS) for IR Site 2 and a transmittal of review by the TAPP consultant to be included in the attachments (Attachment B-2).

Mr. Macchiarella announced that Mr. Lou Ocampo has retired from the Navy. Mr. Macchiarella also announced that Mr. Greg Lorton has moved to the Hunters Point Shipyard team and will no longer be a part of the Alameda Point team.

Mr. Macchiarella announced that the Fleet and Industrial Supply Center Oakland, Alameda Facility Alameda Annex (FISCA) RAB and the Alameda Point RAB may merge into a single RAB sometime in 2007. The members of the FISCA RAB include Jean and Jim Sweeney, Joan Konrad, and the community co-chair, Ken Hanson. Mr. Macchiarella noted that the only item of interest to the FISCA RAB, at that point, would be the OU-5/IR-02 groundwater plume. Ms. Sweeney commented that the RAB should receive information from Catellus once development occurs. Mr. Macchiarella replied that the developers at FISCA have shown a willingness to share such information with the FISCA RAB, even though they have no obligation to and the fact that the RAB's focus is related to reuse.

Mr. Macchiarella proposed that the RAB decide which summer month, July or August 2007, that a RAB meeting will not be scheduled. He also proposed that future January RAB meetings be rescheduled or

canceled because of the difficulty in preparing for the January RAB meetings immediately following the holiday season. He noted that these scheduling issues could be discussed further at the February RAB meeting.

Mr. Humphreys said that Mr. Kurt Peterson had an excused absence from the meeting.

III. Petroleum Program Update

Mr. Humphreys introduced Mr. McMillan to present the progress report on the Alameda Point Petroleum Program. A handout of the presentation is included as Attachment B-3. Mr. McMillan said the Navy has been working on six sites since 2002; active remediation is nearly finished, and work will soon begin on another six sites.

Mr. McMillan identified Corrective Action Areas (CAA) 4C, 6, 7, 11, and 13, and Building 410. Slide 2 showed these areas on a map of Alameda Point. Historically, CAA-7 was the exchange fuel station. CAA-6 was a trucking loading facility that was connected to the basewide fuel system for aircraft fuel. CAA-11 was a major tank farm. Building 410 is a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site where removal work has occurred. CAA-4C was a conventional fueling station that included a car wash. Building 397 was jet engine test cells, that were cleaned up after a spill from the jet engine fuel station. The site called Building 530 is the area just west of Building 530 and was previously the aircraft defueling facility. .

Mr. McMillan noted that quarterly reports are provided to the agencies on the progress of the work under the Petroleum Program, and any addendums to the work plan are added to the quarterly report as attachments. He said that a set of field activity reports is being prepared that includes all detailed data. The site management plan (SMP) discusses site status and whether no further action is appropriate.

Three cleanup levels are included in the petroleum discussion. Petroleum in groundwater collects as a layer on top of the groundwater, or floating product. A detection of 20 milligrams per liter (mg/L) of dissolved total total petroleum hydrocarbons (TTPH) in groundwater indicates floating product may exist nearby. A concentration of 1.4 mg/L is protective of ecological receptors in the bay. In negotiations between the Regional Water Quality Control Board (Water Board) and the Navy, any submerged storm drains that might be leaking are also considered part of the bay because they drain directly into the bay. The cleanup levels for petroleum are described and memorialized in the petroleum strategy document.

Slide 3 showed vertical dual phase vacuum extraction (DVE) wells and biosparge system locations in CAA-6. CAA-6 is located at the northern end of the western hangar zone. Work at the site included excavation of 5 feet of soil in 1998 when the truck loading facility was removed, installation of horizontal DVE wells to remove floating product in 2002, installation of vertical DVE wells, and air sparging. There is no current active remediation at CAA-6. The SMP is being prepared. Concentrations in groundwater are near the 1.4 mg/L level. Ms. Sweeney asked about the meaning of the red lines on the map. Mr. McMillan replied that the red lines are vertical biosparge wells. Mr. Leach asked if the sanitary sewer line shown in the lower right corner of the map conflicts with the storm drain. Mr. McMillan replied that, although it may appear on the map that the sewer line and the storm drain overlie each other, there is no conflict. He noted that the storm drain networks to two outfalls and that the area is topographically low.

Slide 4 showed CAA-7 site conditions before and after remediation for TTPH. CAA-7 was the exchange fuel station, a conventional gasoline station. Building 284 was a canopy, and the pump islands were at a slant. Free product was located in the northern end of the gas station and was extracted by horizontal DVE wells for 1 year. In early 2004, vertical extraction wells at the north end were used to extract free

product. In late 2004, concentrations above 10 mg/L remained only in the area north of the canopy area. In late 2003, petroleum was discovered directly below the pavement at the canopy area. In November 2004, the canopy was removed and 2 to 3 feet of soil was excavated, reducing the concentration of TTPH in groundwater to 8 mg/L. The SMP for CAA-7 is currently being prepared and active remediation at CAA-7 is complete. Mr. McMillan noted that the site has a shallow marsh crust because of the low topography.

Slide 5 showed conditions at CAA-11 before and after remediation for TTPH. CAA-11 is near Seaplane Lagoon. The main feature of concern at this site was a large set of tanks that were connected to the site-wide fuel manifold system. These tanks were removed, and no free product removal was required. Air sparging was conducted over large areas of the site. By late 2004, all areas were below the 1.4 mg/L criterion except for a small area of 1010 oil off the corner of Building 14. The 1010 oil was used to flush jet engines before servicing to lower the flammability hazard. Some soil had been excavated in that area, but there are also utilities in that area, including a 10-kilovolt (kV) electrical line. The SMP for CAA-11 is being prepared, and active remediation is finished. Mr. McMillan noted that petroleum was detected in a sample collected at one well location after the site was remediated. Contamination had never been detected in the well before, and pure oxygen was injected to remediate the groundwater in that area.

Slide 6 showed a flow diagram of the DVE treatment plant at Building 397. Four sites were connected to the treatment plant, including Building 397, Building 530, Building 410, and CAA-4C. The DVE plant system draws both air and water out of each well to remove vapor and floating product. Mr. McMillan identified various parts of the system on the diagram.

Slide 7 showed a map of the DVE system for Building 397, a jet engine test facility. In 1991, there was a spill outside the fuel room. Cleanup was thorough and included excavation around the outside of the building and rerouting utilities. DVE wells were operated from mid-2002 to mid-2003. The site is considered remediated, and the SMP is currently being prepared. Total removal at Building 397 was approximately 1,000 pounds of petroleum product. Total removals at CAA-6 and CAA-7 were between 8,000 and 10,000 pounds of petroleum product. Slide 8 showed charts of JP-5 and benzene concentrations in groundwater before and after remediation. Pure JP-5 fuel, a jet engine fuel slightly lighter than kerosene, was spilled at Building 397. Little benzene was found at Building 397.

Slide 9 showed site conditions at Building 530 before and after remediation for TTPH. Initially, free product was found along the piping corridor along the long axis of the facility. Many DVE wells were installed, and extraction was performed from mid-2003 to late 2004. At the end of this extraction, one small area where concentrations exceeded 20 mg/L remained. Selective biosparge and DVE operations were used since that time. Mr. McMillan noted the boundary of the concentration contour is undefined at the north end. The north end of the site is adjacent to a refinery facility, which may be the cause of the rebound in the northern area.

Slide 10 showed the well field layout at IR Site 9, Building 410. Free product was found in the wells shown in red on the diagram during a CERCLA cleanup. No measurable product remained after extraction at this site. Total removal was about 8,000 pounds of petroleum product.

Slide 11 showed TTPH concentrations in groundwater at CAA-4C. This site was shut down at the end of November 2006. The contour lines on the diagram show the concentrations before remediation. After remediation, the highest concentration detected in August 2006 was 3.4 mg/L. An in situ chemical oxidation test is planned in the area of highest residual dissolved concentrations.

Slide 12 showed a graph of the history of petroleum mass removal from 2002 to 2006 for the various sites. Referring to the graph shown, Mr. McMillan noted that a flat line indicates that no extraction was

in operation for the site. Between 8,000 to 10,000 pounds of petroleum product was removed from sites CAA-6 and CAA-7. Removal from Building 397 was approximately 1,000 pounds. The largest removal was approximately 55,000 pounds from Building 530. Site CAA-4C produced 50,000 pounds of petroleum, which is a large amount for a conventional gas station. A total of 130,000 to 135,000 pounds of petroleum product was removed from the six sites.

Work plans have been drafted for six new sites. The agencies should receive the work plan in about 1 month. Slide 13 showed an aerial photograph of the new locations: CAA-3, CAA-5B West, CAA-13 East, and CAA-C. Mr. McMillan identified the sites on the photograph. CAA-3 is divided into three sites. He noted that the following discussion would concentrate on the future concerns of each site.

Slide 14 showed a photograph of CAA-3B and CAA-3C looking southeast at Building 360. Slide 15 showed a site map of CAA-3A, 3B and 3C. The key concern at CAA-3A was the two USTs. A truck loading facility at CAA-3B was similar to that of CAA-6 where aviation fuel was loaded in trucks to fuel aircraft. Five large tanks at CAA-3C were the main aviation fuel storage for this area of the base. Mr. McMillan identified these features of CAA-3A, 3B, and 3C on the site map. Four of the tanks at site CAA-3C were concrete and one was steel. They were countersunk 4 feet into the ground, with 6 feet above, and covered with 4 feet of soil and grass. The tanks were difficult to detect in historical aerial photos. Ms. Sweeney commented that she remembers seeing three of these tanks in 1972. Mr. McMillan noted that the facility was active for nearly 50 years. Existing data suggest that the contamination may not be limited to the tank areas. It is also unknown whether the bottom concrete slabs remain where the tanks were located.

Ms. Smith asked about the three monitoring devices or pumps in the CAA-3 area. She also noted that there had been an explosion related to a trench dug in the area in the past. Mr. McMillan identified three devices on the diagram including a scrubber tower. Historical data suggest that there was a substantial pipeline leak. The fuel seeped into the backfill of some utilities, creating a problem with vapors. Venting systems were installed to draw vapors away from the utilities corridors so that there would not be vapor accumulation. One system was for electrical utilities; the system for the sanitary sewers included a scrubber to remove hydrogen sulfide. Mr. McMillan noted that he was unsure about the use of the third ventilation system. A fire in an electrical vault prompted the installation of these ventilation systems. It is unknown how long the systems ran and how much of the systems were removed. Ms. Sweeney commented that she thought the spill had been about 500,000 gallons. Mr. McMillan said that the inventory discrepancy had been 350,000 gallons, but it is unknown how closely inventory was kept.

Slide 16 showed a photograph of CAA-5B West. CAA-5B West is a nondescript site outside of Building 5. An industrial wastewater treatment plant (IWTP) at this site was closed by the DTSC and the data set for its closure is clean. Before the IWTP there had been a berm area, possibly a wash rack, which was connected to a catch basin and an oil-water separator. Kerosene may have been used in the area as a wash agent. The concern for the site is floating product found at well M05-03, which is near the catchbasin. The catchbasin is known to be out of service and it is unknown whether the oil-water separator is still present. Mr. McMillan identified well M05-03 on the map of the historical configuration of CAA-5B West shown on Slide 17. The data on the diagram shows mixed data from 1994 through 2004. The concentration of TTPH around well M05-03 exceeds 20,000 mg/L, suggesting that floating product is present. Mr. McMillan noted that the green line labeled 100,000 on the right side of the diagram is a remnant of the legend and is not part of the map of CAA-5B West.

Slide 18 showed a site map of CAA-C, Western Hangar. Mr. McMillan identified Hangar 23 on the map. A fuel manifold from Building 5 branched out to various valve boxes on the site. This line was removed in 1999, and part of the line was grouted in place. There is some evidence that the pipeline leaked aged aviation gas in the southwestern corner of the historical fuel line.

Slide 19 showed a site map of CAA-13 East. Mr. McMillan identified Building 397, Oriskany Avenue, and Skyhawk Street on the map. The map shows the original tank layout of the pre-1900 refinery site in black. Built over the top of the old refinery were five aboveground storage tanks (ASTs) shown in red on the diagram. The five ASTs are riveted tanks, 55 feet in diameter, and 30 feet tall. The original concern was that the fuel-related petroleum products in groundwater and shallow soils were related to these tanks. However, it is unknown whether the tanks were ever used to store fuel. Most recently, they were used for dry storage. Field work on the new sites will begin for the design data investigation in a few months.

