

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

November 2, 2006

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
Andrew Baughman	BRAC PMO-West, Remedial Project Manager (RPM)
Doug Biggs	Alameda Point Collaborative (APC) Representative
Neil Coe	RAB
Jamie Eby	Sullivan International Group (Sullivan)
Leora Feeney	Golden Gate Audubon Society
Jamie Hamm	Sullivan
Craig Hunter	Tetra Tech EM Inc. (Tetra Tech)
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)
Samantha Murray	Golden Gate Audubon Society
June Oberdorfer	Golden Gate Audubon Society
Mark Ripperda	U.S. Environmental Protection Agency (EPA)
Peter Russell	Russell Resources, Inc./City of Alameda
Erich Simon	Water Board

Bill Smith	RAB
Christy Smith	U.S. Fish and Wildlife Service (USFWS)
Dale Smith	RAB/Golden Gate Audubon Society
Peter Strauss	RAB advisor for the technical assistance for public participation (TAPP) grant
Jean Sweeney	RAB
Jim Sweeney	RAB
Michael John Torrey	RAB/Housing Authority of the City
Travis Williamson	Battelle

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. and asked for comments on the minutes from the RAB meeting held on October 5, 2006.

Mr. Humphreys provided the following comments:

- Page 4 of 9, last paragraph, second sentence, the word “magnetometer” will be replaced with “radium meter.”
- Page 6 of 9, fourth paragraph, first sentence will be revised to read, “The preferred alternative for each area is as follows: Area 1 – S1-4a (excavation and off-site disposal for Area 1b, a soil cover for Area 1a, a radiological and MPPEH sweep, WMP, and ICs); Area 2....”
- Page 7 of 9, fourth paragraph, fourth sentence, the phrase “on the edge of the plume” will be replaced with “in monitoring wells.”
- Page 7 of 9, fourth paragraph, the statement “...migrating into the bay for the last 8 years” will be revised to read “...migrating into the bay for at least the last 8 years.”
- Page 7 of 9, last paragraph, first and second sentences will be revised to read, “Mr. Humphreys proposed that the Navy design a clay soil cap tied into a perimeter slurry cutoff wall around this area to detain groundwater while remediation is under way or if ISCO (*in situ chemical oxidation*) does not achieve remediation goals. He asked if the treatment remedy will cause the radium at the site to be released into the groundwater.”

The minutes were approved as amended.

II. Co-Chair Announcements

Mr. Humphreys distributed the list of documents the RAB received during October 2006 (Attachment B-1). Noteworthy documents received include the annual basewide groundwater monitoring report.

Mr. Humphreys noted that absences are excused for Mr. Kurt Peterson and Mr. Bert Morgan for this RAB meeting.

Mr. Macchiarella distributed a list of significant Navy Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) documents planned for distribution in November and December 2006 (Attachment B-2). He added that the Navy and the regulatory agencies signed the record of decision (ROD) for the Seaplane Lagoon (Site 17) during the last week of October. An announcement documenting this achievement will appear in the local newspaper. He added that the City of Alameda has temporarily rearranged the information repository at Building 1 while the city moves offices and will reorganize it after completion of the move. He continued that the administrative record office in San Diego is currently converting the entire administration record for Alameda Point into electronic format. These electronic reports will likely be stored on DTSC or Water Board systems and possibly on a Navy website.

III. Site 2 Feasibility Study

Mr. Humphreys introduced Mr. Williamson of Battelle to present the Installation Restoration (IR) Site 2 feasibility study (FS). A handout of the presentation is included as Attachment B-3. The presentation included a timeline of events associated with the report, an outline of the draft FS, the remedial action objectives (RAOs) and the conceptual remediation footprint. A review of the potential remediation technologies, the screening process and a detailed analysis of remedial alternatives was also presented. Mr. Williamson identified the location of IR Site 2 on a map.

The final remedial investigation (RI) report for IR Site 2 was issued on June 23, 2006. The report was followed by meetings with the regulatory agencies in July 2006 to discuss key components of the draft FS report. The draft FS report was subsequently issued on September 20, 2006, with a few replacement pages mailed out on September 27, 2006, and comments are due from the agencies on November 20, 2006.

The FS report is divided into six sections, which include an introduction, site setting and description, RAOs, remediation technologies, remedial alternatives, and summary and conclusions. The RAOs for Site 2 include protection of human receptors, as represented by a park ranger/tour guide, from exposure to chemicals of concern (COCs) through direct contact with, or incidental ingestion of, surface soil in the landfill portion of the site. Protection of sensitive bird species that forage in the wetland, as represented by the least sandpiper, from exposure to COCs in surface soil and associated food items in the wetland portion of the site is also an RAO. Protection of plant and invertebrate communities in the upland and wetland portion of the site and beneficial uses of surface water in San Francisco Bay from the potential discharge of site groundwater that contains COCs also are RAOs.

Risk-based concentrations of contaminants for human health and ecological receptors at the site were shown on Slide 6. The COCs at the site for surface soil were considered in developing the conceptual remediation footprint. COCs in the upland/landfill area include cadmium, chromium, lead, molybdenum, polychlorinated biphenyls (PCBs), benzo(a)pyrene, radium 226, and DDx, which is the sum of the 2,4- and 4,4-isomers of dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethene (DDE), and dichlorodiphenyldichloroethane (DDD). COCs in the wetland area include lead, zinc, and radium 226. Slide 8 presented a map of the conceptual remediation footprint.

Remediation technologies proposed at the site for soil include no action and institutional controls (ICs). Non-removal or in situ actions include a soil cover, engineered cap, in situ treatment, and monitoring. The removal or ex situ actions include excavation, ex situ treatment, and disposal. Proposed remediation technologies for groundwater include no action and ICs. Non-removal or in situ actions include monitoring, monitored natural attenuation (MNA), in situ treatment, a hydraulic barrier, and an in situ

treatment barrier. The FS also evaluated removal and ex situ actions that include extraction, ex situ treatment, and disposal. Mr. Humphreys asked if the Navy evaluated in situ chemical oxidation at Site 2, as it was considered at Site 1. Mr. Williamson responded that the Navy did not consider in situ chemical oxidation as an alternative, since the groundwater contaminants at each site were different. Chlorinated solvents were found at Site 1. Mr. Williamson said that there were no VOCs or benzene at site 2, but that PCBs were present. Conversely, groundwater at Site 2 is contaminated with PCBs and pesticides, among other constituents.

The remediation technologies proposed for soil and groundwater were evaluated on the basis of effectiveness, implementability, and cost. Remediation technologies for soil carried forward in the FS include no action, ICs, soil cover, an engineered cap, monitoring, excavation, and disposal. Remediation technologies carried forward for groundwater in the FS include no action, ICs, monitoring, MNA, a hydraulic barrier, extraction, and ex situ treatment.

Preliminary remedial alternatives for soil include 1 – no action; 2 – soil cover, engineering and institutional controls, and monitoring; 3 – engineered cap, engineering and institutional controls, and monitoring; 4 – focused removal and backfill, dewatering, disposal, soil cover, engineering and institutional controls, and monitoring; 5 – focused removal and backfill, dewatering, disposal, engineered cap, engineering and institutional controls, and monitoring; and 6 – complete removal and backfill, dewatering, engineering and institutional controls, disposal, and monitoring. Mr. Coe asked if the engineered cap would use compacted or loose fill. Mr. Williamson said that these decisions will be made in the design phase of the project. Mr. Humphreys asked if the cap would be impermeable. Mr. Williamson responded that it would not be completely impermeable. Mr. Coe noted that these factors need to be considered if the Navy chooses a cap. Mr. Williamson agreed, but said that these issues would be discussed in the remedial design phase. Slides 12 and 13 showed charts of these preliminary alternatives comparing the effectiveness, implementability, and cost evaluations and noting when the alternatives were carried through in the FS.

