

FINAL
NAVAL AIR STATION ALAMEDA RESTORATION ADVISORY BOARD
MEETING SUMMARY

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Building 1, Suite 140, Community Conference Center
Alameda Point
Alameda, California

September 6, 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:

Janet Argyres	Bechtel
Doug Biggs	Alameda Point Collaborative (APC) Representative
Dan Carroll	Kleinfelder (Bechtel team)
Doug DeLong	BRAC PMO West, Environmental Compliance Manager
Francis Fadullon	BRAC PMO West Remedial Project Manager (RPM)
Jamie Hamm	Sullivan International Group (Sullivan)
Carolyn Hunter	Tetra Tech EM Inc. (TtEMI)
Joan Konrad	RAB
James Leach	RAB
Dot Lofstrom	California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC)
Patrick Lynch	Community member
Frank Matarrese	Alameda City Council
John McMillan	Shaw Environmental and Infrastructure, Inc. (Shaw)
John Olson	Waste Solutions Group/Community member
Peter Russell	Russell Resources/City of Alameda
Eli Saddler	Golden Gate Audubon Society

Marcus Simpson	DTSC
Angela Singh	DTSC
Dale Smith	RAB/Audubon Society
Jean Sweeney	RAB
Jim Sweeney	RAB
Michael John Torrey	RAB/Housing Authority of the City
Xuan-Mai Tran	U.S. Environmental Protection Agency (EPA)

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 5 of 13, first line, "...training needed to enter before someone can enter the site" will be revised to "...training needed before someone can enter the site."
- Page 7 of 13, third paragraph, second line, "...a great deal of data are obtained..." will be revised to "...a great deal of data is obtained..."
- Page 11 of 13, line 23, "...that she could not participate on certain focus groups" will be revised to "...that she could not participate on multiple focus groups."
- Page 13 of 13, line 31, "...both Mr. Lynch and Mr. Humphreys observed the tree" will be revised to "...both Mr. Lynch and Mr. Humphreys observed the orange plastic."

Mr. Humphreys provided the following comments:

- Page 3 of 13, first line, "May 2007" will be revised to "June and July 2007."
- Page 4 of 13 second paragraph, "Mr. Torrey asked about the height of the fence and measures to keep trespassers out," will be revised to, "Mr. Torrey asked what keeps people from climbing over the fence."

The minutes were approved as amended.

II. Co-Chair Announcements

Mr. Humphreys distributed a list of documents and correspondence received during August 2007. The handout is included as Attachment B-1. Documents of note were item 7, the final time-critical removal work plan for exploratory trenching, and item 8, the draft final site inspection (SI) report, western bayside and breakwater beach. In the list of correspondence, DTSC appointed Angela Singh and the Water Board appointed John West as new representatives for Alameda Point. Ms. Singh will be assisting Ms. Lofstrom. Mr. Erich Simon of the Water

Board will no longer be working on Alameda Point and Mr. West has been appointed as his replacement.

Mr. Macchiarella announced that Ms. Anna-Marie Cook of the EPA was unable to attend the meeting. The Water Board representatives also are attending a state meeting and could not attend the RAB meeting. Mr. Macchiarella announced that the Operable Unit (OU) 5 record of decision (ROD) has been finalized and signed by all parties. In October, the RAB may go on a field trip to see the pilot test that is under way at OU-5.

Mr. Macchiarella responded to some outstanding issues from the August 2007 RAB meeting. He said that the Navy places notices every month in the *Alameda Journal*. Mr. Humphreys asked him to identify the section where the notice appears. Mr. Macchiarella said he was not certain, but that he would try to bring a copy of the *Alameda Journal* that contains the notice.

Mr. Torrey noted that he saw the notice under the list of government meetings. Another issue from the previous RAB was the question of why the Navy did not consider using the Site Characterization Analysis Penetrometer System (SCAPS) technology for polycyclic aromatic hydrocarbons (PAH) in soil basewide. The SCAPS yields instantaneous data, but the detection limit may not be appropriate for all projects. SCAPS is useful for the tarry refinery waste (TRW) because low detection limits are not needed to determine whether the contamination is present around OU-2B. The SCAPS is not useful, however, for locating low levels of PAHs in soil across the base because the detection limit is too high for this type of investigation. The third issue from the previous RAB meetings is the tree at Site 25. The U.S. Coast Guard (USCG) has indicated that the tree fell in a windstorm in April. The USCG hired a contractor to remove the tree, and the stump and roots were left behind. The orange fencing was laid down at the base of the excavation (4 feet below ground surface) during the removal action at Site 25. The depth of the orange fencing becomes shallower, to about 4 or 6 inches below the surface around the base of trees larger than 6 inches in diameter (trees smaller than 6 inches in diameter were removed during the removal action). Therefore, the orange fencing may be exposed around the base of some of these trees. Ms. Smith said that this information does not explain Mr. Lynch's observation that the fencing was removed and propped against piles in another area. Mr. Macchiarella said that he called and asked Mr. Lynch where he observed the orange fencing. He then had Navy staff walk the area and take photographs of the area, after which he walked the site to look at the area himself, where he observed no orange fencing, except near the edge of the trees.

Mr. Macchiarella announced that he is reviewing the next newsletter, which will be mailed to the RAB soon. The newsletter includes information on some of the removal actions taking place on the base. In addition, the Fleet and Industrial Supply Center Oakland, Alameda Facility, Alameda Annex (FISCA) RAB will have its second meeting of the year on September 12, 2007. One agenda item for that meeting is to discuss how to dissolve, phase out, or combine the FISCA RAB with the Alameda Point RAB. Ms. Konrad, Mr. and Mrs. Sweeney, and Mr. Ken Hanson, the co-chair, are the members of the FISCA RAB. Mr. Hanson is the only member who is not also on the Alameda Point RAB.

III. Basewide Installation Restoration Program Summary and Snapshot Presentation

Mr. Macchiarella began a presentation of the basewide installation restoration (IR) program. The handouts for the presentation are included at Attachment B-2. The presentation summarized the status of the IR Program and notes the significant ongoing activities at each site. Slide 3 showed the IR Program map, including each operable unit and site. Mr. Macchiarella noted that the boundaries have been updated on the map for Site 24, Site 32, and Site 27. Slide 4 showed a list of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) phases from the preliminary assessment (PA) through remedial action. The PA is a records search, photo review, and interviews. Site inspections (SI) generally include sampling and possibly additional record reviews to determine whether chemicals are present. Remedial investigations (RI) attempt to fully delineate contamination in soil and groundwater and include risk assessments. The RI conclusion determines the next step. The feasibility study (FS) evaluates and compares remedial alternatives for soil and groundwater. The alternatives are evaluated against the nine FS criteria in the National Contingency Plan (NCP) FS criteria. Two of the criteria are called "thresholds" and must be met. Five are called the balancing criteria and are used to identify the advantages and disadvantages of the alternatives. Two last criteria are called "modifying." The FS is followed by the proposed plan (PP), where the Navy and the BRAC Cleanup Team (BCT) present the preferred alternative to the public. The PP is the only opportunity for most Superfund sites when the public can learn plans for a site. The public has the benefit of the RAB meetings on a Navy base, however, and can submit comments throughout the entire process. The record of decision (ROD) includes a section that addresses the public comments on the PP. Once the ROD is signed, either the remedial design (RD) or the remedial action work plan (RAWP), or both, are prepared. Actual cleanup of the site occurs during the remedial action phase. Slide 5 showed a diagram of CERCLA response actions. Both remedial actions and removal actions are called CERCLA response actions. The process described earlier is the remedial action process. A removal action can occur at any time during the remedial action process. The removal action process includes an engineering evaluation and cost analysis (EE/CA), an action memorandum, and the removal action. A removal action could involve installing a fence, removing soil, or implementing institutional controls (IC). Ms. Smith said a removal action occurred at the least tern site and asked if an EE/CA was prepared for that site. Mr. Macchiarella said that the removal at the least tern site was a petroleum-only issue and was subject to the CERCLA petroleum exclusion and therefore was conducted under a different program than CERCLA.

OU-1 includes Sites 6, 7, 8, and 16 and is at the draft final ROD phase. The next milestone is the draft RD/RAWP, scheduled for June 2008. The RD data gaps investigation is also under way. Anticipated future land use is commercial/industrial for Sites 6 and 16, and residential for Sites 7 and 8. Sites 14 and 15 are also part of OU-1 but are on a different schedule. Ms. Smith asked if data gap sampling is occurring mostly in Site 16. Mr. Macchiarella replied that data gap sampling is under way in all four OU-1 sites. The corrective action area (CAA) summary table handout lists the IR site and OU associated with each CAA and identifies the petroleum contaminants of concern for each CAA.