Ms. Sweeney asked if CAA-13 East is the area where tar was bubbling up through the tarmac. Mr. McMillan noted that the tar seeps are within the fenced area at Building 397. The petroleum program is a separate effort from the tar seepage concerns. Ms. Sweeney asked if tar is not petroleum. Mr. McMillan replied that the tar found in the area has a low pH, indicating that it is a process waste, which is not addressed under the petroleum program. The petroleum program is concerned with fuels. Mr. Macchiarella stated that tar refinery waste is being addressed under the CERCLA process under IR Site 13. Mr. Humphreys asked if this waste includes the asphalt-like material. Mr. Macchiarella replied that the viscosity of the material changes so that it in some areas it may have been described as asphalt-like. Mr. Humphreys asked if it is found at depths of 20 to 30 feet. Ms. Cook replied that it is found at depths of 7 to 8 feet. She noted that on hot days the tar tends to seep up to the surface more readily and that the low pH of the material makes it potentially hazardous.

IV. Summary of Progress in 2006

Mr. Macchiarella began a presentation on the 2006 summary of environmental progress at Alameda Point. A handout of the presentation is included as Attachment B-4.

Several CERCLA documents were completed in 2006. Two site investigations (SI) were finalized in 2006 with a total acreage of 159 acres, four remedial investigation (RI) work plans were finalized covering a total of 412 acres, the Site 2 RI was finalized, covering 110 acres, and the Site 27 FS was finalized, covering 16 acres. Seven draft and final proposed plans (PP) were completed, with a total of 290 acres. A milestone was finalizing two records of decision (ROD) for Site15 and Site 26, covering 38 acres. The Site 17 ROD was signed in October 2006, missing the fiscal year deadline to be included in this total. The Navy also recently signed the Site 14 ROD, and it is currently being routed for signature within the regulatory agencies. A number of RODs will be finalized in 2007.

Slides 4, 5, 6, and 7 showed a list of deliverables for fiscal year 2006 (FY06) and October, November and December, 2006. The list was sorted by type of document and included draft, draft final, and final version of RI/FSs, PPs, RODs, removal action-related documents, petroleum program documents, and other documents. Mr. Macchiarella noted that the list does not include the Navy's internal draft version, which precedes the draft stage of each document. The removal action-related items are reports on cleanups that have occurred. These items included finalized reports on in situ chemical oxidation (ISCO) at Sites 16 North and South, the finalized field activity report for dense nonaqueous phase liquid (DNAPL) source remedial action at Plume 5-1, and the draft action memorandum for the time critical removal action (TCRA) at Sites 1, 2, and 32.

The total number of documents for fiscal year 2005 was roughly 104, with 36 of those being primary documents. Primary documents are documents completed under the Federal Facility Agreement (FFA). The Navy works with the regulatory agencies on these documents and strict schedules are associated with them. The total number of documents for FY06 was 65, 53 of which were primary documents. Mr. Macchiarella noted that a higher percentage of documents were FFA documents in 2006 in comparison to 2005. He also noted that remedial actions are continuing at Sites 4 and 5.

V. Summary of Planned New Projects for 2007

Mr. Macchiarella began a presentation on the 2007 summary of planned new projects at Alameda Point. A handout of the presentation is included as Attachment B-5.

The SMP for 2007 was finalized in September 2006. A presentation on the SMP was given to the RAB in late summer 2006. The SMP is a schedule for the upcoming year given the amount of money available for the program. Most years, this BRAC facility receives all of the money that is requested, so schedules rarely are postponed. Schedules are changed by letter between the Navy and regulatory agencies in accordance with the FFA.

Slides 3 and 4 showed a table of new projects to be initiated during fiscal year 2007 (FY07). The total amount of money available for 2007 is between $40 and $50 million. Much will be allocated to a few "big ticket items" listed on the table. One of these items is the Sites 5 and 17 OU-2C radiological (RAD) storm and sewer lines removal. A related item for Sites 5 and 17 is the contract with the Army to remove radioactive waste. Other major items include Sites 4 and 5 dissolved phase interim removal action (IRA), the economic development conveyance Parcel 3 (EDC-3) and public benefit conveyance Parcel 1A (PBC-1A) IRA, the OU-1 Site 14 remedial action work plan and remedial action, the OU-3 Site 1 remedial design, and the OU-1 remedial design and remedial action.

Ms. Smith asked how many ASTs remain on the facility. Mr. Macchiarella wasn't sure of the exact number but speculated that there may be up to dozens -- there are a few large ASTs and several small ones. Ms. Smith asked if all the ASTs will be removed in 2007. Mr. Macchiarella responded that the Navy is requesting to close many of the ASTs with no further action and that only a few need additional work. Ms. Smith asked about the meaning of "TERM-1 AST removal." Mr. Macchiarella replied that TERM-1 is a triangular parcel of land owned by the City of Alameda that the Navy used until 1997. According to the land use agreement between the city and Navy, the Navy must remove the improvements that it made to the property. Mr. Macchiarella identified this parcel on the Alameda Point wall map.

Slide 5 showed a list of FY07 planned major milestones. The milestones include finalizing seven RODs, three RIs, two or three FSs, two action memorandums, and two TCRA work plans. Two draft remedial action work plans will be completed, with one final. Final remedial designs for two sites are planned. Data gathering events will occur at multiple sites, and three more SIs are planned.

VI. BCT Activities

Dot Lofstrom provided an update on agency activities. Over the last few months, the agencies have been very busy reviewing reports. The DTSC has submitted comments for the Site 2 FS. There were some similarities in comments by EPA and DTSC. There were three primary comments.

The first comment concerns the soil cover and the engineered cap alternatives that were evaluated in the FS. The Draft FS screened out the engineered cap alternative. EPA and DTSC do not agree with this and have requested that the Navy complete a detailed analysis of the engineered cap. The second comment is in regard to the 2 feet of sand and silt soil cover that is recommended in the FS. EPA and DTSC requested a 4-foot cover and that it be of clay or silt, not sand. The third comment made by DTSC was to ask for an enhanced monitoring well system. These additional wells would act as protection for the bay. Because movement of groundwater is slow, an early indication of a release by the additional wells would allow enough time for response.

Mr. Leach asked Ms. Lofstrom how DTSC can consider a cap when the site has not been fully characterized. Ms. Lofstrom replied that DTSC believes that site has been sufficiently characterized to move forward as long as the cap is protective and additional monitoring wells are in place. Under an agreement between the EPA and the Department of Defense several years ago, a landfill does not have to be fully characterized before the remedy can proceed. Therefore, DTSC can agree with the current amount of characterization, even though it may not be ideal for other types of sites. Mr. Leach said that the RAB believes the characterization is inadequate — for example, there is only one monitoring well for 5 acres. Ms. Lofstrom stated that she believes the monitoring wells for characterization were sufficient, but monitoring wells for detection are not sufficient for monitoring for the next 30 years. Additional wells would provide a vertical intercept between the landfill and the bay; the cover is to protect receptors above the site. Mr. Leach commented that it is not necessary to rush to complete a remedy for the landfill when the contents of the landfill are not known. He noted that in time it may be found that a cover was not appropriate because there may be contaminants such as radioactive material or products that might migrate through groundwater into the bay. Ms. Lofstrom replied that monitoring wells would detect any migration of contaminants. Mr. Leach commented that if a plume is detected, it would take years until the work to remediate the plume will occur because the process of proposing and accepting a remedy is lengthy. He stated that a 4-foot cap as a remedy is premature and said that if there is a problem with the cap in the future, the additional soil will make it more difficult to remove. Ms. Lofstrom replied that she cannot immediately respond but that she is noting the concerns.

VII. Community and RAB Comment Period

Mr. Humphreys noted that an article in the *Alameda Journal* said that the Navy had received a proposal from the Veteran's Administration (VA) to take over the area designated as the federal facility transfer Site 2 and that includes the least tern sanctuary. The concern is that the public had been led to believe that there will be a wildlife refuge in that area. He noted that wildlife, including endangered species, should be as protected as humans, and that a capped landfill is not ideal for compatibility with a wildlife refuge. Ms. Konrad asked which area is covered by the 500 acres that was described in the article. Mr. Macchiarella noted that the northwest territories area is not included in those 500 acres. Ms. Konrad commented that she assumes that there is some agreement with an agency such as the U.S. Fish and Wildlife Service to protect endangered species. Ms. Smith commented that it is possible that the VA could decide to destroy the wetlands and opt for mitigation. Mr. Macchiarella noted that the part of this discussion that applies to the RAB is the remedy for Site 2. Mr. Torrey asked if this area would be part of the early transfer. Mr. Macchiarella responded that an early transfer would apply to a transfer out of federal ownership. Ms. Humphreys commented that, depending on the location of the VA facility, the higher occupancy may affect cleanup levels. In the future, the VA may even sell some of the property. He commented that the public expects a wildlife refuge.

Mr. Humphreys noted an action item at the last RAB meeting requested that Mr. Macchiarella report on lead in storm drains at Site 35. Mr. Macchiarella noted that there had not been a previous report to the RAB on lead in the storm drain. An area of concern (AOC) will capture the storm drain or drains where there was lead detected. Mr. Torrey asked if the lead remains. Mr. Macchiarella replied that the lead remains. Mr. Humphreys asked if the lead was found near the point where water flows into the drain from the ground or if it was near the Seaplane Lagoon. Mr. Macchiarella replied that he forgot his notes and doesn't know, but will respond later. Mr. Humphreys commented that the lack of detections downstream may indicate that no lead contamination migrated into Seaplane Lagoon. He asked if samples had been collected at the point where the drain empties into Seaplane Lagoon and if this area of Seaplane Lagoon would be excavated. Mr. Macchiarella said he was not sure. He also noted that he would review the discussion of the results and report any points that he may have omitted.

Mr. Humphreys commented that the historical radiation survey document was issued 6 weeks ago. He said that he provided the Navy the name of environmental engineer, Bill Fetherston, as a contact. He added that, on reading the report, he found that Mr. Featherston was never interviewed for the document and that only Doug Delong (Navy) and one other person were interviewed. Mr. Macchiarella replied that he would look into the matter.

Community member Jim Barse asked if there would be additional public comment periods on the proposed action at Site 2. Mr. Macchiarella replied that Site 2 is at the FS stage; the next opportunity for public comment would be at the PP stage, which follows the FS.

The meeting adjourned at 8:15 pm.

ATTACHMENT A

NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING AGENDA
January 4, 2007

(One Page)

RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

JANUARY 4, 2007, 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
6:45 - 7:00	Co-Chair Announcements	Co-Chairs
7:00 – 7:30	Petroleum Program Update	Mr. John McMillan
7:30 – 7:40	Summary of Progress in 2006	Mr. Thomas Macchiarella
7:40 – 7:50	Summary of planned new projects for 2007	Mr. Thomas Macchiarella
7:50 – 8:00	BCT Activities	Ms. Dot Lofstrom
8:00 – 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 and Correspondence Received during December 2006, George Humphreys, RAB Community Co-Chair (2 pages)

B-2 Comments on the Draft Feasibility Study for IR Site 2 and Transmittal of Review by TAPP Consultant, George Humphreys, RAB Community Co-Chair (15 pages)

B-3 Presentation on the Alameda Point Petroleum Program, presented by John McMillan, Shaw (10 pages)

B-4 Presentation of Environmental Progress at Alameda Point for 2006, presented by Thomas Macchiarella, BRAC PMO West, BEC, Navy Co-chair (8 pages)

B-5 Presentation of Planned New Projects for 2007, presented by Thomas Macchiarella, BRAC PMO West, BEC, Navy Co-chair (5 pages)

ATTACHMENT B-1

LIST OF REPORTS AND CORRESPONDENCE RECEIVED DECEMBER 2006

(Two Pages)

Restoration Advisory Board
Reports and Correspondence Received
During December 2006

Reports

1. November 30, 2006, "Draft Soil Remedial Investigation Report-Revision 1, IR Site 31, Marina Village Housing, Alameda Point, Alameda, California", prepared by CDM Federal Programs Corporation for BRAC Program Management Office West.

2. December 13, 2006, "Draft Site Inspection Report Transfer Parcel EDC-17, Alameda Point, Alameda, California", prepared by Bechtel Environmental for BRAC Program Management Office West.

3. December 19, 2006, "Final Field Activity Report, Free Petroleum Product Removal, Installation Restoration Site 9 Shallow, Alameda Point, Alameda, California", prepared by Shaw Environmental, Inc. for BRAC Naval Facilities Engineering Command Southwest Division.

4. November 3, 2006, "Draft Work Plan for Data Gap Sampling at Operable Units 1, 2A, and 2B, Alameda Point, Alameda, California", prepared by Tetra Tech EC, Inc. for BRAC Program Management Office West.