The preliminary alternatives identified as potential remedies for groundwater at Site 2 include 1 – no action, 2 – MNA and engineering and institutional controls, and 3 – hydraulic barrier, pump and treat, disposal, MNA, and engineering and institutional controls. Slides 15 and 16 showed tables that compared each of these alternatives based on effectiveness, implementability, and cost.

Remedial alternatives evaluated in the FS for soil include Alternatives 1, 2, and 6. Alternative 1 is the required “no action” alternative. Alternative 2 applies a 2-foot thick soil layer over approximately 54 acres, covering the entire landfill area and two transitional areas between the landfill and the wetlands. It would use engineering controls that would limit access and require silt fences. The ICs would include land use controls to prevent excavation over the remedial footprint and other specified portions of the site. Monitoring at the site would be applied during construction activities and would include long-term monitoring of the soil cover and the ICs. Alternative 6 involves complete excavation of the entire landfill area to the water table and backfilling the area with clean fill. The site would be mechanically dewatered, and the water would be treated prior to its discharge into the bay. The dewatered material would be disposed off site. Engineering controls would include shoring devices, access controls, and silt fences. ICs on the property would be applied to portions of the site and would prevent excavation and other impact to the cover. Monitoring would be applied during construction activities and to evaluate the long-term integrity of the ICs.

Slide 19 showed a map of the footprint used for soil Alternative 2, which is slightly larger than the footprint for Alternative 6. Mr. Humphreys asked about the radioactive waste sites near the top of the maps and outside of the footprints. Mr. Williamson noted that these sites would be addressed in the proposed time-critical removal action (TCRA) but he did not believe that solvents had been detected in

soil or groundwater at these locations. Slide 20 showed a ranking table of the alternatives retained for soil compared with the threshold and balancing criteria.

Remedial alternatives carried through for groundwater include Alternative 1 – no action, Alternative 2 – MNA with engineering and institutional controls, and Alternative 3 –hydraulic barrier, pump and treat system, disposal, MNA, and engineering and institutional controls. Under Alternative 2, MNA would allow the contaminants in the first water bearing zone (FWBZ) to naturally degrade. The engineering controls would ensure protection of the groundwater monitoring well network. ICs would prevent installation of wells for any purpose other than monitoring and control the use of the groundwater. There would also be long-term monitoring of groundwater at the site. Alternative 3 includes a hydraulic barrier that would surround the landfill portion of the site and would be constructed of impermeable material. The pump-and-treat system would be a network of extraction wells to relieve the hydraulic pressure behind the barrier. The solids generated from the pump-and-treat system would be transported off-site for disposal at a permitted facility. MNA would allow contaminants in the FWBZ to degrade, and engineering controls would include shoring devices, access controls, silt fences, and protection for the groundwater monitoring well network. ICs would be applied over portions of the slurry wall or the entire site and would prevent excavation, installation of wells, and use of groundwater. Monitoring would occur during construction, address the integrity of the ICs, and be performed for groundwater. Slide 23 showed maps of the footprints for Alternatives 2 and 3. The map of Alternative 3 also showed the location of the proposed slurry wall. Slide 24 was a table that showed the ranking of the alternatives retained for groundwater compared with threshold and balancing criteria.

The recommended remediation approach for IR Site 2 is Alternative 2 for soil and Alternative 2 for groundwater. Slide 26 showed maps of the two footprints for soil and groundwater. Some of the additional considerations for the site include geotechnical and seismic stability studies. These studies would assess potential discharge of waste from the site through liquefaction or slope instability. Potential remedies include gravity walls, stone columns, and earthquake drains. Additionally, the TCRA would address radium 226 at the site and would prevent ingestion of, dermal contact with, or inhalation of radiological anomalies at concentrations that exceed background at the site. He noted that radium 226 is driving risk at the site, and that the TCRA was designed to eliminate this risk.

Ms. Smith asked if data obtained at China Camp State Park were used to represent background chemical concentrations. Mr. Williamson responded that the China Camp data were used for the wetland areas but not at the upland areas. Ms. Smith noted that the document indicates that cost plays a small role in selecting the alternative, but that the presentation implies that cost has a significant role in choosing the preferred alternative. She suggested changing the language so the presentation and the report do not conflict. Ms. Smith continued that she understands that the FS is not intended to select a preferred alternative, which instead is chosen in the proposed plan (PP). The FS is intended only to show how the alternatives rank against each other. She opposes that this document does not follow the protocol for FS reports. Mr. Macchiarella responded that FSes often stop short of recommending a preferred alternative and this has been the historical approach for FS reports at Alameda Point. Sometimes FS reports do recommend a preferred alternative. While this Site 2 report does not recommend or select the preferred remedy it does call out that EPA's presumptive remedy approach would achieve the remedial action objectives.

Ms. Sweeney asked Mr. Williamson to explain earthquake drains. Mr. Williamson said that the Bay Bridge construction project uses earthquake drains, but he is not familiar enough with the technology to explain the particulars.

Mr. Leach asked which of the six alternatives for soil best describes restoration. Mr. Macchiarella noted that Mr. Leach submitted a memo to the RAB earlier this evening that included a definition of restoration

(Attachment B-4). Mr. Leach added that he understood remediation to be a step toward a cure rather than isolation. He understands that his role as part of the RAB is to restore the base to its natural condition or as near as possible. Mr. Macchiarella said that the Navy's goal is to follow the installation restoration program under CERCLA, which does not necessarily mean that the land must be returned to pristine conditions. Mr. Leach noted that his calculations for removing 8 feet of soil over the landfill would result in 32 barges for soil removal. Based on this amount, the Navy's cost would be \$10 million a day. He thinks that people who are in this type of business would do the job a lot cheaper.

IV. Observations on Site 1 Proposed Plan

Mr. Humphreys said that the RAB focus group for Site 1 met twice with Mr. Strauss to review and refine his comments. Mr. Strauss will be making a presentation on these comments. A copy of the presentation is included as Attachment B-5. Mr. Humphreys thinks that the RAB should meet with Mr. Strauss once more to understand his final comments.

Mr. Strauss introduced himself and noted that his task was to review the PP for Site 1 and help the RAB develop comments on the document. He commented that this process has been inefficient because he was brought into the process at a late date without any previous knowledge of the site. He noted that he has tried to provide broad comments on the PP. Mr. Strauss divided his comments into data gaps, scope, soil, ecological risk, groundwater, radiological characterization cleanup, burn area, human risk, cap design, applicable or relevant and appropriate requirements (ARARs), range cleanup, and ICs.

Slide 3 showed a map of the site that was used in the PP; Mr. Strauss claimed that this map is confusing and hard to read. Mr. Strauss recommended converting this PP to an interim PP. He agrees with actions in the PP including excavation and removal of the burn area, removal of all radium-contaminated wastes from Areas 3, 5, and 1b, and removal of the berm from the firing range.

Data gaps are presented in the final section of the FS. However, resolution of these data gaps is not addressed in the PP. These data gaps should be resolved before the record of decision (ROD) is signed. The most important of these data gaps includes analysis of groundwater in the burn area for dioxins/furans when the area is excavated. He also noted that a geophysical survey of the landfill is needed to define its boundaries. Also needed are a radiological survey of the riprap slope areas, a wetlands evaluation, analysis of 1,4-dioxane in groundwater, assessment of impacts to the waste disposal area, and an analysis of explosive constituents in groundwater.

The PP does not cover the contamination that may have emanated from Site 1 into the San Francisco Bay and the Oakland Inner Harbor. The PP should include these areas in the scope of the remedy. He noted that a sediment work group is currently assessing contaminant concentrations in the sediments but that this study is outside of the FS and he cannot comment on it.

His assessment noted that the characterization of the volatile organic compound (VOC) plume is incomplete. He is also concerned that the remedy may release other contaminants such as radium and metals into the groundwater. He recommends that a network of "guard wells," which are extraction wells at the downstream boundary of the treatment zone, and "sentinel wells," which are monitoring wells to ensure that the guard wells are capturing released contaminants, be developed and included in the plan. He also recommends that the Navy does not rely on MNA as a major role in the groundwater remedy.