OU-2A includes Sites 9, 13, 19, 22, and 23, and is currently in the FS stage. The next milestone will be the revised draft FS report, to be submitted in December 2007. In addition, a data gaps

investigation and the TRW investigation using SCAPS technology are about to commence. The anticipated future land use for OU-2A is commercial/industrial.

OU-2B includes Sites 3, 4, 11, and 21, is largely characterized by a plume of solvents in groundwater, and is currently in the FS stage. The next milestone will be submittal of the revised draft FS report in June 2008. In addition, the data gaps investigation is about to commence, the zero-valent iron bench test and pilot test are under way, and six-phase heating is also under way at OU-2B. The anticipated future land use for OU-2B is commercial/industrial. Mr. Humphreys said that one of the agencies had commented that the six-phase heating should be added to the schedule in the site management plan (SMP), and the Navy replied that the six-phase heating was already completed. He asked if that information was true. Mr. Macchiarella replied that, at Site 4, the six-phase heating has achieved its goals to reduce the concentration of dense nonaqueous phase liquid (DNAPL) to below 10,000 micrograms per liter ($\mu\text{g/L}$). The six-phase heating at Site 4 is complete and the system is being dismantled. Ms. Sweeney asked if the drinking water standard would be the final cleanup goal for the site. Mr. Macchiarella replied that OU-2B is mostly in the area of the aquifer that the State has designated as suitable for a source of drinking water. Therefore, drinking water standards (MCLs) would be the final cleanup goals unless the aquifer is de-designated as suitable for drinking water. He emphasized that the groundwater beneath OU-2B and the entire facility is not used as drinking water. Mr. Humphreys commented that the six-phase heating at Site 5 took much longer to complete than was anticipated, and he said he was surprised that the project at Site 4 was already completed. Mr. Macchiarella said that Site 5 was the initial use of six-phase heating on the base, when the subcontractors were resolving the problems and pointed out that there are multiple areas being addressed at Site 5 which requires moving equipment. Mr. Humphreys asked if a different type of six-phase heating was used at Site 4. Mr. Macchiarella replied that it was different; sheet piles were used as electrodes at Site 5 and iron pilings in a borehole were used at Site 4. Mr. Torrey asked for the definition of zero-valent iron. Mr. Macchiarella replied that it is a type of iron that treats contaminated groundwater that comes into contact with it when injected into the subsurface.

OU-2C includes Sites 5, 10, and 12 and is currently in the RD stage. OU-2C is mainly characterized by Building 5, which overlies three solvent plumes. The site also includes CAAs B, 5A, 5B, and 5C. The draft supplemental RI report is scheduled for May 2008. Six-phase heating is also under way and removal of the radiologically contaminated storm drain and sewer is imminent. The anticipated future land use is commercial/industrial.

OU-5 is the groundwater beneath Sites 25, 30, 31, and portions of FISCA (Site IR02). The contaminants of concern (COC) are benzene and naphthalene, and the selected remedy includes in-situ biosparging (ISB), soil vapor extraction, nutrient enhancement, monitored natural attenuation (MNA), and institutional controls (IC). The ICs will end once remedial goals are met. Ms. Sweeney asked if testing was finished at the College of Alameda. Mr. Macchiarella replied that the Navy has not yet gained access to the College of Alameda. The incoming data have shown the boundary of concentrations to be remedied by the biosparging system to be on the Navy property, and not on the College of Alameda. Once all of the data are available, the Navy and agencies will discuss whether accessing the College of Alameda property is still necessary. The remedial goals are equal to drinking water maximum contaminant levels (MCL)

even though the water is not, and will likely not ever be, used for drinking water. OU-5 is in the RD stage; the next milestone will be the draft RD/RA/WP scheduled for April 2008. A pilot test is under way at OU-5, and the RD data gaps investigation was recently completed. Full-scale remediation and construction are planned to begin in September 2008. The current and anticipated future land use for OU-5 is residential.

Site 1 is the 1943 to 1956 disposal area and is currently in the ROD phase. The next milestone is the draft final ROD scheduled for October 2007, pending the outcome of the current trenching project, which is expected to verify previous assumptions. So far, two trenches have been completed and no drums have been found. The Navy is taking photographs and videotaping the activities and will show the RAB the activities during the next RAB meeting. In addition, the radiological and lead time-critical removal action (TCRA) is nearing completion at Site 1. The anticipated future land use for Site 1 is recreational. Site 2 is the West Beach Landfill and is currently in the FS phase. The next milestone is to issue the final FS. In addition, the radiological TCRA is nearing completion. Ms. Sweeney asked if more tests will be required should the Navy rewrite the FS. Mr. Macchiarella noted that the purpose of the draft final FS is necessary to show the regulators how comments have been incorporated before the final version can be issued and that additional sampling is not part of this step. The anticipated future use of Site 2 is a wildlife refuge.

Site 14 is the former fire training area and is currently in the RD phase. The next milestone is the draft RD/RAWP, scheduled for December 2007. In addition, the in situ chemical oxidation (ISCO) pilot test is being planned. The selected remedy is ISCO and ICs. The anticipated future land use for the Site 14 is recreational. Site 15 (former transformer storage area) and Site 29 (former skeet range) are each designated as “no further action (NFA)” and are closed. The Site 15 NFA ROD was completed in May 2006, and the Site 29 NFA ROD was completed in September 2005. Site 17 is sediments in the Seaplane Lagoon and is in the RD phase. The next milestone is the RD/RAWP, scheduled for September 2007. The selected remedy is dredging in the northwestern and northeastern corners of the Seaplane Lagoon. The COCs are cadmium, polychlorinated biphenyls (PCB), and DDX (the collective term for dichlorodiphenyltrichloroethane [DDT], dichlorodiphenyldichloroethylene [DDE], and dichlorodiphenyldichloroethane [DDD]). There is also an upcoming removal action of the debris piles along the northern side of the Seaplane Lagoon.

Site 20 is the Oakland Inner Harbor sediment and is currently in the PP stage, with the PP due to the public in February 2008. Site 24 is the pier area sediments and is in the FS stage, with the draft FS scheduled for December 2007. Site 25 is the north housing area (formerly called the Coast Guard Housing) and is currently in the ROD stage. A small portion of Site 25 and all of Site 31 are nearly ready to be transferred to the Coast Guard. The final ROD will be issued in September 2007. The selected remedy for Site 25 is ICs that include a prohibition on excavation deeper than 4 feet below the current grade and major site work, such as removal of hardscape or buildings, without specific permission. Site 26 is the Western Hangar Zone and is currently in the RD phase. The draft final RD/RAWP is scheduled for November 2007. The selected remedy is ISCO and ICs and the anticipated future land use for Site 26 is commercial/industrial. CAA C is within Site 26 and CAA 6 is slightly north of Site 26.

Site 27 is the dock zone and is currently in the ROD phase, with the draft final ROD due in September 2007. The site is characterized by a plume of solvents in groundwater, and the selected alternatives are ISCO and ICs. The anticipated future land use for Site 27 is commercial/industrial except a small portion may be used for residential. Mr. Humphreys asked about the area of the site where the road extends over the water. Mr. Macchiarella said the road extends over the water at Site 24 and alternatives will be evaluated for addressing the area under the road/wharf.

Site 28 is the Navy-owned portion of the former Todd Shipyard and is currently in the ROD phase. The final ROD will be issued in September 2007. The remedy includes soil excavation, copper immobilization, groundwater monitoring, and ICs. The anticipated future land use for Site 28 is recreational. Ms. Sweeney asked how copper will be immobilized. Mr. Macchiarella mentioned a few methods to add substances that immobilize the copper. Ms. Fadullon said bench tests will be conducted fall and winter of 2007 to identify the most appropriate method for this particular site.

Site 30 is Island High School and Woodstock Child Development Center and is in the RI phase, with the draft RI addendum scheduled for December 2007. The current and anticipated land use is schools.

Site 31 is the Marina Village Housing Area and is currently in the PP phase. The PP will be issued to the public for review in April 2008. The anticipated future land use for Site 31 is residential. Mr. Humphreys commented that the OU-5 plume extends into Site 31. Mr. Macchiarella agreed that it extends into Site 31, and the Navy will continue to clean up the groundwater beneath OU-5, Sites 25, 30 and 31, and portions of FISCA, even though Site 31 will be transferred to the Coast Guard. Ms. Konrad asked if biosparging would be used in the area. Mr. Macchiarella replied yes. Ms. Sweeney asked if biosparging operation is noisy. Mr. Macchiarella replied blowers and compressors are part of the system, and said that the Navy will do its best to control the noise.