Correspondence

1. December 6, 2006, "Draft Work Plan for Supplemental Remedial Investigation Sampling of Operable Unit 2C, Alameda Point", from Ms. Anna-Marie Cook, U. S. EPA, Region IX, to Mr. Thomas Macchiarella, BRAC Program Management Office West.

2. December 6, 2006, "Designation of Department of Toxic Substances Control Remedial Project Manager", from Mr. Anthony J. Landis, P. E., Chief, DTSC Northern California Operations Office of Military Facilities to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

3. December 7, 2006, "Review of the Draft Site Inspection Report, Transfer Parcel EDC-12, Alameda Point, Alameda, California", from Xuan-Mai Tran, U. S. EPA, Region IX to Mr. Thomas Macchiarella, BRAC Program Management Office West.

4. December 12, 2006, "Draft Record of Decision for Operable Unit 1, Installation Restoration Sites 6, 7, 8, and 16, Alameda Point", from Ms. Anna-Marie Cook, U. S. EPA, Region IX, to Mr. Thomas Macchiarella, BRAC Program Management Office West.

5. December 222, 2006, "Review of Draft Time Critical Removal Action Work Plan Installation Restoration Sites 1, 2, and 32, Alameda Point, Alameda County", from Ms. Dot Lofstrom, P. G., DTSC to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

6. December 21, 2006, "Review of Draft Record of Decision, Operable Unit 5/IR-02, Former Naval Air Station Alameda (Alameda Point) and Fleet and Industrial Supply Center, Oakland (FISCA) Alameda County", from Ms. Dot Lofstrom, P. G., DTSC, to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

7. December 22, 2006, "Review of Draft Site Investigation Report, Transfer Parcel, EDC-12, Alameda Point, Alameda County", from Ms. Susan F. Goss, P. G., CHG, DTSC to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

8. December 27, 2006, "Review of Draft Pre-Design Work Plan for Operable Unit 5/ IR-02, Former Naval Air Station Alameda and Industrial Supply Center, Oakland, Alameda Facility/Alameda Annex, Alameda, California", from Ms. Dot Lofstrom, P. G., DTSC to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

9. December 27, 2006, "Review of Spring 2006, Alameda Base wide Annual Groundwater Monitoring Report, Draft, Alameda Point, Alameda, California", from Ms. Dot Lofstrom, P. G., DTSC to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

10. December 27, 2006, "Transmittal of Review of Draft Record of Decision, Installation Restoration Site 14, Former Firefighter Training Area, Alameda Point, Alameda County", from Ms. Dot Lofstrom, P. G., DTSC to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

ATTACHMENT B-2

RAB COMMENTS ON THE DRAFT FS FOR IR SITE 2
AND TRANSMITTAL OF REVIEW BY TAPP CONSULTANT

(15 Pages)

George B. Humphreys
Co-chair, Restoration Advisory Board (RAB)
25 Captains Drive
Alameda, CA 94502-6417
December 19, 2006

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

Subject: Comments on the Draft Feasibility Study for IR Site 2, West Beach Landfill and Wetlands; and Transmittal of Review by TAPP Consultant, Mr. Peter Strauss.

Dear Mr. Macchiarella:

Community RAB members and the RAB Audubon/Sierra Club representative met with the TAPP consultant, Mr. Peter Strauss, on the evening of Thursday December 14, 2006. Very productive discussions were held among those present and appropriate changes were made in the consultant's prepared document. The undersigned RAB members endorse and concur with Mr. Strauss' comments and conclusions, which are transmitted herewith as an attachment. We sincerely appreciate the Navy's assistance in providing this independent TAPP grant review. It has improved our overall understanding of the site.

It is apparent from the questions and concerns raised by Mr. Strauss' analysis that Site 2 has not been adequately characterized. The shortcomings of the site characterization are exemplified by the relative paucity of data from soil borings (two cores per acre) and groundwater monitoring wells (approximately one for every 5 acres) within the landfill area. Although the DFS shows locations where various types of wastes are thought to have been dumped, the distribution of contaminants is widespread in the landfill and does not correlate well with the disposal locations indicated. Further, the main contaminant plume (as reported in the 2006 Draft Alameda Basewide Annual Groundwater Monitoring Report) seems to extend into and underneath the pond/wetlands area of Site 2. Also, as pointed out by the San Francisco Section of the Audubon Society, there may be unexplored and uncharacterized waste areas outside the eastern site boundary. Finally, there may be contaminated offshore sediments outside the seawall which should be removed.

There has not been an adequate survey for radioactive contamination in the wetlands portion of the site. Unencapsulated radium was discharged from Building 5 through storm drains into the seaplane lagoon. The sediment dredged from the seaplane lagoon and disposed of in the pond/wetlands portion of Site 2 probably contains particulate radium. This radium may be randomly dispersed throughout the dredge spoils and is in a form that could be released to the environment through contact with saline water. Note that a surface survey will only detect radium down to a depth of about 2 feet. Therefore, it may become necessary to remove all of the dredge spoils from the pond/wetlands of Site 2 if a survey identifies radium concentrations above established cleanup levels.

Focused excavation (or hot spot removal) would require definitive information concerning the locations, types and volumes of the various contaminants. <u>There presently is insufficient information for the hot spot removal approach.</u>

Site 2 presents a unique opportunity. The public has been led to believe that the site will become part of the proposed wildlife sanctuary, regardless of the entity to which the property is eventually transferred. Therefore, remedies should be crafted to facilitate ecosystem enhancement. A capped landfill would be a relatively austere and unattractive environment for wildlife. For the soil alternatives that involve capping, the landfill cap and perimeter berm on the bay side of the landfill probably cannot be designed to prevent the release of contaminants to the surface, the bay and the wetlands area in the event of a major seismic event.

For soil alternatives 4, 5, and 6, which involve excavation, backfilling probably is not desirable because the excavated areas could be contoured to create new wetland habitat to mitigate the loss of seasonal wetlands at Site 1. The types of wastes that should be excavated include pesticides, unexploded ordnance, sandblasting grit containing tributyl tin, radioactive materials, soil containing PCB's and soil intimately mixed with contaminated groundwater.

The cost comparisons among the various soil alternatives are not credible because the capping alternatives do not include the cost of the seismic stability wall on the bay side of the landfill. Conversely, the excavation alternatives are burdened with the cost of backfilling that probably is unnecessary and undesirable. Further, it is difficult to accept cost estimates in which the types, quantities and offsite disposal locations for the various wastes are undefined. Finally, given the stated accuracy of the cost estimates (-30 %, + 50 %), the cost figures used in the comparisons (e. g. $198,895,000) show a lack of understanding of significant figures. In this example, the cost could be anywhere between $140 million and $300 million and should have been rounded off to $200 million.

<u>Absent proper characterization, the only alternative acceptable is complete removal of the soil (including hazardous solid wastes and soil intimately mixed with contaminated liquids) and treatment of the contaminated groundwater.</u>

We appreciate the opportunity given to the RAB to comment on the Draft Feasibility Study and the assistance provided to us through the Navy's TAPP grant program.

Sincerely,

George B Humphreys, P.E.

George B. Humphreys. P. E.
Co-chair, Restoration Advisory Board

Joan Konrad

Michael John Dorney

Bob Morgan

Neil Poe

James D. Leach

Attachment: 1

Copies to:

Mr. Mark Ripperda, U. S. EPA Region 9

Ms. Dot Lofstrom, DTSC

Mr. Erich Simon, RWQCB

Mr. Frank Matarrese. Alameda City Council

PM STRAUSS & ASSOCIATES
Energy and Environmental Consulting Services

December 15, 2006

Thomas Macchiarella
BRAC Program Management Office
1455 Frazee Road, Ste. 900
San Diego, CA 92108
Attn: BPMOW.TLM

Subject: Draft Feasibility Study for Site 2

Dear Thomas:

I have been retained to provide an independent analysis of the Draft Feasibility Study (DFS) for Site 2 for the Alameda Point Restoration Advisory Board (RAB). Besides thoroughly reviewing the DFS, I have reviewed numerous documents in preparation for this evaluation, including:

- Final Remedial Investigation and Appendices (2006)
- Spring 2006 Alameda Base Wide Annual Groundwater Monitoring Report and Appendices (2006)
- Initial Assessment Study (1983)
- Geotechnical Feasibility Study for Site 2 (2004)
- Report on the Removal of Buried Radioactive Devices (1999)
- The Historical Radiation Assessment (2000)
- The Radiological Characterization Survey (2005)

Detailed comments are included my report to the RAB, which is attached to this letter. The comments are organized by category. Some of them take the form of specific recommendations; others are questions that were either not clear from the material or were not addressed by the above documents.

Below I have summarized my major recommendations:

1. The entire issue of seismic stability should be incorporated into the remedial options, including a discussion of costs. If the hydraulic barrier can be constructed as part of the cement-gravity wall, the cost savings should be discussed.

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2. As with Site 1, if any wetlands are disturbed during the implementation of the remedy, a wetland mitigation ratio of 2:1 should be the minimum allowed. The DFS states that the "[T]he 2-ft soil cover would also be placed over limited portions of the far northern portion of the wetlands. These wetland locations are actually transitional between the landfill and true emergent salt marsh wetlands, and therefore, placing a cover layer over these portions of the site would not significantly impact wetland habitat." It is my opinion and recommendation that any wetlands that are to be disturbed should be appropriately mitigated.

3. The scope of the Site 2 area and remedial options should include sediments that are immediately adjacent to the landfill, for these potentially contain contaminants due to past migration from the landfill. The Department of Fish and Game (DFG) and several other commenters on the Remedial Investigation (RI) have made similar comments. For example, the DFG Comment states that: "Since groundwater in IR Site 2 is hydrologically connected to surface water in San Francisco Bay and is tidally influenced, there is potential for migration of contaminants from IR Site 2 to the aquatic environment and selected aquatic receptors, either by surface runoff or subsurface flow. Please address this concern in Section 7.4.5."). I concur with this concern. Although it is partially addressed by the groundwater option of installing a hydraulic barrier, past deposition of contaminants in the surrounding sediment should be addressed as a source of additional risk for ecological receptors.

4. I think that the Navy should not rely on Monitored Natural Attenuation (MNA) for a major role in the groundwater remedy. Contaminants, including benzene, dichlorobenzene and chlorobenzene do not show evidence of attenuating.

5. Many of the contaminants that were identified in the Initial Assessment Study have not been identified as plumes. This may due to overestimates of the waste disposed at the Site 2 Landfill, or the fact that they have dissipated or are sorbed onto soil particles in the vadose and saturated zones, or the fact that sampling is sparse. The primary support of MNA is that the contaminants detected at the landfill most often sorb onto particles and do not easily dissolve. Yet this argument does not support minimum EPA criteria for MNA. That is, the source must be controlled, the attenuation must take place within a reasonable time period, and attenuation must be supported by multiple lines of evidence. None seems to be present in the DFS. Furthermore EPA puts the burden of proof on the party that proposes natural attenuation as a cleanup remedy to demonstrate that it will meet these criteria. Therefore, I reiterate that MNA should not be relied upon as a major cleanup "technology".

6. In addition, although previous studies have taken many subsurface soil samples and groundwater samples, the data are too sparse to conclude that there is sufficient evidence to support MNA. The site is 110 acres: 77 the landfill and interior margins, and 33 acres the wetlands. Forty soil cores (SOC01 to SOC40) were completed in the landfill and interior margin at Site 2 in 2004: that is approximately one soil core per two acres. For the same area, 13 temporary groundwater monitoring wells were installed in 2004: that is approximately one every five acres. For the wetlands, 40 soil cores were also advanced: however, 25

of those were only 0 to 1 foot below ground surface; the remaining 15 were advanced until groundwater was encountered. Seven temporary groundwater monitoring wells were also sampled at the same time (See Appendix B of the RI).

7. I recommend that enhanced in-situ biological remediation be retained for the benzene plume.

8. It is my opinion that if waste is going to remain in place, an engineered cap that limits water infiltration is necessary. This would, at a minimum, provide a measure of source control. The "preferred" alternative (i.e., a 2-foot soil cover) will not limit infiltration and not control the source.

9. If a soil cap is selected, it should be 4-feet deep. With the proper vegetative cover, this will at least provide some degree of protection to the underlying waste.

10. If soil is going to be used for cover, I recommend using clean, native soil for the top two feet, rather than potentially contaminated dredge spoils.

11. The cap design should include a bio-barrier to prevent burrowing animals from breaching the cover and exposing waste.