Slide 9 depicted a table showing background concentrations for four different contaminants in soil and compares them to high and low threshold reference values for concentrations in the salt marsh at Moffett Field. He was struck by the higher cleanup goal concentrations of DDT as compared with the reference values from Moffett Field.

He said that there has not been a full survey to identify special status species at Alameda Point. He noted that there are rare and endangered special status species 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, the salt marsh wandering shrew, the great blue heron, and the clapper rail. Additionally, these species should be considered in the ecological risk assessment calculations.

He noted that little attention has been paid in the radiological characterization and cleanup section of the PP to how radionuclides can be mobilized by changing environmental conditions. Since this landfill is an unlined pit, the Navy should further investigate factors that would mobilize contaminants. Additionally, the plan should include a monitoring system to ensure that radionuclides left in place would not be transported in the future. Since radium will be left in place within Area 1A, he recommends that the Navy establish a low threshold level for wastes that remain. Mr. Humphreys pointed out that the half life for radium 226 is 1,600 years, so long-term monitoring would be required.

The excavation at the burn area extends into groundwater, which would require a dewatering and filtration system. Extracted groundwater is assumed to require treatment for removal of dissolved heavy metals and VOCs. Since dioxins/furans are still being investigated, it is not clear if this system would capture those contaminants.

EPA has set acceptable exposure levels for known or suspected carcinogens at levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} . He recommends that the Navy implement corrective actions that result in a risk of 10^{-6} . He added that the risk assessment should take into account the latest information, including the 2006 finding by the National Academy of Sciences that affirms EPA's 2001 draft health risk assessment for trichloroethylene (TCE).

His comments on the cap design and remediation of Area 1 included an engineered cap that limits water infiltration if waste will remain in place. The cap should include a bio-barrier to prevent intrusion by burrowing animals. He noted that it is unclear whether the Navy has considered the golf course in the cap design. The golf course would impose additional structural parameters in the case of a seismic event and require irrigation water that would infiltrate the cap. He also noted that the soil cap alternative proposes using dredge material from Oakland Harbor. He recommends that additional studies be conducted to ensure that this fill material is contaminant-free. A major criticism is that the PP has not adequately characterized the waste cells; thus, the proposed remedy is uncertain both in terms of cost and effectiveness. He added that climate change is likely to cause the sea levels to rise about 3 feet over the next 100 years and the remedy should take this likely rise into consideration.

Mr. Strauss noted that he agreed with the Water Board's State Board Resolutions 68-16 and 92-49, which apply to groundwater at the site. He encourages the Water Board to ensure compliance with these resolutions. He also wants the PP to clearly state who has the responsibility for maintaining the stability and performance of the cap after the proposed re-use of the site is achieved.

Mr. Macchiarella asked if Mr. Strauss could list the documents he reviewed as part of his assessment. Mr. Strauss responded that he reviewed the FS and the RI. He commented that he thought the FS thoroughly summarized most of the other documents that pertain to the site. Mr. Humphreys noted that the final meeting to complete the comments on the Site 1 PP would also result in generating similar comments on Site 2. He added that the comments for Site 2 are due on November 20, 2006 and he was considering making a request for an extension for responding to the comments. Mr. Macchiarella asked the regulators if they would agree to an extension and they did. Mr. Macchiarella noted he would expect the regulators' comments by November 20th so the Navy can start drafting their responses. The Navy will address the community comments as received. Mr. Humphreys asked if the Navy planned a Site 2

presentation by Mr. Strauss in December. Mr. Macchiarella responded that the December meeting is expected to be short and that there already is a presentation scheduled regarding Site 27; however, a Site 2 presentation by Mr. Strauss would be added to the schedule.

Mr. Russell asked Mr. Strauss about the interim PP that he mentioned earlier. Mr. Strauss noted that an interim remedy could be adopted for Site 1 as part of an interim ROD while data gaps are assessed. Mr. Russell asked about his opinion on whether the cap remedy is preferable to removal of the waste. Mr. Strauss responded that it may not be practicable to remove all the waste from the site. He added that no landfill would accept the waste. He said that the Navy could consider removing the hot spots. Mr. Humphreys pointed out that a hazardous waste landfill should not be located next to San Francisco Bay. He added that a complete removal of a hazardous waste landfill in San Francisco was considered financially feasible and it may be because there is more political clout in San Francisco than Alameda Point. Mr. Strauss asked if this site was located in the Presidio, and Mr. Humphreys responded that it was located there.

V. RAB Community Co-Chair Nominations

Mr. Macchiarella asked for nominations for the RAB community co-chair to be voted on in December. Ms. Sweeney nominated Mr. Humphreys, and Mr. Sweeney seconded the motion. Mr. Humphreys asked Mr. Leach if he would be interested in being nominated. Mr. Leach responded that he is busy with his consulting business and will often be out of the country and unable to attend the RAB meetings. There were no other nominations for the 2007 co-chair. The vote for the co-chair will be made during the December RAB meeting.

VI. BCT Activities

Mr. Simon added that the Navy and the DTSC met to discuss closure on the base with respect to above- and under-ground storage tanks. The Base Realignment and Closure Cleanup Team (BCT) has been trying to review a large number of reports.

VII. Community and RAB Comment Period

Mr. Humphreys introduced members of the Golden Gate Audubon Society, who presented comments on the Site 2 FS. Ms. Oberdorfer presented the RAB with a letter that summarized the concerns of the Audubon Society (Attachment B-6). The three main concerns of the Audubon Society include removal of radioactive soils, use of an inadequate footprint for the site that does not include all waste and contaminated areas, and the section of the FS on MNA for groundwater.

Cleanup for the radioactive areas at Site 2 must include the wetlands, which have not been addressed for human health risks. They would also like to see the Navy extend removal of the radium to depth and not just surface soil.

The soil cover does not address the high levels of subsurface contamination that may impact groundwater and is not protective of groundwater that discharges to surface water. They would also like to see that any dredged material from the San Francisco Bay be certified as clean before it is used as fill on Alameda Point. Ms. Oberdorfer added that the engineered cover will most likely be a prescriptive cover in accordance with California regulations. This proposed alternative may not be the best or most cost-effective. The Navy needs to collect additional design data and provide them in the FS to support the effectiveness evaluation. An engineered cover would address impacts to groundwater and surface water and reduce ecological risk to birds in wetland ponds that were identified in the RI.

The section of the FS on MNA for groundwater does not document that attenuation is occurring. It also does not include the 14 years of groundwater monitoring data in the FS or the RI. The Navy should perform a trend analysis to evaluate whether concentrations are increasing or decreasing over time. The Navy should also establish a time period to achieve acceptable concentrations in groundwater or ensure that the period is short. She would also like to see that ecological risk to birds in wetland ponds is addressed during the attenuation period. She requests that the RAB urge the Navy to address these issues before the final document is issued.

Mr. Humphreys asked if the Navy used state applicable or relevant and appropriate requirements (ARARs) on prescriptive cap requirements. Ms. Oberdorfer responded that she believed the Navy had addressed some but not all of these ARARs. Mr. Strauss asked her opinion on the hydraulic barrier. She responded that there are two ways to approach the problem and that the hydraulic barrier is the more cost-effective approach.

Mr. Coe noted that dredging operations fill material was used to construct a golf course in Oakland. Adequate information should be available on this process since this project has already been completed. Mr. Macchiarella responded that using the dredge materials to build the golf course would be a city and not a Navy project. Mr. Humphreys responded that the Navy discusses using dredge spoils as part of the cap. Mr. Baughman responded that the source of the fill is not specified in the PP but would be addressed in the remedial design phase.