Site 32 is the Northwestern Ordnance Storage Area and is currently in the FS phase. The next milestone will be the draft final FS, issued in November 2007. The radiological TCRA is also nearing completion. The FS is for groundwater and soil was recommended for NFA in the RI. The anticipated future land use for Site 32 is recreational.

Site 33 is the South Tarmac and Runway Wetlands and is currently in the SI phase, with the draft SI scheduled for January 2008. Site 33 will be a portion of the overall federal to federal transfer parcel (FED) SI report. The FED SI will cover all parcels that are slated to have a federal recipient. The anticipated future land use of Site 33 is open space. Mr. Humphreys asked if this area proposed to be transferred to the Veterans Administration (VA). Mr. Macchiarella said that it is; the VA is considering accepting a majority of this area.

Site 34 is the former Northwest Shop Area and is currently in the RI phase. The draft RI will be issued in September 2007, and the anticipated future land use for Site 34 is recreational.

Site 35 is the areas of concern (AOC) in economic development conveyance (EDC) 5 footprint and is currently in the PP phase. The PP is due to the public in December 2007. The anticipated future land use for Site 35 is residential.

Other significant or noteworthy ongoing projects include the following: the total petroleum hydrocarbon (TPH) CAAs and TPH program; the historical radiological assessment (HRA) follow-on surveys and final status surveys; and the basewide groundwater monitoring program. The TPH program is generally presented to the RAB annually. The HRA identified a few areas that need further surveys, mostly buildings, including ventilations systems where necessary. Mr. Matarrese commented that some of the proposed uses for Site 33 include a VA hospital, housing, or a cemetery. Mr. Saddler noted that the Audubon Society has reviewed the plans for the site, strongly discourages development of the site, and would rather see it as a wildlife refuge. Mr. Macchiarella said that the Coast Guard will receive all of Site 31, the Marina Village Housing, and the housing office portion of Site 25. Mr. Matarrese said that the property will no longer be used for Coast Guard housing after the Navy transfers it to the city and a lease on the facility will prevent deterioration. Mr. Torrey asked who are the families that currently inhabit the Marina Village Housing. Mr. Macchiarella replied that they are Coast Guard families.

IV. Site 32 (Northwest Ordnance Storage Area) Feasibility Study Presentation

Ms. Fadullon began a presentation on the Site 32 (Northwest Ordnance Storage Area) FS. A handout of the presentation is included as Attachment B-3. The presentation covered the background and history of the site, a summary of the RI, an outline of the FS, a summary and comparison of alternatives in the FS, and the next steps for Site 32. Ms. Fadullon identified the location of IR Site 32 on slide 3.

Site 32 is 5.8 total acres. Two 1,000-gallon underground storage tanks (UST) for storing fuel were removed in 1994. Two buildings were built on the site in 1977, but neither was used to store ordnance. The Alameda Training Wall, a historic structure, is located on the site. Prior to 1953, the site was used for equipment staging and storage. Slide 5 showed historical aerial photographs of the site in 1949 and 1953. Slide 6 showed a photograph of the northern portion of Site 32, and slide 7 showed a photograph looking west toward Buildings 594 and 82. Ms. Sweeney asked about the Alameda Training Wall. Ms. Fadullon said that it is not shown on the images, but was built in the 1890s along the Oakland Inner Harbor. Ms. Smith said that training wall is hand-placed stone, and trains ran along it to the offloading area for ship cargo. Ms. Fadullon said that, to her knowledge, the wall was built to control sediments in the bay.

The RI risk assessment results identified trichloroethylene (TCE), vinyl chloride, and chlorobenzene as risk drivers in groundwater for the hypothetical resident. The risk was due to inhalation of vapors coming from the groundwater into indoor air. A source of the TCE and vinyl chloride is assumed to be near Building 594 and anaerobic degradation appears to be occurring. The chlorobenzene in groundwater is located in the western portion of the site. Slide 8 showed a diagram of the concentration contours for TCE, vinyl chloride, and chlorobenzene at Site 32.

The site is open space and partially paved. No future residential use is planned. Planned future recreational use may include a golf course and a shoreline walking path. The human health risk assessment (HHRA) calculated the risk for a hypothetical residential receptor to be at or slightly above the NCP risk management range based on the indoor air pathway. The EPA risk values were 1×10^{-4} and the California EPA risk numbers were 6×10^{-4} . The noncancer hazard quotient for chlorobenzene was 2. For all other exposure scenarios (office worker, construction worker, recreational receptor, outdoor worker), cancer risks were within the NCP risk management range and hazard index (HI) levels were below 1.

The following were results and recommendations of the RI:

- No further action is required for soil
- No explosives or ordnance were found or stored onsite
- Ecological risk is acceptable for terrestrial and aquatic receptors
- Removal action for radiological anomalies was performed separately in an ongoing TCRA, scheduled for completion in October 2007
- Groundwater is not a source of drinking water
- Potentially unacceptable risk exists under the residential scenario for volatile organic compounds (VOC) in groundwater via the hypothetical indoor air pathway
- An FS was recommended for groundwater

Ms. Sweeney asked if there was a seasonal wetland at the site. Ms. Fadullon replied that a small area in the southwestern corner of the site is a seasonal wetland and was considered in the ecological evaluation of the site. Ms. Sweeney asked if that area is contaminated. Ms. Fadullon replied that it is not and that the contamination is in the groundwater and is not in the wetland area. This site is west of Saratoga Street and thus is not considered a source of drinking water. Mr. Torrey asked if it is not considered drinking water for ecological receptors. Ms. Fadullon replied that the groundwater is not considered drinking water and animals cannot access the groundwater, which is about 6 feet below ground surface. Mr. Torrey asked if the groundwater ever comes aboveground. Ms. Fadullon said that the groundwater does not flow in the direction of the wetland. Mr. Humphreys said that there are seasonal ponds in the wetlands. Ms. Fadullon said the ponds are considered surface water. Ms. Torrey noted that there are rabbits in the area. Ms. Fadullon said that the statement is true and that the rabbits were considered in the ecological risk assessment.

Mr. Carroll continued with the presentation. The general response objectives of the FS are to protect beneficial uses of groundwater and surface water, protect human health by preventing unacceptable exposure to vapors from VOCs in groundwater, and prevent or minimize impacts to the Alameda Training Wall and seasonal wetlands. The seasonal wetland in this area is around the storm drain, and ponds form when it rains.

Site 32 does not pose unacceptable risk for current and anticipated future land uses, so no remediation goals were developed. ICs are included in the alternatives to prohibit residential use. The IC termination criteria include TCE concentrations of $5 \mu\text{g/L}$, vinyl chloride concentrations of $15 \mu\text{g/L}$, and chlorobenzene concentrations of $700 \mu\text{g/L}$. Slide 13 included a table showing the basis for the IC termination criteria.

Slide 14 showed a table of the six alternatives that were evaluated in the FS. Each alternative was separated into two areas: the chlorobenzene area, and the TCE and vinyl chloride area. Alternatives 3 through 6 include ICs, installation of monitoring wells, and an additional groundwater investigation. Alternative 2 is ICs to prohibit residential use until IC termination criteria are met, prohibit alteration, disturbance, or removal of groundwater monitoring and remediation systems, and prohibit extraction of groundwater or installation of new wells by a nonfederal entity. These ICs are also included in Alternatives 3 through 6. Alternative 3 also includes an MNA program that is reviewed periodically and optimized based on monitoring results. A 30-year duration is assumed for the FS, but could be shorter. Ms. Smith asked if Alternatives 2 and 3 are nearly identical because they will use natural attenuation in Alternative 2 as well. Mr. Carroll said they are similar, but the level of contamination and degradation process will be monitored under Alternative 3, while Alternative 2 would obtain no data to evaluate whether natural attenuation is occurring. Alternative 4 is more aggressive and includes ICs and enhanced anaerobic ISB. Chlorobenzene can degrade aerobically or anaerobically. The same ISB enhancement will be used for each VOC area with a total of over 170 injection points. The duration is expected to be 4 years.

Alternative 5 is ISCO for the chlorobenzene area, enhanced anaerobic ISB for TCE and vinyl chloride, and ICs. There will be 60 ISCO points for the chlorobenzene area, and the ISCO product is compatible with nearby ISB activities. There will be 100 injection points for emulsified vegetable oil (or bio-barriers). The final treatment product will be selected in the RD stage. The assumed duration of Alternative 5 is 6 years. Alternative 6 includes ISCO and ICs. There will be 45 ISCO injection points. This process has been successful at other Alameda Point sites and is also planned for Site 27. The final details for ISCO will be developed in the RD stage.