12. Besides enhanced bioremediation, two additional alternatives should be evaluated. First, construction of a groundwater diversion around the Site should be considered to prevent groundwater rising in the unlined trenches that could mobilize contaminants in the vadose zone. This would have to be constructed outside of the landfill boundary. Second, landfill and wetland alternatives should include hotspot removal in areas beyond that designated by Soil Alternatives 4 and 5 (i.e., near the Rad Shack).

13. In all cases, ecological enhancements should be specifically incorporated into each alternative.

14. Salt-marsh wetland habitat and seasonal wetland habitat exists for a number of special status and rare and endangered species. There are rare and endangered and species of special status at Alameda Point, including but not limited to the Least Tern, the Alameda Song Sparrow, and possibly wetland and marsh species such as the Salt marsh harvest mouse and the Salt marsh wandering shrew, the Great Blue Heron, and the Clapper Rail. These species are often risk drivers at wetland and marsh sites and should be considered in the Ecological Risk Assessment.

15. Little attention is paid in the documents to how radionuclides and other chemicals can be mobilized by changing environmental conditions. If waste is left in place, in what is an unlined pit, it is incumbent upon the Navy to further investigate factors that would mobilize contaminants and determine a mechanism for monitoring environmental change. For example, climate change is expected to cause sea levels to rise by approximately 3 feet over the next 100 years. Mobilization of contaminants as they are exposed to saline water and flooding is a matter of concern. All proposed remedies that are adjacent to the Bay should take this into consideration.

16. I recommend that the Navy adopt a cleanup level for human health risk that is equivalent to a one-in-one million excess cancer risks.

17. I agree that State Water Resource Control Board Resolution (SWRCB) 68-16 (i.e., the non-degradation policy) and SWRCB Resolution 92-49 apply to groundwater at this site.
18. It is crucial that the proposed plan which will follow the Final FS state who will be responsible for maintaining the stability and performance of the remedy once it is put in place.

Yours very truly,

Peter M. Strauss

Comments on the Draft Feasibility Study for Site 2

On Behalf of the Alameda Point Restoration Advisory Board

Peter Strauss

PM Strauss & Associates

December 15, 2006

COMMENTS

Site Characteristics

1. Shallow groundwater may be in communication with the Bay and the wetland ponds, providing a transport mechanism for dissolved contaminants. This raises the potential for a slow continuing source of contamination to both the Bay and wetland ponds. This problem must be addressed by the remedial alternatives.

2. The Draft Feasibility Study (DFS) covers Site 2 but not the contamination that potentially has emanated from Site 2 into the Bay. The DFS and the Remedial Investigation (RI) indicate that some waste has been sitting in groundwater since the landfill began operating in 1956. Some of the contaminants have surely made their way to the Bay in the intervening years. The potential migration of contaminants from Site 2 to offshore, and subsequent effects on ecological receptors in the Bay are, in my opinion, an important facet of the Site 2 analysis. I recommend that these effects are analyzed.

   In the early 1980's a slurry wall was built on the west side of the landfill in response to the Regional Water Quality Control Board's (RWQCB) same concern. Note that no slurry wall was built on the south side of the landfill. Andrew Baughman, the Navy RPM for Site 2, has stated that offshore areas were evaluated separately. If this is the case, please confirm and provide the findings in the FS. I have been able to find reference to the offshore evaluation at Site 29 (skeet shooting range) and Site 27 (adjacent to Seaplane Lagoon), but not adjacent to Site 2. I recommend that any findings be integrated into the Site 2 FS, as it potentially affects the remedy selection. If it has been analyzed or assessed in another document, provide a citation and conclusions in the FS.

Delineation of Waste

3. To what extent has the Navy defined the eastern boundary of the landfill? This question has been raised by some comments in the RI, as two test pits on the eastern side of the berm were found to have waste. Although the RI Response to Comments (RTC) addressed this comment by stating that although a minor amount of debris in test pits 2-7 and 2-12, it "does not alter the conclusions of the RI Report and does not call into question the physical landfill boundaries when evaluated in the context of all available historical information." The response then goes on to state that "[T]he limited amount of debris in this test pit could easily be taken as evidence that it was very near the landfill boundary rather than being indicative of the landfill extending significantly farther." This statement may be correct, but a precise delineation of the waste is a prerequisite to any discussion of remedies of the landfill. If waste is found outside the berm, then it too must be remediated.

4. The DFS states that waste was reportedly placed in a small portion of the North Pond. Has there been any subsequent investigation into the types of waste emplaced? If so, please identify, and provide the analysis of this waste and its effects on eco-receptors. If not, a further investigation is called for.

5. The radiation characterization studies did not include the wetland portion of Site 2. While it is understandable that a survey would disturb some species occupying the wetlands, it is hard to imagine that the disturbance would be greater than taking 40 soil cores and installing seven temporary sampling wells that occurred in October 2004. A radiation survey of the wetlands is necessary to properly characterize the distribution of contaminants at the site.

6. The RI and DFS note that wastes from Oak Knoll Naval Hospital were disposed of at Site 2. I have not been able to locate where they were disposed. These wastes not

only included infectious wastes, but possibly radioactive materials used for medical examination and treatment.

7. As I understand the investigation, information about the presence of radium-impacted waste in the shoreline areas is currently being collected. Because this is a major concern for human and ecological health and may affect the scope of the remedy, the Draft-Final FS should include the results of the analysis and any additions to the remedial alternatives.

Landfill Construction

8. Information collected in the RI "suggests" that the slurry wall constructed in the 1980's along the western edge of the landfill remains effective. This conclusion is based on localized groundwater levels. However, in light of the fact that a hydraulic barrier is proposed as one groundwater alternative, this analysis should be confirmed with a more sophisticated analysis. This is important to determine if the hydraulic barrier, similar to the slurry wall, is a feasible groundwater option.

9. Birds nest along the berm (constructed in the late 1970's) that surrounds the landfill. As much as possible, nests should be protected during construction activities. (See Spring 2006 Alameda Basewide Annual Groundwater Monitoring Report, p. 28)

10. The landfill was constructed by the trench and fill method, covered with material taken from the southern portion of Site 2. This cover material was potentially contaminated dredge spoils of various origins. The conceptual site model for Site 2 should take into account the spreading of potentially contaminated materials over the landfill.

Wetlands

11. As with Site 1, if any wetlands are disturbed during the implementation of the remedy, a wetland mitigation ratio of 2:1 should be the minimum allowed. The DFS states that the "[T]he 2-ft soil cover would also be placed over limited portions of the far northern portion of the wetlands. These wetland locations are actually transitional between the landfill and true emergent salt marsh wetlands, and therefore, placing a cover layer over these portions of the site would not significantly impact wetland habitat." It is my opinion and recommendation that any wetlands that are to be disturbed should be appropriately mitigated.

Contaminants and Contaminant Distribution

12. On the whole, it is difficult for me to concur with the Navy and its consultants' general inference in the DFS that the landfill and wetlands of Site 2 are not substantially contaminated and that hot spots are not present. The DFS states that there is evidence that certain individual compounds detected in media at Site 2 are present in a "localized fashion". Contaminants identified in site soil include organics (e.g., PCBs and PAHs) and inorganic (e.g., metals and radionuclides). The RI States that "the concentrations of contaminants identified in site soil are not extremely elevated and do not suggest the presence of significant source areas".

    I believe that the RI and subsequent studies took a rather limited look at the subsurface of the site to draw these conclusions. Site 2 is 110 acres: 77 acres make up the landfill and interior margins, and 33 acres are designated as wetlands. Information was collected during the Initial Assessment Study (IAS), and is identified in Figure 2-12 in the DFS. A subsequent geophysical survey indicated "potentially significant volumes of waste in several of the areas known or presumed to have received discrete waste types (e.g., drums or oil)", although the survey was limited because it was designed to detect metal objects, not the particular waste types. Limited exploratory

trenching (i.e., 5 trenches) conducted in the landfill portion of the site confirmed the presence of waste material in the subsurface; although they failed to identify hot spots of contaminated liquids or debris. In 2004, 40 soil cores (SOC01 to SOC40) were completed in the landfill and interior margin: that is, approximately one soil core per two acres. For the same area, 13 temporary groundwater monitoring wells were installed: that is approximately one every 5 acres. For the wetlands, 40 soil cores were also advanced: however, 25 of those were only 0 to 1foot below ground surface; the remaining 15 were advanced until groundwater was encountered. Seven temporary groundwater monitoring wells were also sampled at the same time (See Appendix B of the RI). Overall, this is a sparse data set, and consequently conclusions are difficult to make.

13. The DFS also states that "[C]ertain pesticides and VOCs in groundwater appear to evidence at least some type of plume behavior, with the plumes generally existing only in the landfill area". This latter conclusion is contradicted by the presence of a plume containing the following VOC analytes which were detected at concentrations exceeding their respective MCLs in FWBZ wells during the Summer 2005 to Spring 2006 sampling year: benzene, chlorobenzene, 1,4-DCBZ, 1,2-DCA, and vinyl chloride (2006 Alameda Base Wide Annual Groundwater Monitoring Report).

14. The DFS also claims that there is a barrier (i.e., confining unit) between the first water bearing zone (FWBZ) and the second water bearing zone (SWBZ) that will "highly" limit the potential for significant downward movement of any type of contamination. However, some of the same contaminants are present in both zones.

15. Most items removed in the 1999 response action near the radioactive waste storage shack ("Rad shack") were radium dials and buttons. There were several unidentified objects. It is not clear whether they consisted of anything other than radium-226. The Navy should identify any radionuclides that were removed during this action.

16. Sandblasting grit (used for road bed around Site 2) from ship maintenance includes old paint and biocides, such as tributyltin. Has there been any investigation into how this may have been transported?

17. In order to establish background levels for the wetlands, and comparative ambient levels for the landfill, data from China Camp State Park (CCSP) was used. CCSP abuts San Pablo Bay in San Rafael, and there is no evidence presented that it shares the same geological features as Site 2. Site 2 was created by building a sea wall and placing dredged fill of varying origins inside it. There appears to be no relationship between CCSP and Site 2, except for the slight possibility that sediments share some similar properties. It is therefore inappropriate to use CCSP as a reference for background, or as a reference for ambient levels.

Fate and Transport

18. The FS should include a discussion of how chemical contaminants and radionuclides (radium, strontium$_{90}$, and perhaps medical wastes that were disposed of from Oak Knoll Naval Hospital) can be potentially mobilized by changing environmental conditions, such as changes in pH and contact with saltwater. Because this landfill is essentially an unlined pit, it is incumbent upon the Navy to further investigate factors that would mobilize contaminants and determine a mechanism for monitoring environmental change and ensuring that contaminants, including radionuclides, will not be transported in the future. How is radium mobilized so that it entered groundwater?

19. It is important to discuss climate change (global warming) and subsequent flooding that can mobilize contaminants. Some contaminants may be more prone to migrate

when exposed to saltwater (e.g., Radium-226). Most scientists agree that climate change will cause sea levels to rise over the next 100 years. Predictions of a 3 foot rise in sea levels over the next 50-100 years are generally accepted. All proposed landfill remedies should take this into consideration.

20. Over the course of time, it is recognized that erosion could play a substantial role in the movement of contamination; yet the DFS states that in the short term "[I]t is not expected that surface contaminants from the landfill will migrate to any substantial degree directly through erosion and transport of the solid matrix." Because remedies must be installed for the long term, this transport mechanism should not be dismissed.

21. The DFS also states that because rainfall is mostly "episodic", it will not play an important role in transporting contaminants. I disagree with this conclusion; in fact, I believe that episodic rainfall events will be an important transport mechanism for transporting contaminants, not only because of increases runoff, but because of landfill saturation. For example, at unlined landfills at Site 300 (a DOE facility near Tracy run by Lawrence Livermore National Laboratory) of similar design to the Site 2 landfill, episodic rainfall events have severely contaminated the groundwater. The groundwater beneath the landfills rose during El Nino events, saturating the wastes and washing contaminants into the surrounding groundwater. Remediation efforts to retrieve and treat these contaminants are costing tens of millions of dollars. Under similar conditions at Site 2, contaminated groundwater would flow into the wetland ponds and into the Bay.

Monitoring

22. Only 3 monitoring wells in the FWBZ are within landfill footprint. For the MNA remedy, it is not clear whether the Navy proposes additional monitoring wells in the landfill. Because 13 temporary wells were installed and removed in 2004, the same locations could be used without significant risk to workers.