Ms. Konrad asked the regulators about an interim ROD to allow the public more time to comment on the reports and the decisions that are being made. Ms. Lofstrom noted that the DTSC would prefer to review information about the proposed remedy before the remedial design phase of the project. However, in discussions with the Navy, DTSC has agreed to compromise on a less prescriptive soil cap. Ms. Konrad noted that the community would be left out of the decision if it is left to the remedial design stage. Mr. Macchiarella noted that as long as the RAB is in place, the Navy documents will be available for review. Ms. Konrad commented that the documents will be available too late for the public to comment on or change the remedy. Mr. Macchiarella noted that the Navy is following the CERCLA process and that this process is not designed by the Navy. Mr. Ripperda agreed with Ms. Lofstrom and noted that the information should be available before the remedy is complete but has agreed to defer this decision until the remedial design phase since it does not affect the nature of the remedy. Ms. Konrad asked how the CERCLA process was designed. Mr. Ripperda responded that it is an EPA process and that Congress has authorized the Navy to follow it. Mr. Humphreys added that the RAB is being asked to accept a portion of the remedy that has not been fully explained and the RAB therefore must rely on the agencies to make an informed decision in the place of the RAB. Mr. Ripperda noted that the RAB must express its concerns. Mr. Humphreys said that he is concerned that the Navy may construct a bad soil cap at the site.

The meeting was adjourned at 9:00 p.m.

ATTACHMENT A

**NAVAL AIR STATION ALAMEDA
RESTORATION ADVISORY BOARD MEETING AGENDA
November 2, 2006**

(One Page)

RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

NOVEMBER 2, 2006, 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 - 6:40	Approval of Minutes	Mr. George Humphreys
6:40 - 6:50	Co-Chair Announcements	Co-Chairs
6:50 – 7:30	Site 2 Feasibility Study Presentation	Mr. Andrew Baughman & Mr. Travis Williamson
7:30 – 8:00	Site 1 Proposed Plan TAPP Advisor Observations	Mr. Peter Strauss
8:00 – 8:10	RAB Community Co-Chair Nominations in preparation for December Meeting Vote	Mr. Thomas Macchiarella
8:10 – 8:15	BCT Activities	Mr. Erich Simon
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 Received during October 2006, provided by George Humphreys, RAB Community Co-Chair (1 page)
- B-2 Significant Navy CERCLA documents planned for November/December 2006, provided by Thomas Macchiarella, Navy (1 page)
- B-3 Presentation on Installation Restoration IR Site 2, presented by Travis Williamson, Battelle (14 pages)
- B-4 Memo on the Proposed Plan for IR Site 1, provided by James Leach, RAB member (1 page)
- B-5 Presentation of preliminary observations of draft Proposed Plan for IR Site 1, presented by Peter Strauss, TAPP Grant reviewer, (9 pages)
- B-6 Summary of comments on the Proposed Plan for IR Site 2, provided by June Oberdorfer, Golden Gate Audubon Society (1 page)

ATTACHMENT B-1

LIST OF REPORTS RECEIVED OCTOBER 2006

(One Page)

Restoration Advisory Board
Reports and Correspondence
Received during October 2006

Reports

1. October 2, 2006, "Quarterly Technical Memoranda for Corrective Action Areas 4C, 6, 7, 11 and 13 (Buildings 397 and 530), Alameda Point, Alameda, California", prepared by Shaw Environmental, Inc. for BRAC Program Management Office West.
2. October 16, 2006, "Draft Site Inspection Report Transfer Parcel EDC-12, Alameda Point, Alameda, California", Prepared by Bechtel Environmental, Inc. for BRAC Program Management Office West.
3. October 19, 2006, "Final Field Activity Reports, Full-Scale In-Situ Chemical Oxidation Removal Actions at Sites 9 Shallow and Site 9 Intermediate, Alameda Point, Alameda, California", (2 Volumes), Prepared by Shaw Environmental, Inc. for BRAC Program Management Office West.
4. October 26, 2006, "Draft Spring 2006 Alameda Basewide Annual Groundwater Monitoring Report, Alameda Point, Alameda, California", (2 Volumes); Volume 1 (Sections 1 through 6), Volume 2 (Sections 7 through 16 and Appendices), prepared by Innovative Technical Solutions, Inc. for BRAC Program Management Office West.

Correspondence

1. October 4, 2006, from Mr. Thomas L. Macchiarella BRAC Program Office West to Ms. Anna-Marie Cook, U. S. EPA Region IX; Ms. Dot Lofstrom, DTSC; and Mr. Erich Simon, S.F. Bay RWQCB, "Missing pages from OU-2A RI and Draft FS for Alameda Point, Alameda, California.
2. October 10, 2006, from Mr. Thomas L. Macchiarella BRAC Program Management Office West to Ms. Anna-Marie Cook, U. S. EPA, Region IX; Ms. Dot Lofstrom, DTSC; and Mr. Erich Simon S. F. Bay RWQCB, "Missing Figure from OU-1 RI for Alameda Point, Alameda, California.
3. October 23, 2006, from Mr. Erich W. Simon S. F. Bay RWQCB to BRAC Program Management Office West, Attn: Mr. Thomas L. Macchiarella, "Comments on the Draft Technical Memorandum to Supplement the Administrative Record for Installation Restoration Site 28, Todd Shipyard, Alameda Point, Alameda, California".
4. October 26, 2006, Postcard, "Alameda Point Navy Environmental Program Notice "from Mr. Thomas Macchiarella, BRAC Program Office West announcing information regarding Information Repository changes.

ATTACHMENT B-2

SIGNIFICANT CERCLA DOCUMENTS FOR NOVEMBER/DECEMBER 2006

(One Page)

**Alameda Point Restoration Advisory Board Meeting
November 2, 2006**

***Significant Navy CERCLA program documents planned for
November/December 2006***

- **Site 17 Final ROD**
- **OU-1 & OU-2A/2B Draft Data Gap Sampling Work Plan**
- **Site 1 Final Lead/Radiological Time-Critical Removal
Action Memo**
- **Site 14 Draft Final ROD**
- **Site 28 Draft Data Gap Sampling Work Plan**
- **Site 31 Revised Draft RI Report**
- **Site 27 Final PP**

Restoration Advisory Board
Reports and Correspondence
Received during October 2006

Reports

1. October 2, 2006, "Quarterly Technical Memoranda for Corrective Action Areas 4C, 6, 7, 11 and 13 (Buildings 397 and 530), Alameda Point, Alameda, California", prepared by Shaw Environmental, Inc. for BRAC Program Management Office West.
2. October 16, 2006, "Draft Site Inspection Report Transfer Parcel EDC-12, Alameda Point, Alameda, California", Prepared by Bechtel Environmental, Inc. for BRAC Program Management Office West.
3. October 19, 2006, "Final Field Activity Reports, Full-Scale In-Situ Chemical Oxidation Removal Actions at Sites 9 Shallow and Site 9 Intermediate, Alameda Point, Alameda, California", (2 Volumes), Prepared by Shaw Environmental, Inc. for BRAC Program Management Office West.
4. October 26, 2006, "Draft Spring 2006 Alameda Basewide Annual Groundwater Monitoring Report, Alameda Point, Alameda, California", (2 Volumes); Volume 1 (Sections 1 through 6), Volume 2 (Sections 7 through 16 and Appendices), prepared by Innovative Technical Solutions, Inc. for BRAC Program Management Office West.

Correspondence

1. October 4, 2006, from Mr. Thomas L. Macchiarella BRAC Program Office West to Ms. Anna-Marie Cook, U. S. EPA Region IX; Ms. Dot Lofstrom, DTSC; and Mr. Erich Simon, S.F. Bay RWQCB, "Missing pages from OU-2A RI and Draft FS for Alameda Point, Alameda, California.
2. October 10, 2006, from Mr. Thomas L. Macchiarella BRAC Program Management Office West to Ms. Anna-Marie Cook, U. S. EPA, Region IX; Ms. Dot Lofstrom, DTSC; and Mr. Erich Simon S. F. Bay RWQCB, "Missing Figure from OU-1 RI for Alameda Point, Alameda, California.
3. October 23, 2006, from Mr. Erich W. Simon S. F. Bay RWQCB to BRAC Program Management Office West, Attn: Mr. Thomas L. Macchiarella, "Comments on the Draft Technical Memorandum to Supplement the Administrative Record for Installation Restoration Site 28, Todd Shipyard, Alameda Point, Alameda, California".
4. October 26, 2006, Postcard, "Alameda Point Navy Environmental Program Notice "from Mr. Thomas Macchiarella, BRAC Program Office West announcing information regarding Information Repository changes.