Slide 20 showed a comparative analysis chart rating the six alternatives against the NCP criteria. Mr. Torrey asked about the total cost of using all of the alternatives in different areas. Mr. Carroll replied that the total cost for remediation is expected to be on the order of \$1 million. Ms. Fadullon noted that each alternative treats all of the areas of Site 32. Mr. Macchiarella added that only one alternative would be selected. Ms. Smith clarified that there is only one site with three areas and that whichever alternative is chosen, it will address all areas within the site. Mr. Torrey asked which alternative the Navy is recommending. Mr. Carroll said that no recommendation is made until the PP stage.

The Site 32 draft FS report was issued in June 2007. Agency and RAB comments will be due September 17, 2007, and the draft final FS report will be issued in November. The final FS report is scheduled for December 2007, with the PP is expected in April 2008. Additional groundwater samples will also be collected in fall 2007.

Ms. Sweeney said she can see that the groundwater is moving toward the channel but does not understand the purpose of the bio-barriers. The bio-barrier product would be injected into the groundwater about 30 feet apart. It takes 2 years for the groundwater to move from one section of the grid to the next. Ms. Fadullon said that the vegetable oil does not degrade quickly, so the bacteria would use the vegetable oil as food while they destroy the chemical of concern.

Mr. Carroll said that the vegetable oil provides a habitat where these bacteria can flourish. Ms. Sweeney asked if this treatment is implemented without the addition of oxygen. Mr. Carroll said that the statement is correct. Ms. Smith asked if the technology is at the point that it is guaranteed that contamination that comes into contact with the bacteria will break down. Mr. Carroll again said that the statement is correct. Mr. Torrey asked which alternative the BCT prefers. Mr. Macchiarella said the BCT had not yet selected a preference. The agencies are reviewing the report. Ms. Fadullon said that one additional sample of groundwater is being collected from the five wells on site to confirm current information about the site.

V. BCT Activities

Ms. Lofstrom reported that the BCT met once since the last RAB meeting to discuss the various RODs that were discussed earlier. Five RODs are in progress. The ROD is one of the documents that requires a great deal of work. The ROD is reviewed by the regulatory agency representatives who attend the RAB meetings, and also by their supervisors and the agency branch chiefs. All of them comment on the document. EPA and DTSC counsel also read the documents for appropriateness and accuracy. This process can take time because of the discussions between the Navy and the agencies to reach concurrence on the responses to comments. The agencies are also currently reviewing several work plans.

VI. Community and RAB Comment Period

Mr. Leach said that he would be out of the state and unable to attend the next RAB meeting on October 4, 2007. Ms. Sweeney asked about the area near Building 360, the deep nonaqueous solvents between Building 4 and Seaplane Lagoon. She mentioned that the six-phase heating could not be implemented there because of utility lines and asked why the utility lines could not be relocated. She said she understood that the DNAPL reached to the Seaplane Lagoon in that area. Mr. Macchiarella said that use of the term "DNAPL" usually means actual product. In general, the discussion refers generally to a plume that contains TCE or PCE, which are denser than water. The dissolved phase portion of the OU-2B plume extends toward the lagoon, but the concentrations do not exceed the value that would indicate the actual presence of DNAPL.

Ms. Sweeney asked if the contamination could be cleaned up with biosparging.

Mr. Macchiarella replied that it might, but if biological processes were to be taken advantage of, they most likely would be anaerobic. The area toward the lagoon is where the zero-valent iron pilot test may be conducted.

Mr. Lynch had concerns with DTSC's comments from January 2006 on the Marsh Crust. DTSC wanted to change the Marsh Crust excavation ordinance because the Department considers it ambiguous and difficult to enforce. There has been no evidence that it has been revised.

Mr. Lynch was also concerned with the reference to Appendix A, which shows a map of the enforcement area that does not include Sites 25, 30, and 31, but includes the Seaplane Lagoon. The Navy should be provided a copy of the ordinance because the response to comments in past Navy RODs have stated that the Navy did not believe the ordinance applied to the Seaplane Lagoon. Mr. Lynch said that the Navy has does not know if the ordinance applies, but a review of the ordinance indicates that it applies to the Seaplane Lagoon. Another concern is the on-line deed restriction database that DTSC is to maintain. Currently, the address of the east housing is

listed as the address of Building 1, West Mall Square. The properties within east housing have been sold and sometimes resold, and addresses have changed. Mr. Lynch added he wants reassurances that the deed restrictions are being included in the deed of these properties when they are sold because this action is not reflected in the on-line database.

Mr. Matarrese asked for a clarification on the Site 32 FS. The schedule shows that the RAB comments are due on September 17, 2007, and the next RAB is in October. Mr. Matarrese asked if there will be a vote in October on the FS report. Ms. Smith said that the document was received, but the RAB was not asked to review it. Mr. Matarrese said that he expected the RAB to recommend one of the alternatives. Ms. Fadullon said that the recommendation on alternatives is not made until the PP. Mr. Matarrese replied that the Navy may not be able to make a recommendation until then, but the RAB can. Mr. Humphreys agreed that the RAB could make a recommendation. Ms. Smith suggested that the RAB make a recommendation on the draft final. Mr. Matarrese said that he, personally, could recommend Alternative 6 based on the comparison chart. Ms. Sweeney commented that no timeframe was listed for Alternative 6. Mr. Macchiarella said that the timeframe would be found in the text. Ms. Fadullon said she thought the assumed timeframe was less than 4 years. Ms. Sweeney said that one of the RAB's policy statements was for cleanup to occur quickly. Ms. Matarrese stated that he wants the RAB to advise the Navy on which remedy is best for the community.

Mr. Humphreys read from the SMP attached to the previous RAB meeting minutes. The schedule for Site 35 previously followed an accelerated timeline for the PP and ROD. However, given the slower than expected progress on the early transfer, the schedule was adjusted to a conventional timetable. He asked why the Navy is slowing and if the transfer and negotiations be simplified if less of the cleanup remained at the time of the transfer. Mr. Macchiarella replied that the ROD will be finished before the transfer, which is a greater milestone that was agreed to in the previous early transfer agreement in which the property recipient wanted the Navy to achieve the milestone of the draft PP so that the regulatory agency and public comments could be known. That was the reason for the accelerated schedule, and it was difficult to meet. Since that previous early transfer schedule is no longer in place, Site 35 will return to the traditional schedule, which is more manageable. Mr. Humphreys asked if the \$40 million for in kind work includes Site 35 or if it includes only OU-2A and OU-2B. Mr. Macchiarella said that it does not include OU-2A and OU-2B. The \$40 million will be used by the developer and city to remediate all of the sites in Parcel 1, which are Sites 6, 7, 8, 16, and 35. If any money remains, it would be used for Parcel 2. Mr. Humphreys commented that areas east of the Seaplane Lagoon are still undefined and asked how the developer could estimate a cost for the area. Mr. Macchiarella said that this area was part of Parcel 3 which is not included in the early transfer foot-print. Mr. Leach asked if excavation has begun at Site 1 and if the RAB could observe the ongoing trenching activities at Site 1. Mr. Macchiarella replied that the RAB could not observe the site, due to site access and health and safety issues, but that the Navy will be taking videos and photos of each trench excavation to present at a RAB meeting.

Mr. Humphreys said he had raised the question of whether Fenton's reagent in the ISCO would mobilize radium. He suggested the Navy apply it to the excavated material from Site 1 to evaluate whether radium dissolves in the solution. Mr. Macchiarella said that the Navy has not considered that idea, but he would bring it up. Ms. Sweeney asked if construction has started on

the 39-unit housing area. Mr. Macchiarella said that is at FISCA, and the construction has not begun.

The meeting adjourned at 8:30 p.m.