Human Health Risk Assessment (HHRA)

23. The National Contingency Plan [Section 300.430 (e)(2)(A)(2)]states that "For known or suspected carcinogens, acceptable exposure levels are generally concentration levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} using information on the relationship between dose and response. The 10^{-6} risk level shall be used as the point of departure for determining remediation goals for alternatives when ARARs are not available or are not sufficiently protective because of the presence of multiple contaminants at a site or multiple pathways of exposure". I recommend that the Navy adopt the "point of departure' as its remedial goal.

24. Were children, the primary site visitors to the wildlife refuge and educational center, adequately considered in the human health risk assessment? It is not clear to me that they were considered.

Ecological Risk Assessment (ERA)

25. It is unclear to me how species were selected in the Ecological Risk Assessment (ERA). Given that we know that there are rare and endangered and species of special status at Alameda Point, including but not limited to the Least Tern, the Alameda Song Sparrow, and possibly wetland and marsh species such as the Salt marsh harvest mouse and the Salt marsh wandering shrew, as well as species of special status, including the Great Blue Heron, and the Clapper Rail, these species should be considered in risk calculations. The species that seem to be drivers in the ERA are the Western Meadowlark, the California Vole, and the Least Sandpiper. Please

explain in detail how species were selected and how the derived risk-based concentrations are protective of all species observed at Site 2.

26. The DFS refers to bioaccumulation tests that used pond sediments to determine if benthic organisms bioaccumulate contaminants. The results were positive. Yet, because the RI did not find any benthic species, this pathway was not considered. However, previous studies did find some benthic organisms, for the most part oligochaetes (worms) and ostracods (small crustaceans). (See DFS, p. 2-11). The ERA should reconsider this pathway. Likewise, fish were not found in the RI and therefore aquatic organisms were not considered as risk management drivers. Yet small fish were found in the ponds in previous surveys. The ERA should reconsider this pathway, as there are fish eating birds inhabiting both the shoreline areas and the ponds.

27. The ERA did not consider groundwater for any of the ecological receptors evaluated. As noted above, contaminated groundwater has the potential to enter the wetlands and the wetland ponds.

28. Were the effects of contamination on migratory species evaluated in the ERA? Site 2 is located along the Pacific Flyway. Although some avian species will only stop for a short time, the contaminants that they pick up while residing there are important to consider in the life cycle of these species.

Seismic Stability

29. In the Geotechnical Feasibility Study, a soil cement gravity wall with stone columns was determined to be the most feasible remedial strategy to mitigate seismic hazards. By not including this design component, and its costs, into the analysis of alternatives, the exclusion of remedies such as excavation of larger areas is a biased result. In addition, the hydraulic barrier, which is one of the groundwater options, may be designed together with the cement-gravity wall, thereby avoiding some costs.

30. Please provide a detailed explanation of how earthquake drains work.

Future Use

31. The future use calls for a wildlife refuge and an educational center. I expect that many children will take advantage of this educational opportunity. But is this a wise choice, absent removal of pesticides and other contaminants that may degrade the wetlands and endanger the wildlife habitat?

Remedial Options

32. The feasibility study should not select preferred alternatives. In this Draft, a soil cap is preferred (Soil Alternative 2) along with Monitored Natural Attenuation (Groundwater Alternative 2).

33. Three additional alternatives should be evaluated. First, enhanced bioremediation should be considered as a supplement to MNA. Some studies have shown that the addition of nitrate and oxygen has enhanced the degradation of benzene and related compounds. Second, the construction of a groundwater diversion channel should be considered. This may prevent groundwater rising in the unlined trenches, saturating the vadose zone, and mobilizing contaminants. This would have to be constructed outside of the landfill boundary. Third, the landfill and wetland alternatives should consider hotspot removal. If additional characterization is necessary to identify hot spots, I recommend that the Navy do so.

34. In all cases, ecological enhancements should be specifically incorporated into each alternative. Some of these enhancements are matters of design, such as planting with

native species. Some of the advantages of ecological enhancements can be found in http://www.itrcweb.org/Documents/ECO-2.pdf.

35. I think that the Navy should not rely on Monitored Natural Attenuation (MNA) for a major role in the groundwater remedy. Contaminants, including benzene, dichlorobenzene and chlorobenzene do not show evidence of attenuating, based on recent groundwater data. Radium-226 has a half life of 1,602 years, and it is not reasonable to think that over an extended period of time, nothing will occur to increase its mobility. It has been detected at 5 times its MCL in a monitoring well near the shoreline. In addition, the primary support of MNA is that the contaminants detected at the landfill most often sorb onto particles and do not easily dissolve. Yet this argument does not support minimum EPA criteria for MNA. That is, the source must be controlled, the attenuation must take place within a reasonable time period, and attenuation must be supported by multiple lines of evidence. None seems to be present in the DFS. Furthermore EPA puts the burden of proof on the party that proposes natural attenuation as a cleanup remedy to demonstrate that it will meet these criteria. Project proponents must demonstrate that human or environmental receptors will not be exposed to greater risks during the long natural attenuation process. Therefore, I reiterate that MNA should not be relied upon as a major cleanup "technology".

36. Because MNA is proposed, controlling infiltration (i.e., engineered cap) would be a large advantage for source control. Furthermore, it is my opinion that if waste is going to remain in place, then an engineered cap that limits water infiltration is necessary. It is not clear why the engineered cap has been rejected; or even why a soil only cap would meet regulatory requirements.

37. No additional remediation is proposed for the wetland area. Following suggested radiological survey and some additional sampling in the location of the dredge spoils, I think that a remedial alternative removing hotspots should be reconsidered for this area.

38. There is an $18 million difference between Alternatives 2 and 4 (Soil Cover and Soil Cover with Hot Spot Removal). Hot spot removal, as I understand it, is limited to areas surrounding the former Rad Shack. This difference seems high, especially if the hot spot removal avoids the TCRA.

39. Has the contaminant load of the dredged material located in the wetlands been determined? These spoils were from Seaplane Lagoon, and potentially contain chemical and radioactive contaminants. Please provide this information.

40. As with Site 1, the Soil Cap alternative could potentially use dredge materials from the surrounding area. This may not be clean soil, and would require additional study to ensure that there are not additional contaminants being added to the cover. I recommend that if the Navy is going to use dredge spoils for a soil cap, then a rigorous sampling program should be adopted to ensure that contaminants such as lead, PCBs, MTBE and PAHs are screened prior to emplacement.

41. A groundwater option that is considered is building a physical (hydraulic) barrier on the downstream side of the landfill. This would extend the existing slurry wall so that landfill is isolated from Bay and wetlands. Groundwater that mounds along the barrier would be extracted and treated, before being discharged to the Bay. However, the DFS only describes general treatment processes. Additional language should be added that specifies the treatment train that would be required to treat the contaminated groundwater.

ARARs

42. I agree that State Water Resource Control Board (SWRCB) Resolution 68-16 and Resolution 92-49 apply to groundwater at this site. Resolution 68-16, referred to as the non-degradation policy, applies to discharges: either underground or above ground discharges as is commonly understood by the general term discharge. This includes contaminated groundwater flowing into non-contaminated waters. Resolution 92-49 (paragraph III. F) requires that cleanup and abatement activities shall conform with Resolution 68-16. I encourage the RWQCB to ensure compliance with these Resolutions.

43. The Navy does not want to treat residuals during treatment of groundwater and soil as RCRA wastes. The logic is unclear to me, as hazardous wastes were disposed of in the landfill during the timeframe when RCRA was in effect. Also, please indicate if this position applies to residuals from the groundwater treatment system that would be included with the hydraulic barrier.

Institutional Controls

44. The Institutional Controls make no mention of consultation with the City of San Francisco. San Francisco is the landowner of a small strip on the southwestern portion of Site 2 and should be consulted.

ATTACHMENT B-3

PROGRESS REPORT ON THE ALAMEDA POINT PETROLEUM PROGRAM

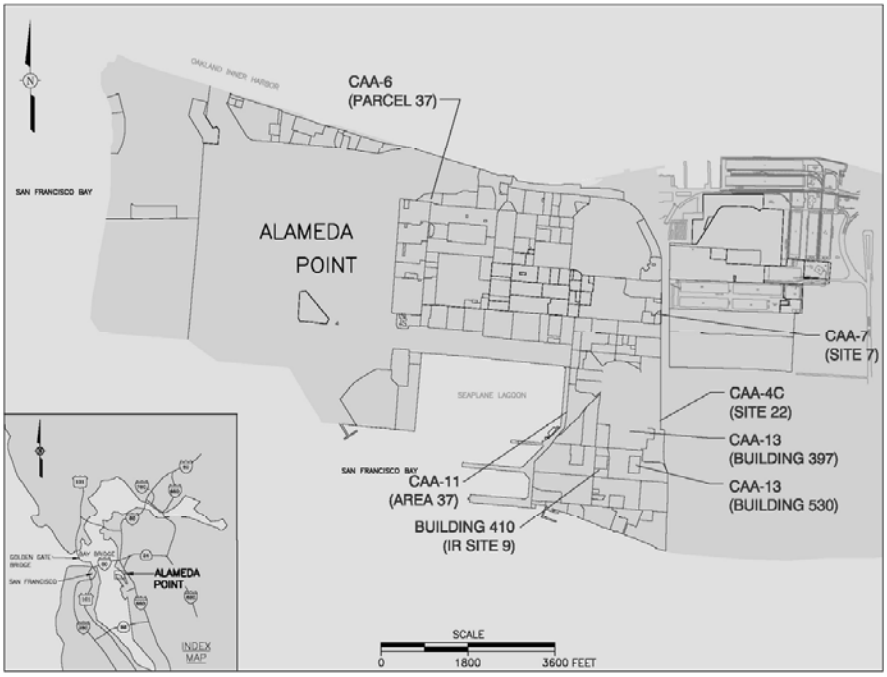
(Ten Pages)

A Progress Report on the Alameda Point Petroleum Program

Michelle Hurst
Remedial Project Manager
Alameda Point BRAC Team

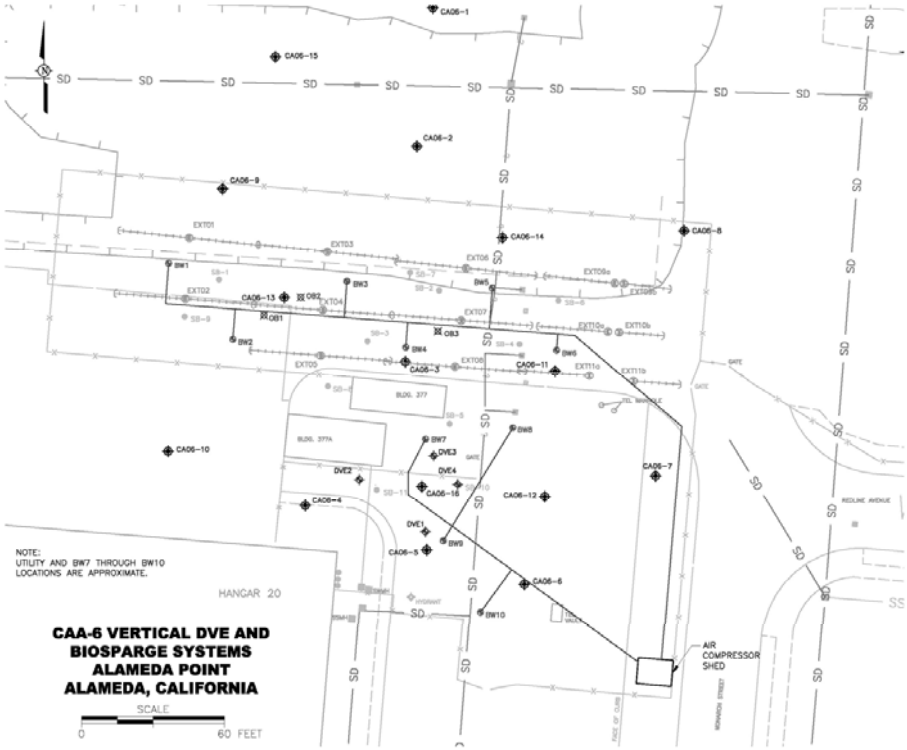
John McMillan, Ph.D., P.E.
Project Manager
Shaw Environmental, Inc.