**Alameda Point Restoration Advisory Board Meeting
November 2, 2006**

***Significant Navy CERCLA program documents planned for
November/December 2006***

- **Site 17 Final ROD**
- **OU-1 & OU-2A/2B Draft Data Gap Sampling Work Plan**
- **Site 1 Final Lead/Radiological Time-Critical Removal
Action Memo**
- **Site 14 Draft Final ROD**
- **Site 28 Draft Data Gap Sampling Work Plan**
- **Site 31 Revised Draft RI Report**
- **Site 27 Final PP**

James D. Leach
GLOBAL PERSPECTIVES
P. O. box 2859
Alameda, CA 94501-0859

TO: RESTORATION ADVISORY BOARD MEMBERS

November 2, 2006

SUBJECT: PROPOSED PLAN FOR SITE 1

Dear Fellow Board Members;

As implied by the name of this Board, our involvement here is to oversee and be advocates for the restoration of the former Alameda Naval Air Station. According to my dictionary, **restoration** means “putting, or bringing back, into a former, normal, or unimpaired state or condition”.

It seems to me that the Proposed Plan for Site 1 does not fit this objective. A “cover” does not restore the integrity of the site.

On the other hand, one perhaps should not question the judgment of our consultants, or the Navy, for following the lead and example of our highest officials in government. They, too, knew about breaches to the integrity of their office (in the Senate, for example), but instead of removing the pollution they covered it up. Covering up untruths, error, and embarrassments seems to be the norm among our leaders; therefore, should we do the same?

Let's face it, the proposed plan for Site 1 is a “cover-up” of an error that we know about. It is not a plan for restoration.

Very truly yours,

Jim Leach



*Aspirations are not dreams
They are the things that we do*

Summary of Comments on Draft Feasibility Study IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California

Batelle and BBL, September 2006

Prepared and Presented by June A. Oberdorfer, PhD, PG, ChG and Patrick G. Lynch, PE for November 2, 2006 RAB Meeting

It is the opinion of Golden Gate Audubon that this Feasibility Study does not call for adequate capping of all impacted soil. Additionally, the “Groundwater Monitored Natural Attenuation” section does not substantiate the occurrence of attenuation processes at the site nor predict the length of time for adequate attenuation to occur. We urge the RAB to recommend that the U.S. Navy revise the FS to address these and other deficiencies before accepting this document.

• The removal of radioactive areas is an integral part of cleanup for IR Site 2 and must be adequately addressed.

1. The cleanup must include the wetlands, an area with human health risks not addressed in the FS. It is ambiguous in the FS if radium will be addressed in the wetlands.
2. Additionally, the U.S. Navy must extend removal to clean depth, not just to surface soil.

• The landfill cap uses an inadequate “footprint” and must define and include all waste and impacted soil areas.

1. The soil cover does not address higher subsurface contamination and does not protect groundwater, which discharges to surface water.
2. Dredge fill material, if used, must be certified as clean (well below “background,” which is actually quite high based on the statistics used to determine it).
3. The engineered cover will most likely be a prescriptive cover (with low-permeability layer) in accordance with California regulations. The proposed alternative may not be the best or most cost-effective. Additional design criteria need to be provided in the FS to support the effectiveness evaluation. An engineered cover would address groundwater/surface water impact and reduce ecological risk to birds in wetland ponds that were identified in the Remedial Investigation document.

• The Groundwater Monitored Natural Attenuation (MNA) section of the FS does not:

1. Actually document that attenuation is occurring.
2. Include the 14 years of groundwater monitoring data in this document *or* in the RI document.
3. Perform a trend analysis to see if concentrations are increasing or decreasing.
4. Establish a time period to achieve acceptable concentrations in groundwater, nor ensure that such a time period is short enough.
5. Address the ecological risk to birds in wetland ponds during the attenuation period.

For more information, contact Samantha Murray, Conservation Director:
Phone: 510.843.6551 Email: smurray@goldengateaudubon.org

GOLDEN GATE AUDUBON SOCIETY

2530 San Pablo Avenue, Suite G Berkeley, California 94702

Phone: 510.843.2222 Fax: 510.843.5351 Web: www.goldengateaudubon.org

**Alameda Point Restoration Advisory Board Meeting
November 2, 2006**

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Let's face it, the proposed plan for Site 1 is a “cover-up” of an error that we know about. It is not a plan for restoration.

Very truly yours,

Jim Leach



*Aspirations are not in vain
But they are the source of life*

Summary of Comments on Draft Feasibility Study IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California

Batelle and BBL, September 2006

Prepared and Presented by June A. Oberdorfer, PhD, PG, ChG and Patrick G. Lynch, PE for November 2, 2006 RAB Meeting

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1. The soil cover does not address higher subsurface contamination and does not protect groundwater, which discharges to surface water.
2. Dredge fill material, if used, must be certified as clean (well below “background,” which is actually quite high based on the statistics used to determine it).
3. The engineered cover will most likely be a prescriptive cover (with low-permeability layer) in accordance with California regulations. The proposed alternative may not be the best or most cost-effective. Additional design criteria need to be provided in the FS to support the effectiveness evaluation. An engineered cover would address groundwater/surface water impact and reduce ecological risk to birds in wetland ponds that were identified in the Remedial Investigation document.

• The Groundwater Monitored Natural Attenuation (MNA) section of the FS does not:

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4. Establish a time period to achieve acceptable concentrations in groundwater, nor ensure that such a time period is short enough.
5. Address the ecological risk to birds in wetland ponds during the attenuation period.

For more information, contact Samantha Murray, Conservation Director:
Phone: 510.843.6551 Email: smurray@goldengateaudubon.org

ATTACHMENT B-3
PRESENTATION ON IR SITE 2 DRAFT FS
(14 Pages)



Welcome

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Installation Restoration Site 2 West Beach Landfill And Wetlands Alameda Point, California

Draft Feasibility Study Presentation



2 November 2006



Presentation Outline

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- Schedule
- Draft Feasibility Study (FS) Outline
- Remedial Action Objectives (RAOs)/Conceptual Remediation Footprint
- Potential Remediation Technologies
- Remedial Alternatives – Screening and Detailed/Comparative Analysis

The remedy for IR Site 2 will ultimately be selected in close coordination with the U.S. EPA, DTSC, Water Board, and community. At this time, the Navy believes that a remedy consistent with EPA's presumptive remedy for landfills would be suitable and appropriate for this site. Accordingly, the presumptive remedy approach would be satisfied by the combination of Soil Alternative 2, which would entail the use of a clean soil cover at the site to contain contaminants, and Groundwater Alternative 2, which would entail a comprehensive and long term monitoring approach to manage the very low levels of groundwater contaminants identified at the site.