ATTACHMENT A

**NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING AGENDA
September 6, 2007**

(One Page)

RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

SEPTEMBER 6, 2007, 6:30 PM

ALAMEDA POINT – BUILDING 1 – SUITE 140

COMMUNITY CONFERENCE ROOM

(FROM PARKING LOT ON W MIDWAY AVE, ENTER THROUGH MIDDLE WING)

<u>TIME</u>	<u>SUBJECT</u>	<u>PRESENTER</u>
6:30 - 6:45	Approval of Minutes	Mr. George Humphreys
6:45 - 7:00	Co-Chair Announcements	Co-Chairs
7:00 – 7:25	Basewide Installation Restoration Program Summary and Snapshot	Mr. Thomas Macchiarella
7:25 – 8:05	Site 32 (Northwestern Ordnance Storage Area) Feasibility Study Presentation	Ms. Frances Fadullon
8:05 – 8:15	BCT Activities	Ms. Dot Lofstrom
8:15 – 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 August 2007, distributed by George Humphreys, RAB Community Co-Chair (2 pages)
- B-2 Presentation on the Basewide Installation Restoration Program, presented by Thomas Macchiarella, BRAC PMO West, BEC, Navy Co-Chair (18 pages)
- B-3 Presentation on the Site 32 FS, presented by Francis Fadullon, BRAC PMO West and Dan Carroll (Kleinfelder – Bechtel team) (11 pages)

ATTACHMENT B-1

LIST OF REPORTS AND CORRESPONDENCE RECEIVED AUGUST 2007

(Two Pages)

Restoration Advisory Board
Documents and Correspondence Received
During August 2007

Documents

1. July 27, 2007, "Draft Final Remedial Investigation Report, IR Site 20 (Oakland Inner Harbor) and IR Site 24 (Pier Area), Alameda Point, Alameda, California", prepared by Battelle, Arcadis BBL, and Neptune & Company for BRAC Program Management Office West.
2. August 2, 2007, "2008 Draft Final Amendment to the Site Management Plan, Alameda Point, Alameda, California", prepared by BRAC Program Management Office West and submitted to U. S. EPA, Region IX. (Includes "Response to Regulatory Agency Comments on the Draft 2008 Amendment to the Site Management Plan).
3. August 14, 2007, "Final Soil Investigation Report for IR Site 31 Marina Village Housing, Alameda Point, Alameda, California", prepared by CDM Federal Programs Corporation under subcontract with Parajas & Associates, Inc. for BRAC Program Management Office West.
4. August 16, 2007, "Draft Final Site Inspection Report, Transfer Parcel EDC-17, Alameda Point, Alameda, California", Prepared by Bechtel Environmental Inc. for BRAC Program Management Office West
5. August 14, 2007, "Preliminary Remedial Design, Draft Remedial Action Work Plan (RD/RAWP) Installation Restoration Site 26, Alameda Point, Alameda, California", prepared by Innovative Technical Solutions, Inc. for BRAC Program Management Office West.
6. August 24, 2007, "Draft Final Site Inspection Report, Transfer Parcel EDC-12, Alameda Point, Alameda, California", prepared by Bechtel Environmental Inc. for BRAC Program Management Office West.
7. August 28, 2007, "Final Time-Critical Removal Action Work Plan Addendum (Exploratory Trenching) for Installation Restoration Sites 1, 2, and 32, Alameda Point, California", prepared by Tetrattech EC Inc. for BRAC Program Management Office West.
8. August 30, 2007, "Draft Final Site Inspection Report, Western Bayside and Breakwater Beach, Alameda Point, California", prepared by Battelle, Arcadis BBL, and Neptune & Company for BRAC Program Management Office West.

Correspondence

1. August 3, 2007, "Designation of Department of Toxic Substances Control, Remedial Project Manager", (Angela Singh), letter from Anthony J. Landis, P. E., DTSC to Mr. Thomas L. Macchiarella, BRAC Program Management Office West.

2. August 16, 2007, "Designation of San Francisco Bay Water Board Remedial Project Manager", (John West), from Mr. John E. Kaiser, Senior Engineering Geologist, S. F. Bay Regional Water Quality Control Board to Mr. Thomas L. Macchiarella, BRAC Program Management Office
West.

ATTACHMENT B-2

BASEWIDE INSTALLATION RESTORATION PROGRAM

(18 Pages)



Welcome

BRAC
PMO

Basewide Installation Restoration Program Summary & Snapshot

Thomas L. Macchiarella

Alameda Point BRAC Environmental Coordinator
BRAC Program Management Office West

Alameda Point RAB Meeting, September 06, 2007



Purpose

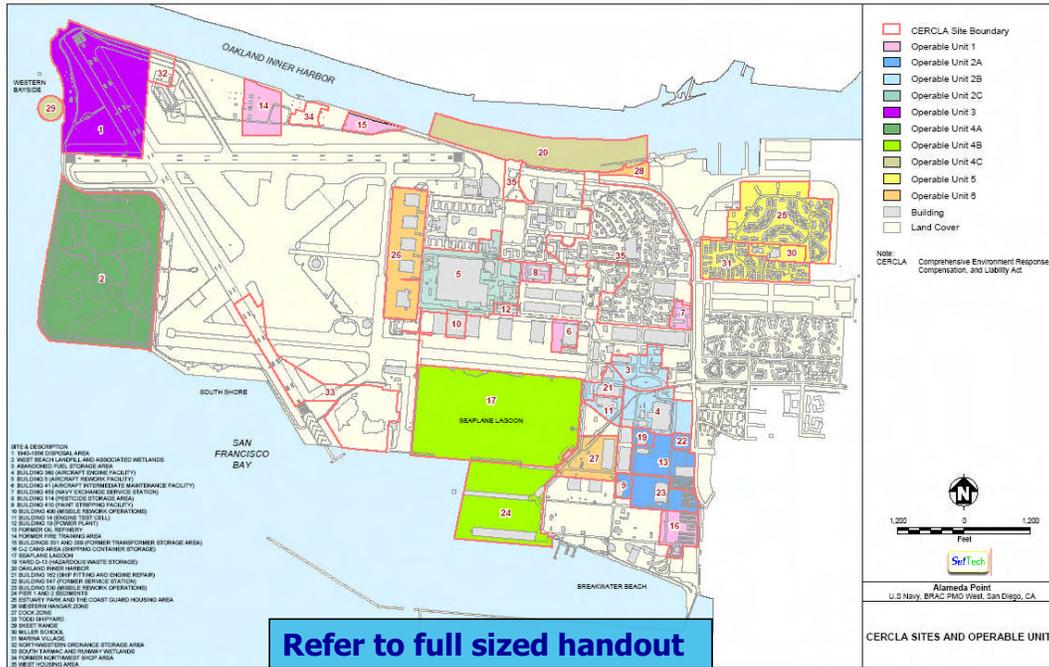
BRAC
PMO

***To summarize the status of the IR Program
and note the significant ongoing
activities at each Site***



Installation Restoration Program Map

**BRAC
PMO**

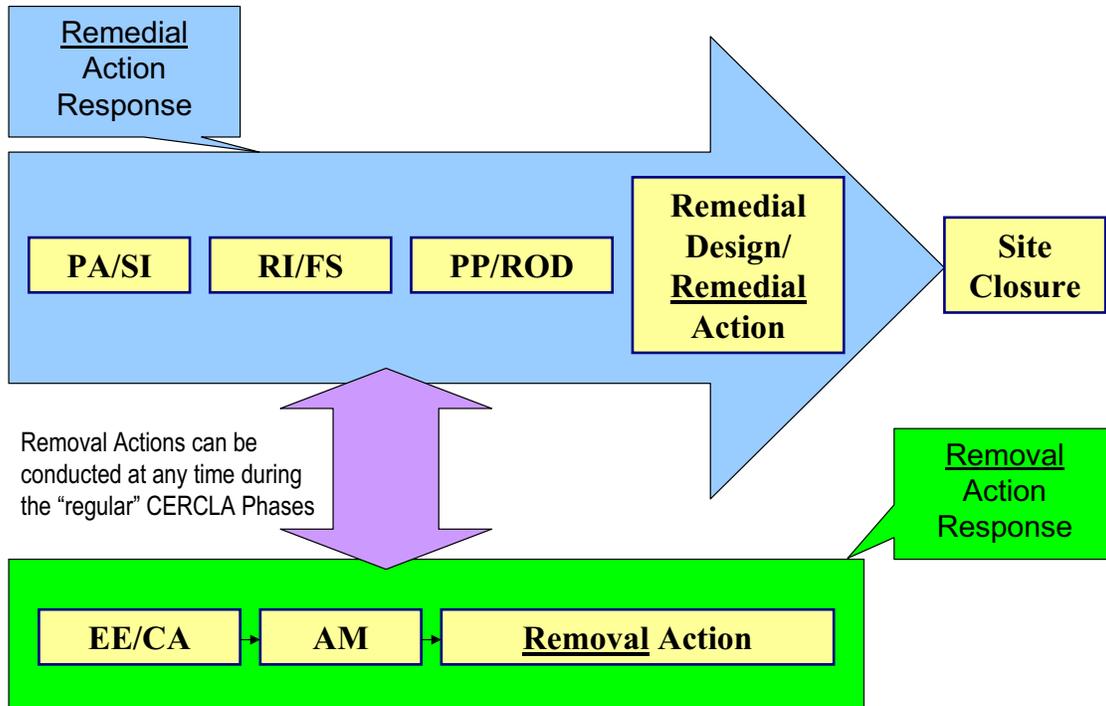


CERCLA Phases

**BRAC
PMO**

Preliminary Assessment (PA)
Site Inspection (SI)
Remedial Investigation (RI)
Feasibility Study (FS)
Proposed Plan (PP)
Record of Decision (ROD)
Remedial Design/Remedial Action Work Plan (RD/RAWP)
Remedial Action (RA)