January 4, 2007



BRAC
PMO WEST

Shaw



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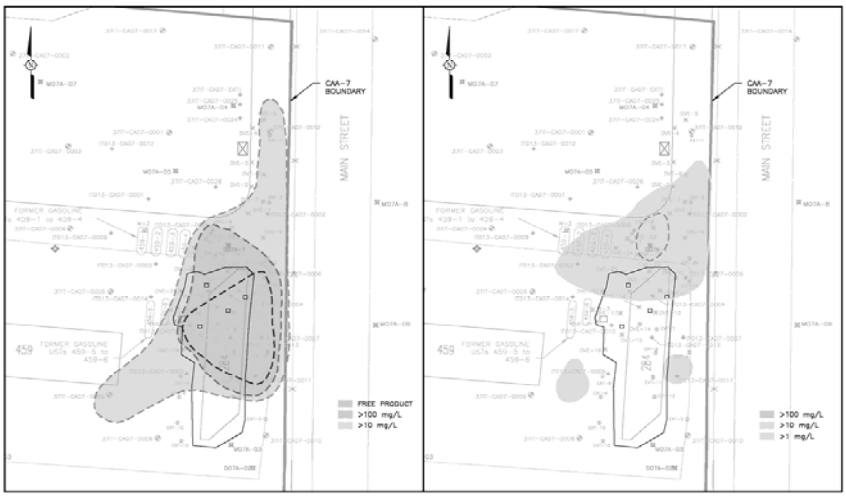
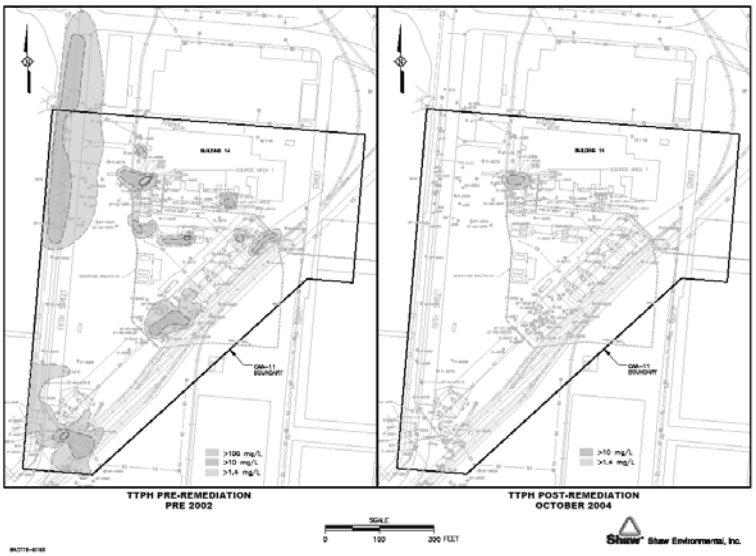


Shaw Shaw Environmental, Inc.

CAA-7 Pre and Post Remediation Site Conditions (TTPH)

BRAC
PMO WEST

Shaw



CAA-11 Pre and Post Remediation Site Conditions (TTPH)

BRAC
PMO WEST

Shaw

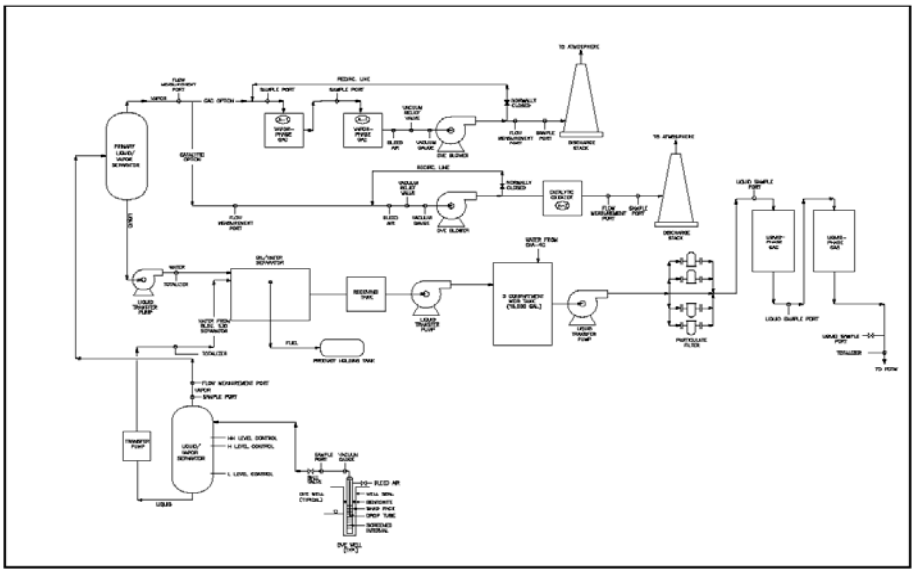
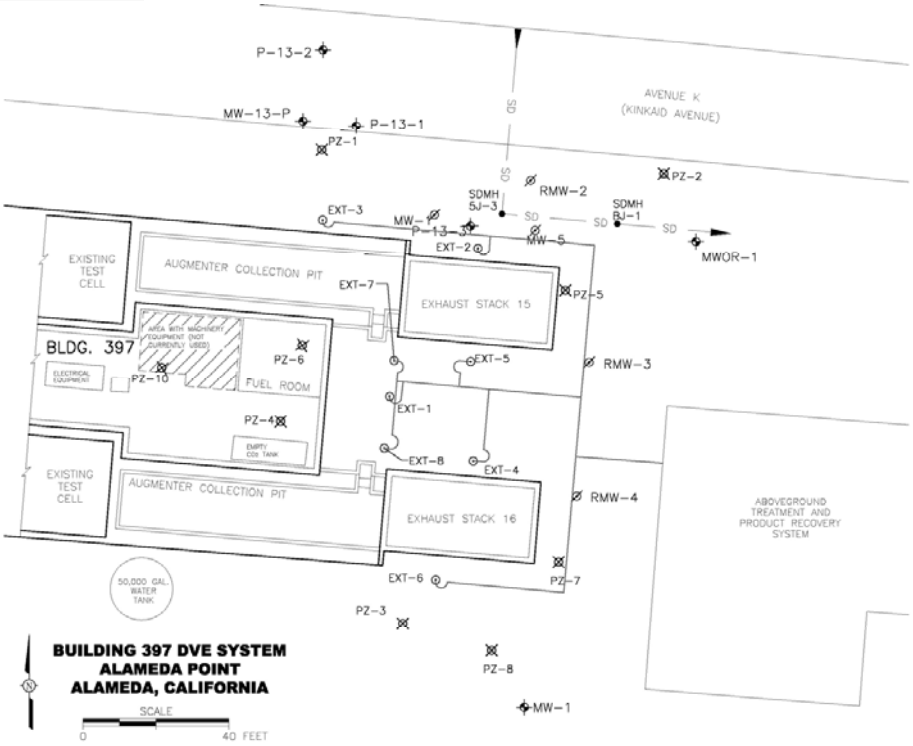


Diagram of Bldg 397 DVE Treatment Plant

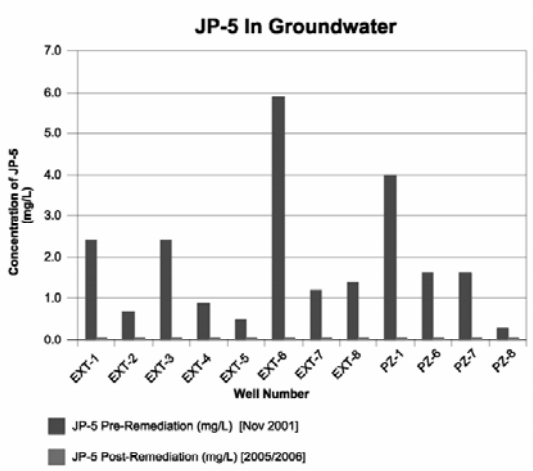
BRAC
PMO WEST

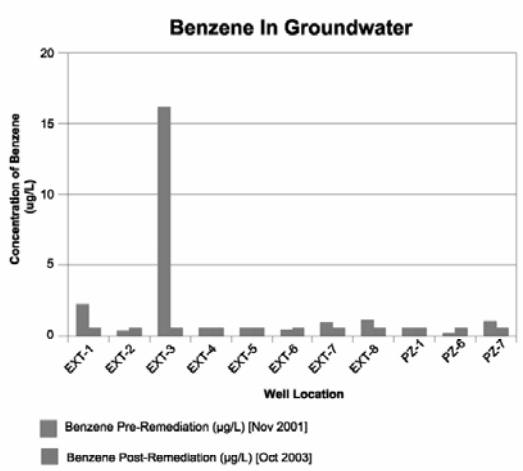
Shaw



BRAC
PMO WEST

Shaw



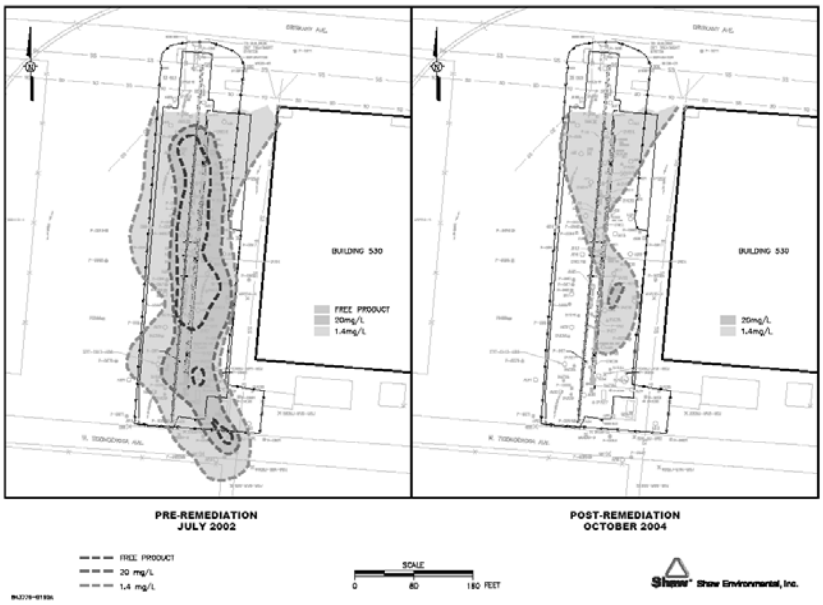


BENZENE AND JP-5 IN GROUNDWATER
PRE-REMEDIATION AND POST-REMEDIATION (DRAFT)
BUILDING 397

ALAMEDA POINT
ALAMEDA, CALIFORNIA

BRAC
PMO WEST

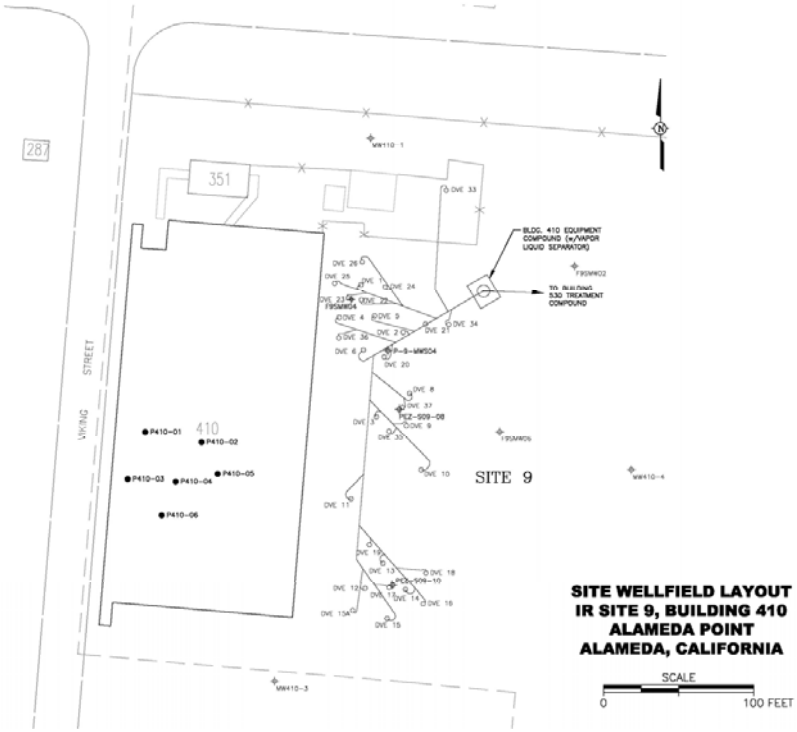
Shaw



Bldg 530 Pre and Post Remediation Site Conditions (TTPH)