Soil Alternative 2	Groundwater Alternative 2
<ul style="list-style-type: none"> • 2 ft soil cover over approx. 54 acres of landfill • Engineering controls and institutional controls (ICs) • Monitoring 	<ul style="list-style-type: none"> • Monitored Natural Attenuation (MNA) • Engineering controls and ICs

2 November 2006

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IR Site 2 FS Schedule

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- **June 23, 2006** – Final Remedial Investigation Report for IR Site 2 issued
- **July 11, 2006** – Met with regulatory agencies to summarize key components of the Draft FS Report and to facilitate development of a team-based path forward
- **September 20, 2006** – Draft FS Report submitted to RAB/BCT/public and interested parties for review
- **September 26, 2006** – Changed pages issued for Draft FS Report to address cost discrepancies between report text and cost appendix
- **November 20, 2006** – due date for review comments on Draft FS Report

Task Name	Duration	Start	Finish	2007				
				Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2
Work Element 4: FS Report	270 days	Thu 5/25/06	Sun 2/18/07					
Draft FS Report	119 days	Thu 5/25/06	Wed 9/20/06					
Regulatory review	61 days	Thu 9/21/06	Mon 11/20/06					
Draft Final FS Report/RTCs	60 days	Tue 11/21/06	Fri 1/19/07					
Respond to Regulatory comments	30 days	Tue 11/21/06	Wed 12/20/06					
Draft Final	30 days	Thu 12/21/06	Fri 1/19/07					
Regulatory review/Concurrence Period	30 days	Sat 1/20/07	Sun 2/18/07					
Final	0 days	Sun 2/18/07	Sun 2/18/07					

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IR Site 2 FS Outline

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Section 1 – Introduction

Section 2 – Site Setting and Description

- Site Location and Description
- Site History
- Site Characteristics
- Historical Investigations
- Remedial Investigation (RI)
- Conceptual Site Model (CSM)
- Risk Assessments
- RI Recommendations

Section 3 – Remedial Action Objectives (RAOs)

- Media of Interest and Constituents of Potential Concern (COPCs)
- Constituents of Concern (COCs) and RAOs
 - Risk-based Concentrations (RBCs)
 - Remediation Goals (RGs)
 - Conservative/Conceptual Remediation Footprint
- ARARs

Section 4 – Remediation Technologies

- No Action
- Institutional Controls (ICs)
- Nonremoval/In-situ Actions
- Removal/Ex-situ Actions

Section 5 – Remedial Alternatives

- Evaluation Approach
- Preliminary Remedial Alternatives
- Detailed Analysis of Remedial Alternatives
- Comparative Analysis of Remedial Alternatives
- Geotechnical and Seismic Considerations

Section 6 – Summary and Conclusions

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IR Site 2 Remedial Action Objectives

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- Protect sensitive **human receptors**, as represented by a park ranger/tour guide, from exposure to COCs through direct contact with and/or incidental ingestion of surface soil in the **landfill** portion of the site
- Protect sensitive **bird species** that forage in the wetland, as represented by the Least Sandpiper, from exposure to COCs in surface soil and associated food items in the **wetland** portion of the site
- Protect **plant and invertebrate** communities in the **upland** and **wetland** portion of the site
- Protect beneficial uses of **surface water in San Francisco Bay** from the potential for discharge of site groundwater containing COCs

* Note: see Section 3.2.1 of the Draft FS for a complete listing of Remedial Action Objectives

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IR Site 2 Risk Based Concentrations

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- **Human Health RBCs (see Draft FS Table 3-1)**
 - Single COPC concentration that yields cancer risk = 1×10^{-6} (carcinogenic) or HQ = 1 (non-carcinogenic)
 - Receptors and input parameters conservative, based on future land use, and consistent with RI
 - Same algorithms and exposure factors/assumptions as were used to calculate risk in the RI Report
- **Ecological RBCs (see Draft FS Table 3-2)**
 - Using most sensitive receptor for a given media type and COPC combination in a given area
 - Low and high RBCs calculated using toxicity reference values (TRVs) based on no observed adverse effects level (NOAEL) and low observed adverse effects level (LOAEL); mid RBCs calculated as arithmetic mean of low and high RBCs
 - Same algorithms and exposure factors/assumptions as were used to calculate risk in the RI Report
 - Conservative input parameters selected, consistent with RI Report

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IR Site 2 Contaminants of Concern

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- Surface soil COCs that were considered during development of conceptual remediation footprint (see FS Tables 3-6 through 3-8)
 - Upland/landfill
 - Cadmium, chromium, lead, molybdenum, PCBs, DDx, benzo(a)pyrene, Ra-226
 - Wetland
 - Lead, zinc, Ra-226

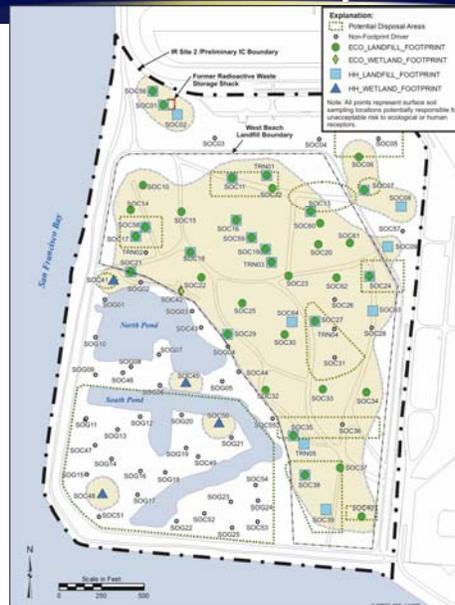
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IR Site 2 Conceptual Remediation Footprint

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IR Site 2 Remediation Technologies

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- **Soil**
 - **No action**
 - **ICs**
 - **Nonremoval/in-situ actions**
 - Soil cover
 - Engineered cap
 - In-situ treatment
 - Solidification/stabilization
 - Phytoremediation
 - Monitoring
 - **Removal/ex-situ actions**
 - Excavation
 - Ex-situ treatment
 - Physical treatment
 - Chemical treatment
 - Disposal
- **Groundwater**
 - **No action**
 - **ICs**
 - **Nonremoval/in-situ actions**
 - Monitoring
 - Monitored Natural Attenuation (MNA)
 - In-situ treatment
 - Phytoremediation
 - Thermal treatment
 - Hydraulic barrier
 - In-situ treatment barrier
 - **Removal/ex-situ actions**
 - Extraction
 - Ex-situ treatment
 - Physical treatment
 - Disposal

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IR Site 2 Remediation Technologies (cont'd)

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- Soil and groundwater remediation technologies evaluated on the basis of **effectiveness, implementability, and cost**
- **Soil remediation technologies** carried forward to develop remediation alternatives
 - No action (per NCP)
 - ICs
 - Soil cover
 - Engineered cap
 - Monitoring
 - Excavation
 - Disposal
- **Groundwater remediation technologies** carried forward to develop remediation alternatives
 - No action (per NCP)
 - ICs
 - Monitoring
 - MNA
 - Hydraulic barrier
 - Extraction
 - Ex-situ treatment

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IR Site 2 Preliminary Soil Remedial Alternatives

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1. No Action
2. Soil cover, engineering and institutional controls, and monitoring
3. Engineered cap, engineering and institutional controls, and monitoring
4. Focused removal and backfill, dewatering, disposal, soil cover, engineering and institutional controls, and monitoring
5. Focused removal and backfill, dewatering, disposal, engineered cap, engineering and institutional controls, and monitoring
6. Complete removal and backfill, dewatering, engineering and institutional controls, disposal, and monitoring

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IR Site 2 Preliminary Soil Remedial Alternatives (cont'd)

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Qualitative Screening of Preliminary Soil Remedial Alternatives (see Draft FS Table 5-1)

Preliminary Alternative	Qualitative Ranking			Carried Through to Detailed Analysis?	Rationale for Carrying/Not Carrying to Detailed Analysis
	Effectiveness	Implementability	Cost		
1. No Action	LOW	HIGH	LOW	YES	Required by NCP.
2. Soil Cover, Engineering and Institutional Controls, and Monitoring	HIGH	HIGH	MODERATE	YES	Likely highly effective and implementable.
3. Engineered Cap, Engineering and Institutional Controls, and Monitoring	HIGH	MODERATE TO HIGH	HIGH	NO	Marginally greater effectiveness compared to Alternative 2; higher cost and lower implementability.
4. Focused Removal and Backfill, Dewatering, Disposal, Soil Cover, Engineering and Institutional Controls, and Monitoring	HIGH	MODERATE	HIGH	NO	Marginally greater effectiveness compared to Alternative 2; higher cost and lower implementability.
5. Focused Removal and Backfill, Dewatering, Disposal, Engineered Cap, Engineering and Institutional Controls, and Monitoring	HIGH	MODERATE	VERY HIGH	NO	Marginally greater effectiveness compared to Alternative 3; significantly higher cost and lower implementability.
6. Complete Removal and Backfill, Dewatering, Engineering and Institutional Controls, Disposal, and Monitoring	HIGH	LOW	EXTREMELY HIGH	YES	Serves as upper bound on effort and cost.