CERCLA Response Actions



OU-1

BRAC
PMO

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **OU-1 is: Sites 6, 7, 8 and 16**
- **Sites 14 and 15 are also technically in OU-1, but are on separate schedules**
- **Site 6 – Aircraft Intermediate Maintenance Facility**
- **Site 7 – Navy Exchange Service Station**
- **Site 8 – Pesticide Storage Area**
- **Site 16 – C-2 Cans Area (Shipping Container Storage)**



OU-1 Cont'd

**BRAC
PMO**

- **Sites 6, 7, 8 and 16 are in the Draft Final ROD Stage**
- **Next Milestone: Draft Remedial Design/Remedial Action Work Plan (June 2008)**
- **Meanwhile, the Remedial Design Datagaps Investigation is underway**
- **Anticipated Future Land Use:**
 - **6 and 16: Commercial/Industrial**
 - **7 and 8: Residential**



OU-2A

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **OU-2A is Sites 9, 13, 19, 22, 23**
 - Site 9: Paint Stripping Facility**
 - Site 13: Former Oil Refinery**
 - Site 19: Yard D-13 (Hazardous Waste Storage)**
 - Site 22: Former Service Station**
 - Site 23: Missile Rework Operations**



OU-2A Cont'd

BRAC
PMO

- **Current Phase: FS**
- **Next milestone: Revised Draft FS (Dec 2007)**
- **Meanwhile, a Datagaps Investigation is about to commence and the Tarry Refinery Waste (TRW) Investigation too (using SCAPS technology)**
- **Anticipated Future Land Use: Commercial/Industrial**



OU-2B

BRAC
PMO

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **OU-2B is Sites 3, 4, 11, 21**
 - Site 3: Abandoned Fuel Storage Area**
 - Site 4: Aircraft Engine Facility (Bldg 360)**
 - Site 11: Building 14 (Engine Test Cell)**
 - Site 21: Ship Fitting and Engine Repair (Bldg 162)**
- **OU-2B is largely characterized by a groundwater plume of solvents (e.g., trichloroethylene)**



OU-2B Cont'd

**BRAC
PMO**

- **Current Stage: FS**
- **Next Milestone: Revised Draft FS Report (June 2008)**
- **Meanwhile,**
 - **Datagaps Investigation is about to commence**
 - **A Zero Valent Iron (ZVI) Bench Test and Pilot Test planning are underway**
 - **Six Phase Heating**
 - **Anticipated Future Land Use: Commercial/Industrial**



OU-2C

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
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- **OU-2C is Sites 5, 10, 12**
 - **Site 5: Bldg 5 Aircraft Rework Facility**
 - **Site 10: Bldg 400 Missile Rework Operations**
 - **Site 12: Bldg 10 Power Plant**
- **OU-2C is mainly characterized by Bldg 5 which overlies 3 solvent plumes**



OU-2C cont'd

**BRAC
PMO**

- **Current Phase: RI**
- **Next Milestone: Draft Supplemental RI Report (May 2008)**
- **Meanwhile:**
 - **Six Phase Heating Underway**
 - **Stormdrain/sewer removal (radiological impacted) imminent**
- **Anticipated Future Land Use: Commercial/Industrial**



OU-5 Groundwater

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **OU-5 is the Groundwater beneath Sites 25, 30, 31, and portions of Fleet Industrial Supply Center Oakland, Alameda Annex (FISCA)**
- **Contaminants of Concern are benzene & naphthalene**
- **Selected Remedy: In-situ Biosparging, Soil Vapor Extraction, Nutrient Enhancement (as necessary), Monitored Natural Attenuation and ICs**



OU-5 Continued

**BRAC
PMO**

- **OU-5 is in the Remedial Design Stage**
- **Next Milestone: Draft Remedial Design/Remedial Action Work Plan (April 2008)**
- **Meanwhile, a pilot test is underway. Remedial Design Datagaps Investigation fieldwork recently completed.**
- **Full-Scale Remediation/Construction planned to begin in Sep 2008**
- **Remedial Goals are equal to drinking water MCLs**
- **Anticipated Future Land Use: Residential**



Site 1

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
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- **Site 1 is the 1943-1956 Disposal Area**
- **Current Phase: ROD**
- **Next Milestone: Draft Final ROD (Oct 2007), pending outcome of trenching project**
- **Meanwhile:**
 - **Radiological and Lead Removal Action nearing completion**
 - **Trenching project to check previous assumptions is underway**
- **Anticipated Future Land Use: Recreational**



Site 2

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 2 is the West Beach Landfill**
- **Current Stage: FS**
- **Next Milestone: Final FS**
- **Meanwhile, the Radiological TCRA is nearing completion (same project as at Sites 1 and 32)**
- **Anticipated Future Land Use: Wildlife Refuge**



Site 14

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 14 is the Former Fire Training Area**
- **Current Phase: Remedial Design**
- **Next Milestone: Draft Remedial Design/Remedial Action Work Plan (Dec 2007)**
- **Meanwhile, ISCO Pilot Test in planning**
- **Selected Remedy**
 - ISCO
 - ICs
- **Anticipated Future Land Use: Recreational**



Sites 15 & 29

**BRAC
PMO**

SITES CLOSED !

- **Site 15 is the Former Transformer Storage Area**
- **Site 29 is the former Skeet Range**
- **Each site is designated as "No Further Action"**
 - **Site 15 NFA ROD completed May 2006**
 - **Site 29 NFA ROD completed Sep 2005**



Site 17

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
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- **Site 17 is the sediments of the Seaplane Lagoon**
- **Current Phase: RD**
- **Next Milestone: Remedial Design/Remedial Action Workplan (Sep 2007)**
- **Selected Remedy: Dredging in the Northwest and Northeast Corners**
- **Contaminants of Concern: PCBs, DDx, Cadmium**
- **Meanwhile:**
 - **Upcoming removal action for the removal of debris piles along north side of Lagoon**



Sites 20 & 24

**BRAC
PMO**

- **Site 20 is the Oakland Inner Harbor sediments**
 - **Current Phase: Proposed Plan**
 - **Next Milestone: Proposed Plan to public (Feb 2008)**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 24 is the Pier Area sediments**
 - **Current Phase: FS**
 - **Next Milestone: Draft FS (Dec 2007)**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
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Site 25

**BRAC
PMO**

- **Site 25 is the North Housing Area (formerly Coast Guard Housing)**
- **Current Phase: ROD**
- **Next Milestone: Final ROD (Sep 2007)**
- **Anticipated Future Land Use: Residential**
- **Selected Remedy: ICs (in plain English):**
 - **No digging deeper than 4 feet below current grade without specific permission (including a soil management plan and depending on the circumstance, an enforceable regulatory agreement. Exceptions apply.)**
 - **No major site work such as removal of hardscape or buildings without specific permission (including a soil management plan and an enforceable agreement. Exceptions apply.)**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
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Site 26

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
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- **Site 26 is the Western Hangar Zone**
- **Current Phase: RD**
- **Next Milestone: Draft Final Remedial Design/Remedial Action Workplan (Nov 2007)**
- **Selected Remedy: ISCO, ICs**
- **Anticipated Future Use: Commercial/Industrial**



Site 27

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 27 is the Dock Zone**
- **Current Phase: ROD**
- **Next Milestone: Draft Final ROD (Sep 2007)**
- **Site is characterized by a solvent plume in groundwater**
- **Selected Alternative: ISCO, ICs**
- **Anticipated Future Land Use: Commercial/Industrial, Small portion may be used for Residential Use**



Site 28

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
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- **Site 28 is the Navy owned portion of the Former Todd Shipyard**
- **Current Phase: ROD**
- **Next Milestone: Final ROD (Sep 2007)**
- **Remedy includes: Soil excavation, Copper Immobilization, Groundwater Monitoring, and ICs**
- **Anticipated Future Land Use: Recreational**



Site 30

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 30 is the Island High School and Woodstock Child Development Center**
- **Current Phase: RI**
- **Next Milestone: Draft RI Addendum (12/07)**
- **Anticipated Future Land Use: School**



Site 31

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 31 is the Marina Village Housing Area**
- **Current Phase: PP**
- **Next Milestone: Proposed Plan to Public for review (Apr 08)**
- **Anticipated Future Land Use: Residential**