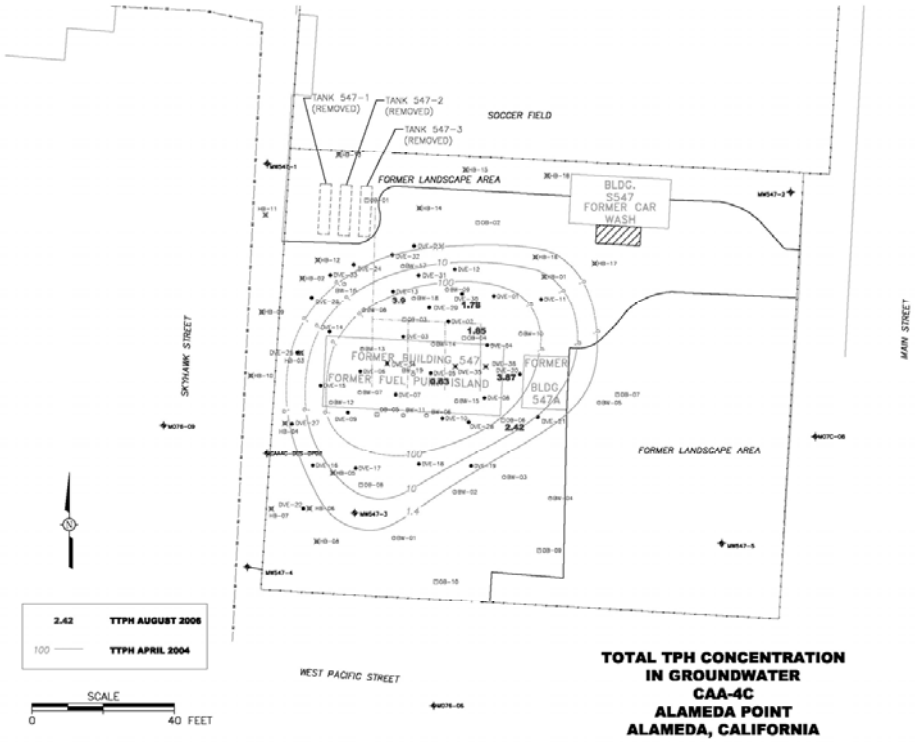
BRAC
PMO WEST

Shaw



BRAC
PMO WEST

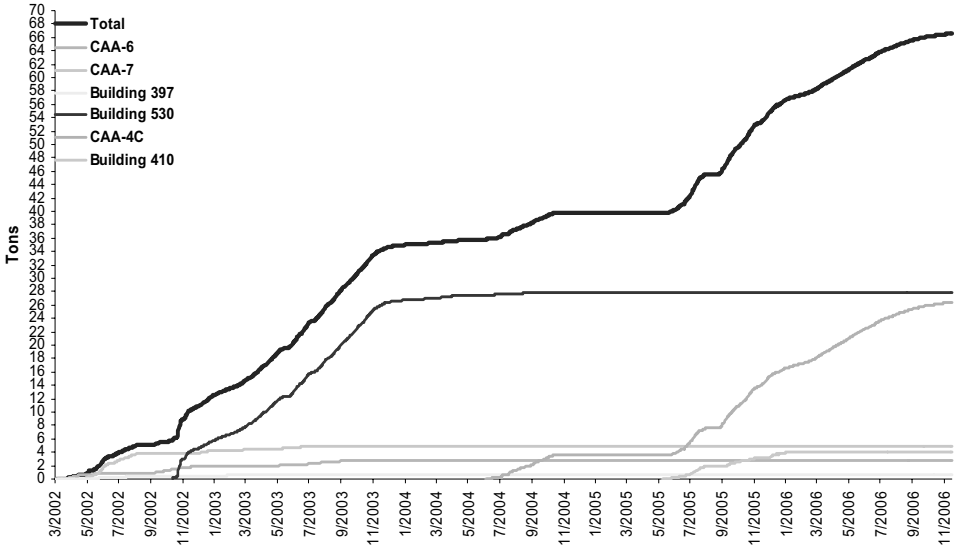
Shaw



TOTAL TPH CONCENTRATION IN GROUNDWATER CAA-4C ALAMEDA POINT ALAMEDA, CALIFORNIA

BRAC
PMO WEST

Shaw



Mass Removal History, Alameda Point Petroleum Program

BRAC
PMO WEST

Shaw

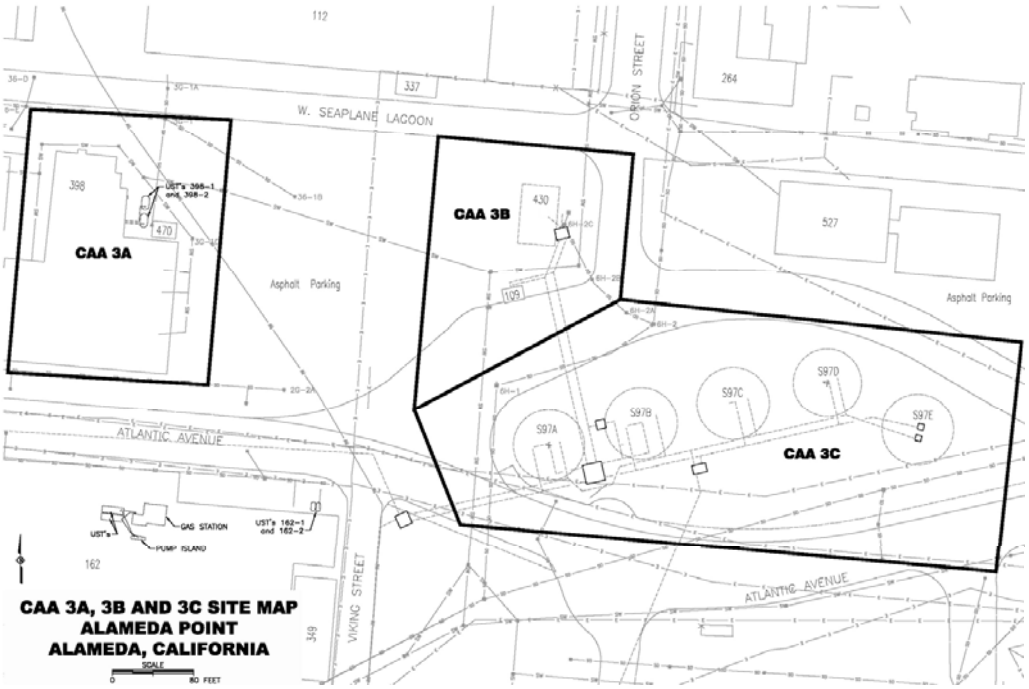
BRAC
PMO WEST

Shaw

CAA 3B & 3C Looking Southeast

BRAC
PMO WEST

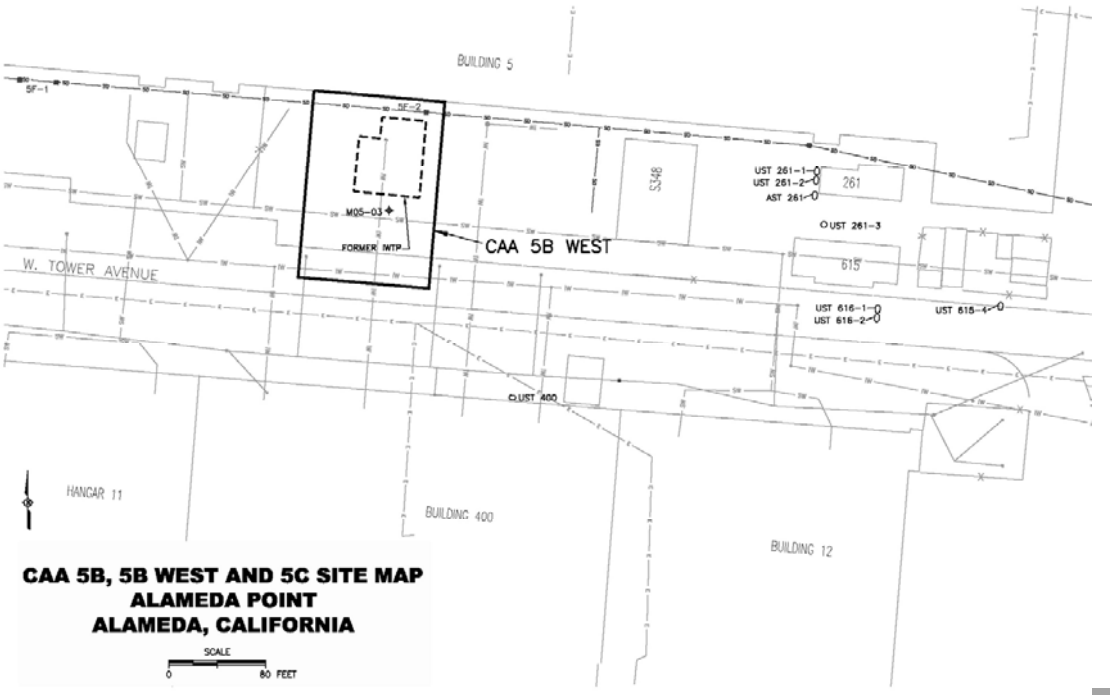
Shaw



CAA 3A, 3B AND 3C SITE MAP
ALAMEDA POINT
ALAMEDA, CALIFORNIA

BRAC
PMO WEST

Shaw

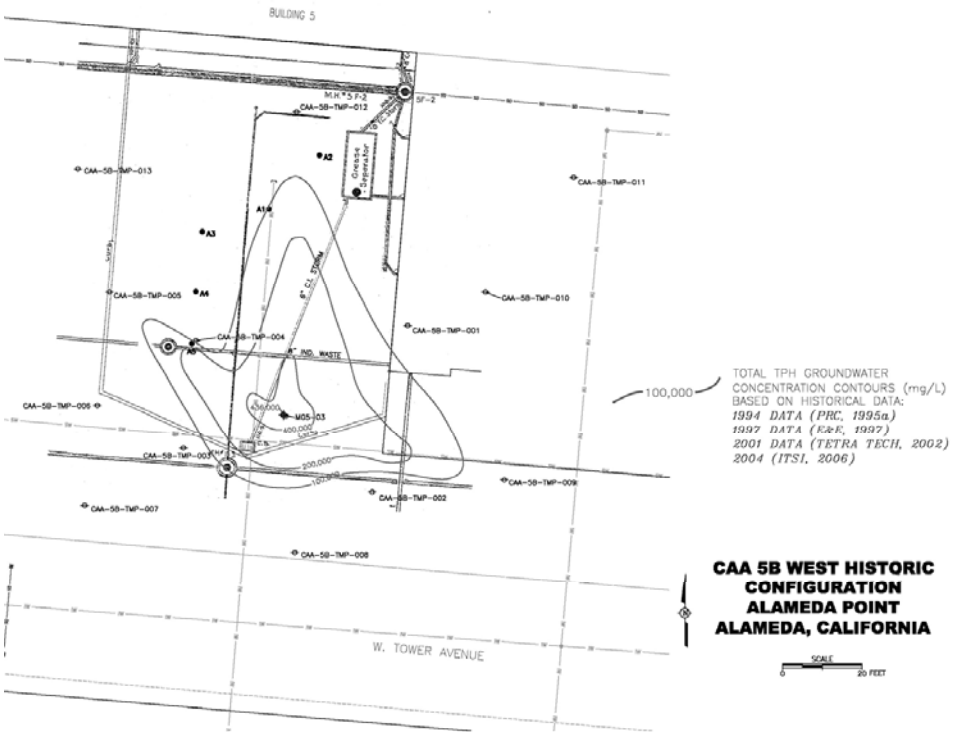


CAA 5B, 5B WEST AND 5C SITE MAP
ALAMEDA POINT
ALAMEDA, CALIFORNIA

SCALE
0
80 FEET

BRAC
PMO WEST

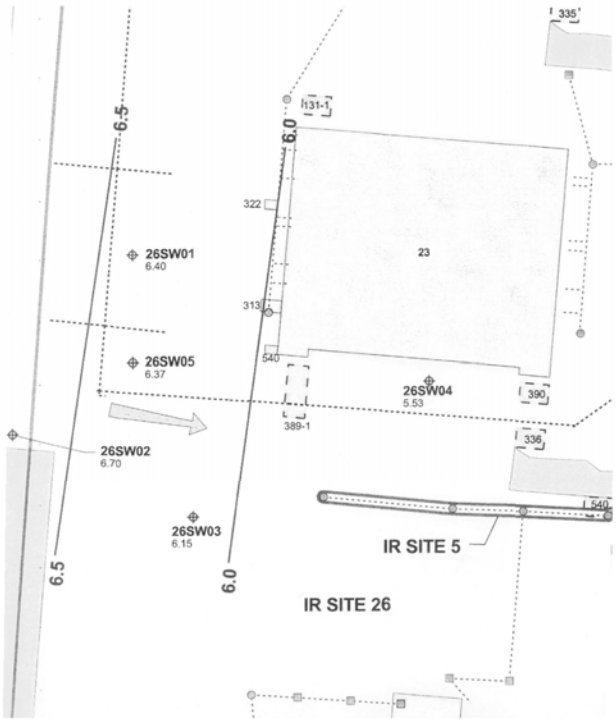
Shaw



CAA 5B WEST HISTORIC CONFIGURATION ALAMEDA POINT ALAMEDA, CALIFORNIA

BRAC
PMO WEST

Shaw



LEGEND

- GROUNDWATER FLOW DIRECTION
- 6.5 — GROUNDWATER ELEVATION CONTOUR
- 26SW03 6.15 — MONITORING WELL AND GROUNDWATER ELEVATION (FT MSL)
- CATCH BASIN
- MANHOLE
- IR SITE 26 BOUNDARY
- HISTORICAL FUEL LINE
- STORM SEWER LINE
- BUILDING OR STRUCTURE (PRESENT)
- BUILDING OR STRUCTURE (FORMER)
- ROAD OR FORMER TAXIWAY