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IR Site 2 Preliminary Soil Remedial Alternatives (cont'd)

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Summary of Preliminary Soil Alternative Evaluation (see Draft FS Table 5-2)

Alternatives	Cost ^(a)	Alternative Retained for Detailed Analysis?
1. No Action	N/A	Yes ^(b)
2. Soil Cover, Engineering and Institutional Controls, and Monitoring	\$10,978,000	Yes
3. Engineered Cap, Engineering and Institutional Controls, and Monitoring	\$32,755,000	No
4. Focused Removal and Backfill, Dewatering, Disposal, Soil Cover, Engineering and Institutional Controls, and Monitoring	\$28,070,000	No
5. Focused Removal and Backfill, Dewatering, Disposal, Engineered Cap, Engineering and Institutional Controls, and Monitoring	\$49,874,000	No
6. Complete Removal and Backfill, Dewatering, Engineering and Institutional Controls, Disposal, and Monitoring	\$198,895,000	Yes ^(c)

(a) Cost is based on a Net Present Value calculation using a 3% discount rate and assuming a 30-year remediation duration.

(b) Retained per NCP to serve as baseline.

(c) Retained to serve as upper bound on effort and cost.



IR Site 2 Preliminary Groundwater Remedial Alternatives

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1. No Action
2. Monitored Natural Attenuation and Engineering and Institutional Controls
3. Hydraulic Barrier, Pump and Treat, Disposal, Monitored Natural Attenuation, and Engineering and Institutional Controls



IR Site 2 Preliminary Groundwater Remedial Alternatives (cont'd)

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Qualitative Screening of Preliminary Groundwater Remedial Alternatives (see Draft FS Table 5-3)

Preliminary Alternative	Qualitative Ranking			Carried Through to Detailed Analysis?	Rationale for Carrying/Not Carrying to Detailed Analysis
	Effectiveness	Implementability	Cost		
1. No Action	LOW	HIGH	LOW	YES	Required by NCP.
2. Monitored Natural Attenuation and Engineering and Institutional Controls	HIGH	HIGH	LOW to MODERATE	YES	Likely effective and implementable.
3. Hydraulic Barrier, Pump and Treat, Disposal, Monitored Natural Attenuation, and Engineering and Institutional Controls	HIGH	MODERATE	MODERATE	YES	Likely effective, at least moderately implementable, and provides a reasonable alternative in the absence of many applicable technologies at IR Site 2.

2 November 2006

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IR Site 2 Preliminary Groundwater Remedial Alternatives (cont'd)

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Summary of Preliminary Groundwater Alternative Evaluation (see Draft FS Table 5-4)

Alternatives	Cost ^(a)	Alternative Retained for Detailed Analysis?
1. No Action	N/A	Yes ^(b)
2. Monitored Natural Attenuation and Engineering and Institutional Controls	\$4,813,000	Yes
3. Hydraulic Barrier, Pump and Treat, Disposal, Monitored Natural Attenuation, and Engineering and Institutional Controls	\$11,477,000	Yes

(a) Cost is based on a Net Present Value calculation using a 3% discount rate and assuming a 30-year remediation duration.
 (b) Retained per NCP to serve as baseline.

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IR Site 2 Soil Remedial Alternatives

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- **Soil Alternative 1: No Action**
- **Soil Alternative 2: Soil cover, engineering and institutional controls, and monitoring**
 - Soil cover
 - 2-foot thick soil cover over approx. 54 acres (entire landfill area and 2 transitional areas between landfill and wetlands)
 - Engineering controls
 - Access controls and silt fences
 - ICs
 - Land use to prevent digging or other impact to cover
 - Applied over remediation area and other portions of site characterized by risk
 - Monitoring
 - Construction monitoring (quality control and health and safety)
 - Long-term monitoring (soil cover and IC integrity)

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IR Site 2 Soil Remedial Alternatives (cont'd)

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- **Soil Alternative 6: Complete removal and backfill, dewatering, engineering and institutional controls, disposal, and monitoring**
 - Complete removal and backfill
 - Excavate entire landfill area (approx. 50 acres) to approx. water table
 - Backfill entire area with clean fill
 - Dewatering and disposal
 - Mechanically dewater excavated material on-site, treating and discharging water to San Francisco Bay
 - Dispose dewatered material at off-site landfills
 - Engineering controls
 - Shoring devices, access controls, silt fences
 - ICs
 - Land use to prevent digging or other impact to cover
 - Applied over portions of site characterized by risk
 - Monitoring
 - Construction monitoring (quality control, health and safety, water discharge, waste characterization)
 - Long-term monitoring (IC integrity)

2 November 2006

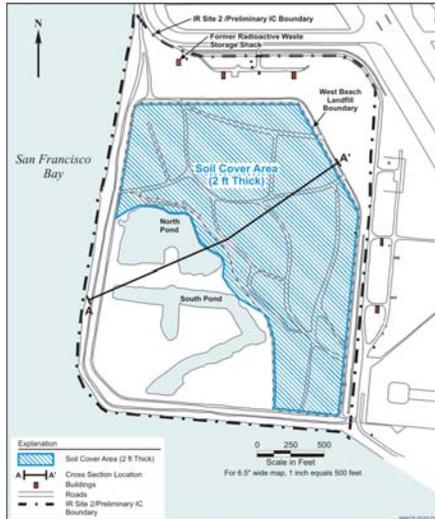
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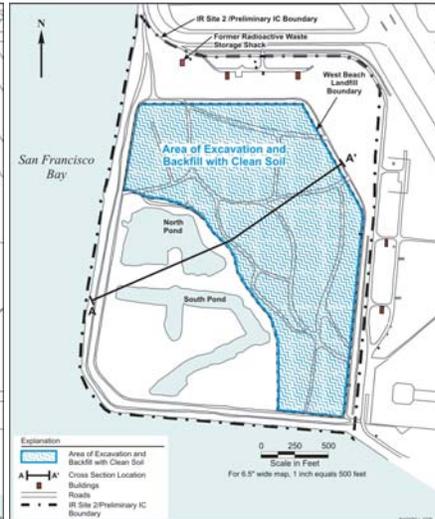
IR Site 2 Soil Remedial Alternatives (cont'd)

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Soil Alternative 2



Soil Alternative 6



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IR Site 2 Soil Remedial Alternatives (cont'd)

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Comparative Ranking of Retained Soil Alternatives (see FS Table 5-5)

Alternative	Comparative Ranking						
	Threshold Criteria		Balancing Criteria				
	Would Achieve Overall Protection of Human Health and the Environment	Would Achieve Compliance with ARARs	Long-Term Effectiveness	Reduction in Toxicity, Mobility, and Volume	Short-Term Effectiveness	Implementability	Cost
1. No Action	NO	NO	LOW	LOW	LOW to MODERATE	HIGH	LOW
2. Soil Cover, Engineering and Institutional Controls, and Monitoring	YES	YES	HIGH	LOW	HIGH	HIGH	MODERATE
6. Complete Removal and Backfill, Dewatering, Engineering and Institutional Controls, Disposal, and Monitoring	YES	YES	HIGH	LOW to MODERATE	MODERATE	MODERATE	VERY HIGH

Note: Community and state acceptance criteria (i.e., "modifying criteria") are not evaluated in this table, as they will be addressed thoroughly during completion of the ROD, and following the review and comment period on the FS and the PP.