Site 32

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 32 is the Northwestern Ordnance Storage Area**
- **Current Phase: FS**
- **Next Milestone: Draft Final FS (Nov 2007)**
- **Meanwhile, the Radiological TCRA is nearing completion (same project as at Sites 1 and 2)**
- **FS is for groundwater. Soil was recommended for NFA in the RI.**
- **Anticipated Future Land Use: Recreational**



Site 33

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 33 is the South Tarmac and Runway Wetlands**
- **Current Phase: SI**
- **Next Milestone: Draft SI (Jan 2008)**
- **Site 33 will be a portion of the overall FED SI Report**
- **Anticipated Future Use: Open Space**



Site 34

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 34 is the Former Northwest Shop Area**
- **Current Phase: RI**
- **Next Milestone: Draft RI (Sep 2007)**
- **Anticipated Future Use: Recreational**



Site 35

**BRAC
PMO**

PA	SI	RI	FS	PP	ROD	RD/RAWP	RA
----	----	----	----	----	-----	---------	----

- **Site 35 is the Areas of Concern in EDC-5 footprint**
- **Current Phase: PP**
- **Next Milestone: Proposed Plan to public (12-2007)**
- **Anticipated Future Use: Residential**



Other Significant or Noteworthy Ongoing Projects

**BRAC
PMO**

- **TPH Corrective Action Areas and TPH Program (RAB presentations annually). See summary handout.**
- **HRA Follow-on Surveys, Final Status Surveys**
- **Basewide Groundwater Monitoring**

CAA Summary Table
Alameda Point

CAA	Associated IR Site	Associated OU	Petroleum Contaminant
1	2	4A	diesel
2	14	1	fuel, diesel
3A	3, 21	2B	JP5
3B	3	2B	gasoline, motor oil
3C	3, 4	2B	av gas
4A	4	2B	TPH
4B	4	2B	jet fuel
4C	22	2A	gasoline (free and dissolved phase)
5A	5	2C	TPH
5B	5	2C	TPH
5C	10	2C	TPH
6	Slightly North of Site 26	Slightly North of OU 6	jet fuel (free and dissolved phase)
7	7	1	gasoline (free and dissolved), MTBE
8	8	1	TPH
9A	N/A	N/A	TPH
9B	16	1	TPH
10	N/A	N/A	TPH
11A	11	2B	fuel (dissolved)
11B	11, 27	2B, 6	fuel (dissolved)
12	N/A	N/A	diesel, motor oil
13 (Bldg. 397)	13	2A	jet fuel (free and dissolved phase)
13 (Bldg. 530)	23	2A	jet fuel (free and dissolved phase)
14	N/A	N/A	diesel, motor oil
A	N/A	N/A	fuel
B	5	2C	fuel
C	26	6	AVGAS (free phase)
(Bldg. 410)	9	2A	jet fuel (free and dissolved phase)
UST (least tern area)	-	-	diesel
Gas Station (PBC-1)	-	-	(investigation being planned)

ATTACHMENT B-3

SITE 32 FS

(11 Pages)



Welcome

**BRAC
PMO**

Draft Feasibility Study for IR Site 32, Northwest Ordnance Storage Area, Alameda Point

Frances Fadullon
Remedial Project Manager
BRAC Program Management Office

Dan Carroll
Kleinfelder (Bechtel team)

RAB Meeting, September 06, 2007



Agenda

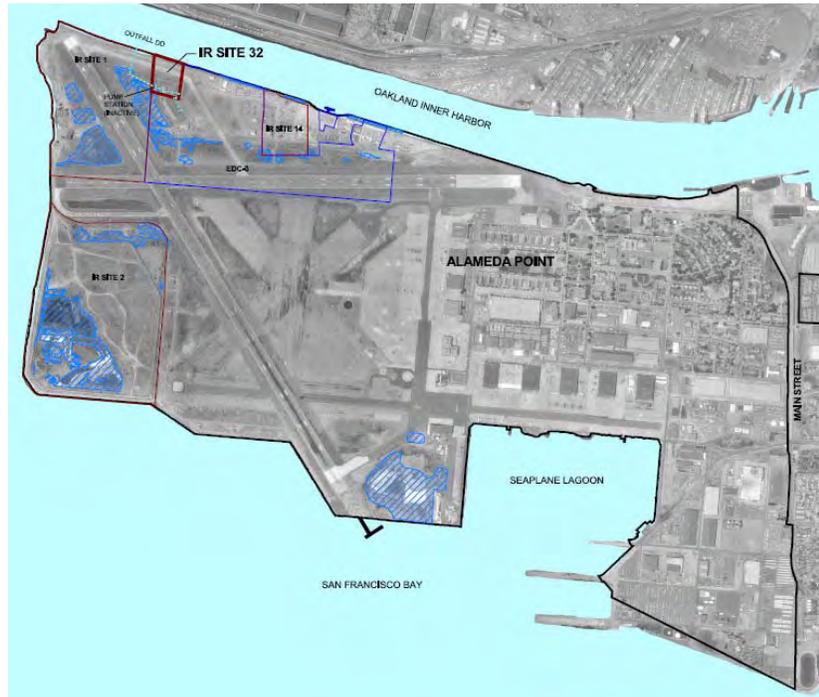
**BRAC
PMO**

- **Background and site history**
- **Remedial investigation summary**
- **Feasibility study outline**
- **Summary of alternatives**
- **Comparison of alternatives**
- **Next steps**



Site Location

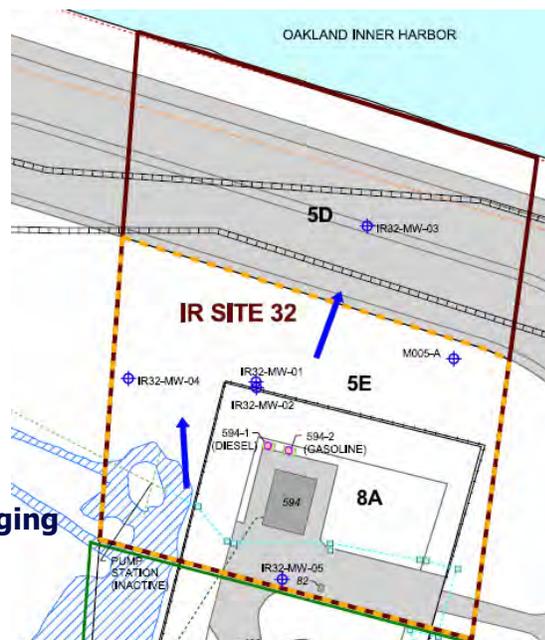
**BRAC
PMO**



Site Background and History

**BRAC
PMO**

- **5.8 acres total**
- **Two 1,000-gallon fuel USTs removed in 1994**
- **Historic structure (Alameda Training Wall)**
- **Two buildings built in 1977, neither used for ordnance storage**
- **Site used for equipment staging and storage prior to 1953**





Historic Aerial Photos

**BRAC
PMO**

Equipment staging and storage



Taxiway and graded site



Recent Site Photos

**BRAC
PMO**

View of northern portion of site looking west





Recent Site Photos

BRAC
PMO

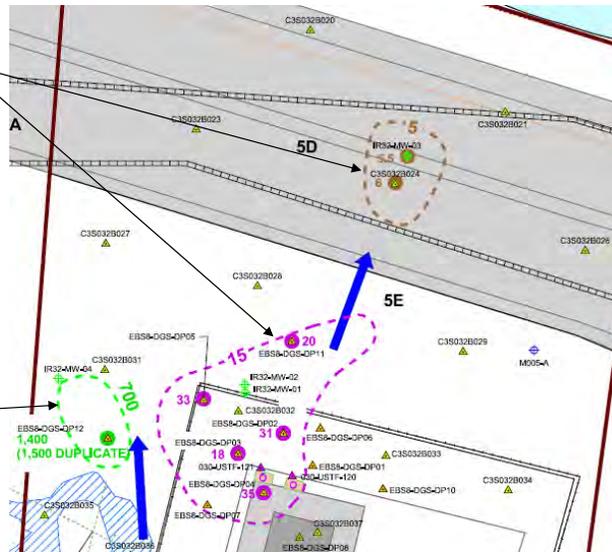
View of Buildings 594 and 82 looking west



RI Summary - Groundwater

BRAC
PMO

- **Trichloroethene and vinyl chloride primary chemicals of concern for indoor air (residential)**
 - Apparent source near Building 594
 - Anaerobic degradation appears to be occurring
- **Chlorobenzene area**





Current and Future Site Uses

**BRAC
PMO**

- **No current site use (open space, partially paved)**
- **No future residential use planned, and not likely**
- **Planned future recreational use that may include a golf course and shoreline walking path**