NOTES:

FT MSL - FEET ABOVE MEAN SEA LEVEL

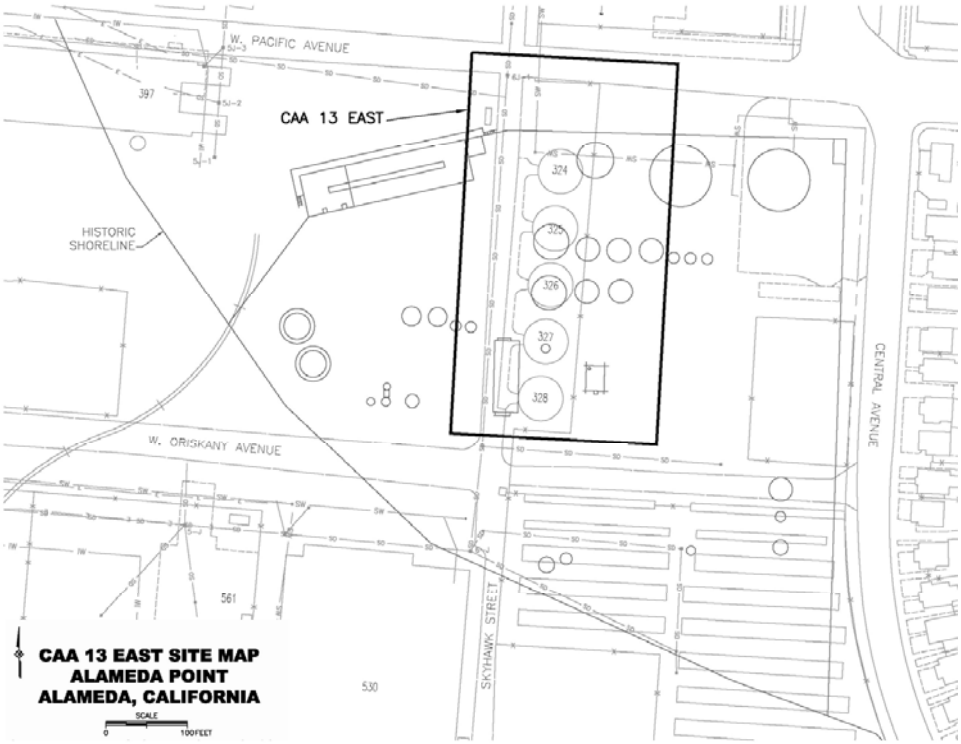
IR - INSTALLATION RESTORATION (PROGRAM)

CAA C SITE MAP WESTERN HANGAR ALAMEDA POINT ALAMEDA, CALIFORNIA

SCALE
0 100 200 FEET

BRAC
PMO WEST

Shaw



ATTACHMENT B-4

ENVIRONMENTAL PROGRESS AT ALAMEDA POINT FOR 2006

(Eight Pages)

2006 at a Glance

Environmental Progress at Alameda Point

Thomas L. Macchiarella
BRAC Environmental Coordinator
January 4, 2007

Completed CERCLA Documentation

- Final Site Investigations: 2 SIs, 159 acres
- Final Remedial Investigation Workplans: 4 Sites, 412 acres
- Final Remedial Investigations: 1 Site, 110 acres

Completed CERCLA Documentation *(continued)*

- Final Feasibility Studies: 1 Site, 16 acres
- Draft Proposed Plans to agencies:
  - 7 PPs, 290 acres
- Final Proposed Plans: 7 PPs, 290 acres
- Final RODs: 2 Sites, 38 acres

FY06 + Oct, Nov, Dec 2006 deliverables sorted by type

RI/FS

- Draft RI Site 2
- Draft Final RI Site 2
- Final RI Site 2
- Draft FS Site 2
- Draft RI/FS Workplan Site 35
- Draft Final Site 35 RI/FS Workplan
- Final RI/FS Workplan Site 35
- Draft Soil FS Site 30
- Final RI Workplan Site 31
- Draft Soil RI Report Site 31
- Draft Final RI Workplan Site 34
- Draft RI Report Sites 20 and 24
- Draft Workplan Supplemental RI OU2C
- Final Addendum 1 to Final Offshore Sediment Workplan
- Draft FS Site 27
- Draft Final FS Site 27
- Final FS Site 27
- Draft FS OU2B
- OU-1, 2A, 2B Draft Datagap Sampling Workplan

FY06 + Oct, Nov, Dec 2006 deliverables sorted by type

Proposed Plans

- Draft PP OU-1
- Final PP OU-1
- Draft Proposed Plan Site 17
- Draft Final Site 17 PP
- Final PP Site 17
- Site 26 Proposed Plan
- Draft OU5/IR02 Proposed Plan
- Draft Final OU5/IR02 Proposed Plan
- Final OU5/IR02 Proposed Plan
- Draft PP Site 25
- Working Draft Final Site 25 PP
- Draft Final PP Site 25
- Final PP Site 25
- Site 14 Draft Proposed Plan
- Draft Final PP Site 14
- Final PP Site 14
- Draft PP Site 28
- Draft Final PP Site 28
- Final PP Site 28
- Draft PP Site 27
- Draft Final PP Site 27
- Final PP Site 27
- Draft PP Site 1
- Draft Final PP Site 1
- Final Proposed Plan Site 1

FY06 + Oct, Nov, Dec 2006 deliverables sorted by type

ROD

- Draft ROD Site 15
- Draft Final ROD Site 15
- Final ROD Site 15
- Site 26 Draft ROD
- Site 26 Draft Final ROD
- Site 26 Final ROD
- Site 14 Draft ROD
- Site 14 Final ROD
- Draft ROD OU5/IR-02 Groundwater
- Site 25 Draft ROD
- Final ROD Site 17

Removal Action Related

- Draft Field Summary Report Full Scale In Situ Chemical Oxidation Site 16 North and South
- Final Field Activity Reports for ISCO at Sites 16 North and South
- Draft Field Activity Report DNAPL source removal action at Plume 5-1
- Final Filed Activity Report Removal Action Site 5 (Plume 5-1)
- Draft Action Memo for TCRA at Sites 1, 2, 32

FY06 + Oct, Nov, Dec 2006 deliverables sorted by type

Petroleum

- Quarterly Tech Memos for Bldg 410 Site 9 Shallow
- Quarterly Tech Memos for CAAs 4C, 6, 7, 11, 13

Other

- Final Site Management Plan
- Draft Final Tech Memo for Subslab soil gas sampling at OU2B
- Draft Final Sampling and Analysis Plan Soil Gas Investigation in OU2B
- Technical Memorandum Installation of wells in OU2B near Seaplane Lagoon
- Validated Data Package for 2005 Offshore Sediment Sampling
- Final SI report EDC-3
- Final SI report PBC-1A
- Draft Tech Memo Site 28
- Draft Historical Radiological Assessment
- EDC-17 Draft Site Inspection Report

RCRA

- Final Closure Report/ Draft Closure Certification Report IWTP 25
- Draft Closure Summary Report IWTP 360

Summary of Docs

	FY05	FY06
Total Docs	104	65
Primary Docs	36	53

ATTACHMENT B-5

PLANNED NEW PROJECTS FOR 2007

(Five Pages)

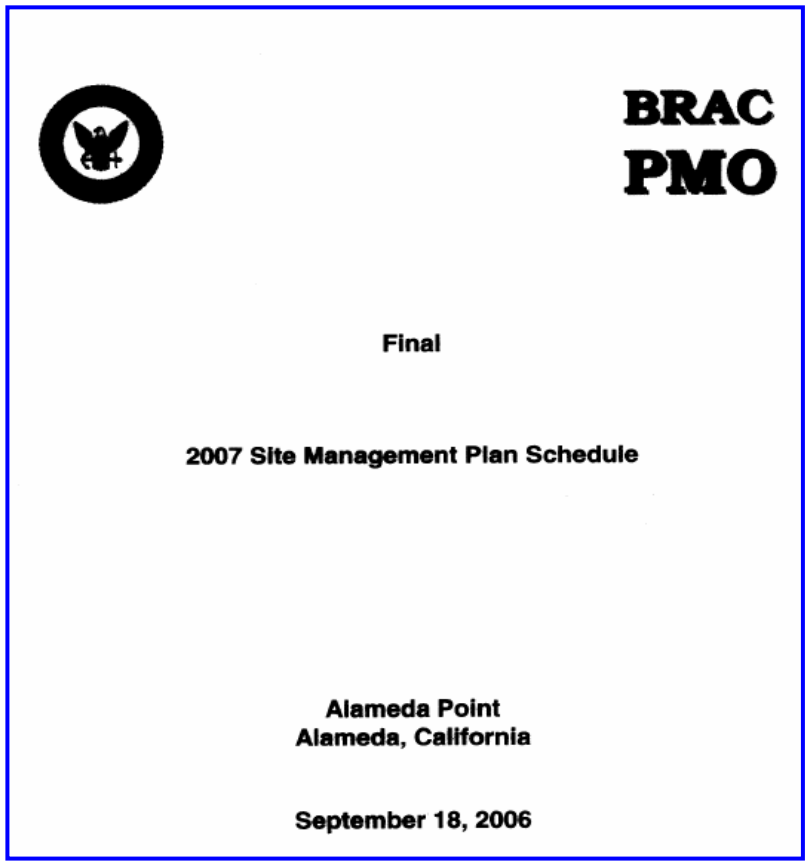
Planned New Projects for 2007 at Alameda Point

Thomas L. Macchiarella
BRAC Environmental Coordinator

January 4, 2007

Site Management Plan for 2007

- Finalized in Sep.
- Site schedules are continuously updated as necessary



BRAC
PMO

Final

2007 Site Management Plan Schedule

Alameda Point
Alameda, California

September 18, 2006

Projected new FY07 Projects

Project Description		PH	SOW
Sites 5 & 17 OU-2C Storm & Sewer lines RAD Removal		C	10/30/06
PMO		S	N/A
IWTP 360 Risk Assessment (o.a. 88,516 10/31) (MOD)		S	09/26/06
Sites 5 & 17 OU-2C Storm & Sewer lines RAD Removal Rate Increase		C	N/A
OU-2A Sites 9, 13, 19, 22, 23 FS		S	11/30/06
Site 31 Env. Summary Document (MOD)		S	11/30/06
OU-4B Site 17 RA (to Dawn 12/8)		C	12/08/06
OU-6 Site 26 RA WP & RA		C	12/10/06
Basewide GW Monitoring		S	02/01/07
Basewide RAD Surveys		S	02/15/07
OU-6 Site 28 RA WP		C	02/15/07

Projected new FY07 Projects (cont'd)

Project Description		PH	SOW
OU-1 Sites 6, 7, 8, 16 RD & RA		C	03/15/07
Sites 5 & 17 Storm Drain IRA (MIPR to ARMY)		C	03/15/07
OU-3 Site 1 RD		C	03/29/07
Basewide AST Closure		S	03/30/07
TERM-1 AST Removal		C	03/30/07
OU-2A Sites 9, 13, 19, 22, 23 PP/ROD		S	04/04/07
OU-1 Site 14 RA WP & RA		C	04/05/07
EDC-3, PBC-1A IRA		C	04/16/07
OU-6 Site 27 RD		C	05/04/07
Site 4,5 Dissolved-Phase IRA		C	06/04/07
Site 35 RD & RA		C	07/01/07

FY07 Planned Major Milestones

- Finalize 7 RODs
- Finalize 3 RIs, 2 or 3 FSes
- 2 Action Memos
- 2 Final TCRA Workplans
- Draft Remedial Action Workplans for 2 sites (1 will become Final)
- Final Remedial Designs for 2 Sites
- Data gathering events at multiple sites
- 3 more SIs