Human Health Risk Assessment

**BRAC
PMO**

- **Hypothetical residential receptor - risk at or slightly above NCP risk management range due to indoor air pathway**
 - **U.S. EPA: 1×10^{-4} , Cal EPA 6×10^{-4}**
 - **Hazard Index above 1 (chlorobenzene HQ=2)**
- **Other exposure scenarios: Cancer risk within NCP risk management range and HI below 1 for all other scenarios (office worker, construction worker, recreational receptor, outdoor worker)**



Remedial Investigation Summary

**BRAC
PMO**

- **No further action for soil**
- **No explosives or ordnance found or stored onsite**
- **Ecological risk acceptable for terrestrial and aquatic receptors**
- **Removal action for radiological anomalies done separately (ongoing TCRA completed October 2007)**
- **Groundwater not a drinking water source**
- **Potentially unacceptable risk under residential scenario for VOCs in groundwater (indoor air pathway)**
- **FS was recommended for groundwater**



FS - General Response Objectives

**BRAC
PMO**

- **Protect beneficial uses of groundwater, surface water**
- **Protect human health by preventing unacceptable exposure to vapors originating from VOCs in groundwater until the Navy and agencies agree there is no longer unacceptable risk**
- **Prevent or minimize impacts to designated historic structure (Alameda Training Wall) and seasonal wetlands to the extent possible in the context of the CERCLA remedial action**



IC Termination Criteria

**BRAC
PMO**

- **IR Site 32 does not pose unacceptable risk for current and anticipated future land uses, so no remediation goals were developed**
- **Institutional controls (ICs) are included in alternatives to prohibit residential use**
- **Once IC termination criteria are met, unrestricted use is achieved**

Chemical	IC Termination Criterion	Basis
TCE	5 µg/L	Risk-based value protective of indoor air pathway
Vinyl Chloride	15 µg/L	Adopted IC TC used at IR Site 14 that corresponds to a U.S. EPA cancer risk of 1×10^{-6} for the indoor air pathway to a hypothetical residential receptor
Chlorobenzene	700 µg/L	Risk-based value corresponding to HQ of 1



Retained Alternatives

**BRAC
PMO**

Alternative Number	Chlorobenzene area	TCE and vinyl chloride areas
1	no action	no action
2	ICs	ICs
3	MNA and ICs	MNA and ICs
4	Anaerobic ISB and ICs	Anaerobic ISB and ICs
5	ISCO and ICs	Anaerobic ISB and ICs
6	ISCO and ICs	ISCO and ICs

Alternatives 3 through 6 include ICs, installation of monitoring wells, and additional groundwater investigation.



Alternative 2 - ICs

**BRAC
PMO**

- **Similar ICs for all alternatives except Alt 1**
- **Prohibit residential use until IC termination criteria are met**
- **Prohibit alteration, disturbance, or removal of groundwater monitoring and remediation systems**
- **Prohibit extraction of groundwater and installation of new wells by a nonfederal entity**



Alternative 3 – MNA and ICs

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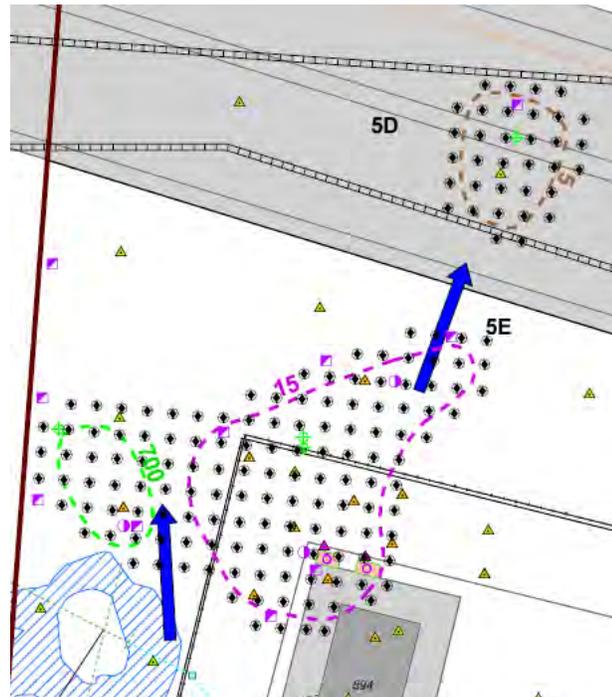
- **Same ICs as Alternative 2**
- **MNA program is reviewed periodically and optimized based on monitoring results**
- **30-year duration assumed for FS purposes (shorter duration is probable)**



Alternative 4 – Enhanced Anaerobic ISB and ICs

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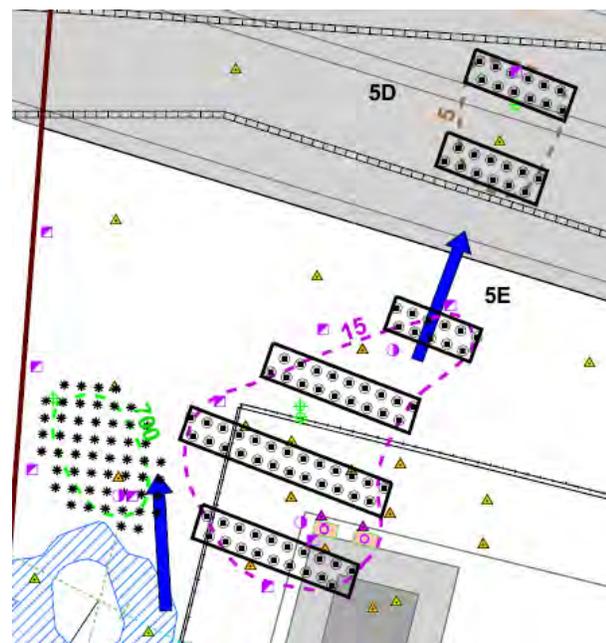
- Chlorobenzene can degrade aerobically or anaerobically
- Same ISB enhancement for each VOC area
- ~170 injection points
- Assumed 4-year duration



Alternative 5 – ISCO, Enhanced Anaerobic ISB and ICs

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- ~60 ISCO points for chlorobenzene area
- ISCO product compatible with nearby ISB activities
- ~100 injection points for emulsified vegetable oil in barrier layout
- Final treatment product selections in RD stage
- Assumed 6-year duration

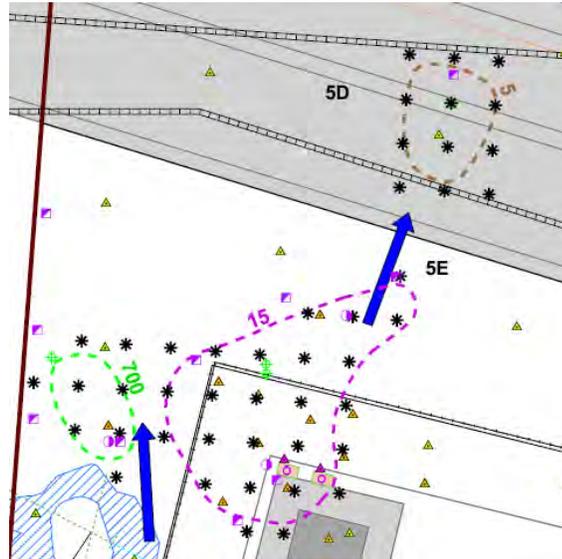




Alternative 6 – ISCO and ICs

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- ~45 ISCO injection points for this alternative
- Same process successful at other Alameda sites, planned for Site 27
- Final ISCO details developed in the RD stage



Comparative Analysis

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NCP Criteria	ALTERNATIVE					
	1 No Action	2 ICs	3 MNA and ICs	4 Enhanced Anaerobic ISB and ICs	5 ISCO, Enhanced Anaerobic ISB, and ICs	6 ISCO and ICs
Overall protectiveness	Yes	Yes	Yes	Yes	Yes	Yes
Compliance with ARARs	Yes	Yes	Yes	Yes	Yes	Yes
Long-term effectiveness and permanence	○	◐	◑	◑	●	●
Reduction of toxicity, mobility, or volume through treatment	○	○	○	◑	◑	●
Short-term effectiveness	○	●	●	●	●	◑
Implementability	●	●	●	◑	◑	◑
Cost (\$M)	●	◐	○	◑	○	◑
	0	0.60	1.2	0.93	1.2	0.95

○ = low
◐ = medium
● = high



Next Steps

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- Draft FS Report – 6/07
- Agency and RAB comments - September 17, 2007
- Draft Final FS Report – November 2007
- Final FS Report – December 2007
- Proposed Plan to Public – April 2008
- Additional Groundwater Sampling - Fall 2007



Questions and Discussion

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