2 November 2006

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IR Site 2 Groundwater Remedial Alternatives

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- **Groundwater Alternative 1: No Action**

- **Groundwater Alternative 2: Monitored natural attenuation and engineering and institutional controls**
 - MNA
 - Contaminants in FWBZ groundwater allowed to naturally degrade
 - Engineering controls
 - Protections for groundwater monitoring network
 - ICs
 - Land use to prevent installation of wells for any other purpose than monitoring and strictly control the use of groundwater
 - Applied over entire site
 - Monitoring
 - Long-term monitoring (extensive groundwater quality monitoring and IC integrity)

2 November 2006

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IR Site 2 Groundwater Remedial Alternatives (cont'd)

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- **Groundwater Alternative 3: Hydraulic barrier, pump and treat, disposal, MNA, and engineering and institutional controls**
 - Hydraulic barrier
 - Approx. 3,500-ft barrier to approx. 30 ft deep, surrounding landfill portion of site
 - Constructed of impermeable material
 - Pump and treat
 - Network of extraction wells to relieve hydraulic pressure behind slurry wall
 - Treat and discharge water to San Francisco Bay
 - Disposal
 - Dispose pump and treat solids at off-site landfill(s)
 - Natural attenuation
 - Contaminants in FWBZ groundwater allowed to naturally degrade
 - Engineering controls
 - Shoring devices, access controls, silt fences, protections for groundwater monitoring network
 - ICs
 - Land use to prevent digging or other impact to slurry wall, to prevent installation of wells for any other purpose than monitoring, and to strictly control the use of groundwater
 - Applied over portions of site with slurry wall or entire site
 - Monitoring
 - Construction monitoring (quality control, health and safety)
 - Long-term monitoring (extensive groundwater quality monitoring, water discharge monitoring, and IC integrity)

2 November 2006

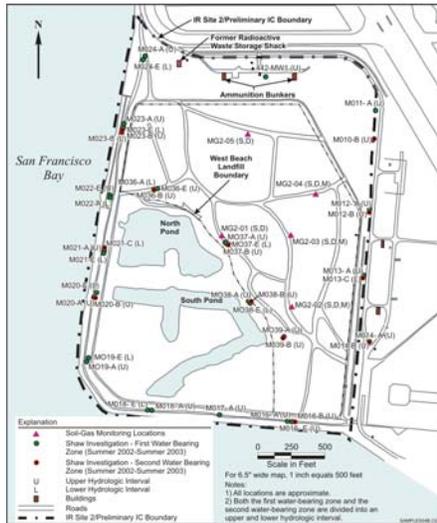
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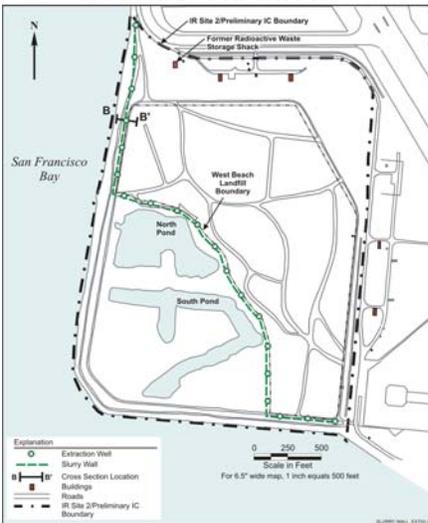
IR Site 2 Groundwater Remedial Alternatives (cont'd)

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Groundwater Alternative 2



Groundwater Alternative 3



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IR Site 2 Groundwater Remedial Alternatives (cont'd)

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Comparative Ranking of Retained Groundwater Alternatives (see FS Table 5-6)

Alternative	Comparative Ranking						
	Threshold Criteria		Balancing Criteria				
	Would Achieve Overall Protection of Human Health and the Environment	Would Achieve Compliance with ARARs	Long-Term Effectiveness	Reduction in Toxicity, Mobility, and Volume	Short-Term Effectiveness	Implementability	Cost
1. No Action	NO	NO	LOW	LOW	LOW to MODERATE	HIGH	LOW
2. Monitored Natural Attenuation and Engineering and Institutional Controls	YES	YES	HIGH	MODERATE	HIGH	HIGH	LOW to MODERATE
3. Hydraulic Barrier, Pump and Treat, Disposal, Monitored Natural Attenuation, and Engineering and Institutional Controls	YES	YES	HIGH	MODERATE to HIGH	MODERATE to HIGH	HIGH	MODERATE

Note: Community and state acceptance criteria (i.e., "modifying criteria") are not evaluated in this table, as they will be addressed thoroughly during completion of the ROD, and following the review and comment period on the FS and the PP.

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Recommended IR Site 2 Remediation Approach

**BRAC
PMO WEST**

The remedy for IR Site 2 will ultimately be selected in close coordination with the U.S. EPA, DTSC, Water Board, and community. At this time, the Navy believes that a remedy consistent with EPA's presumptive remedy for landfills would be suitable and appropriate for this site. Accordingly, the presumptive remedy approach would be satisfied by the combination of Soil Alternative 2, which would entail the use of a clean soil cover at the site to contain contaminants, and Groundwater Alternative 2, which would entail a comprehensive and long term monitoring approach to manage the very low levels of groundwater contaminants identified at the site.

Recommended IR Site 2 Remediation Strategy	
Soil Alternative 2	Groundwater Alternative 2
<ul style="list-style-type: none"> • 2 ft soil cover over approx. 54 acres of landfill • Engineering controls and ICs • Monitoring 	<ul style="list-style-type: none"> • MNA • Engineering controls and ICs
<ul style="list-style-type: none"> • Adequate level of risk reduction across the site • Protective against other exposure intervals (i.e., subsurface) • Manages residual risk through ICs • Consistent with U.S. EPA presumptive remedy approach for municipal and military landfills • Easily implementable and operationally simple • Compatible with future site use • Other more costly alternatives provide marginal (at best) incremental risk reduction • Other alternatives characterized by higher short-term risk 	<ul style="list-style-type: none"> • Adequate level of risk reduction across the site • Protective against deleterious impacts to San Francisco Bay • Manages residual risk through ICs • Easily implementable and operationally simple • Compatible with future site use and presumptive soil remedy • Other more costly alternatives provide marginal (at best) incremental risk reduction • Other alternatives characterized by higher short-term risk

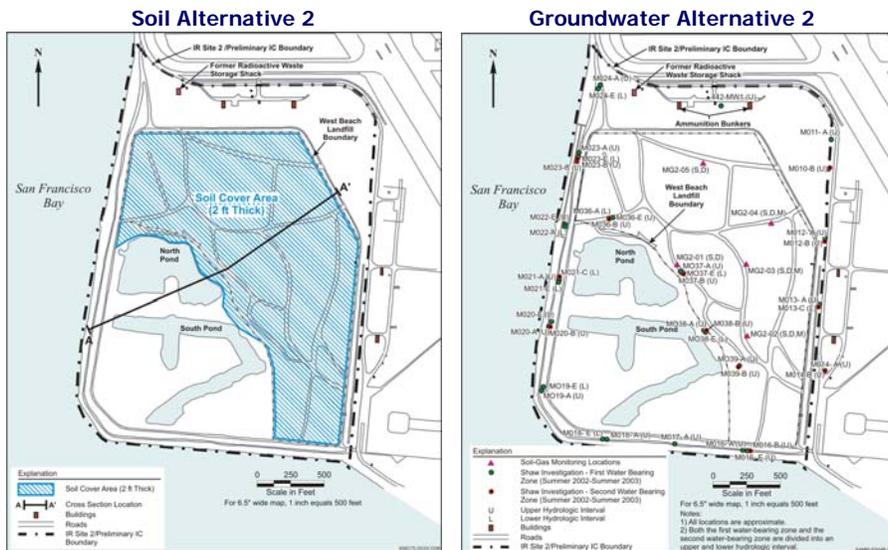
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Recommended IR Site 2 Remediation Approach (cont'd)

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Recommended IR Site 2 Remediation Approach (cont'd)

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- **Geotechnical and seismic considerations**
 - Prevent potential for discharge of waste from IR Site 2 to San Francisco Bay through
 - Liquefaction
 - Slope instability
 - Potential geotechnical remedy components
 - Gravity wall
 - Stone columns
 - Earthquake drains
 - Remedial design for IR Site 2 will consider pertinent geotechnical conditions and address them accordingly
- **Planned Time Critical Removal Action (TCRA)**
 - To prevent ingestion, dermal contact, or inhalation of **radiological anomalies** with concentrations that exceed background concentrations

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Contact Information

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For More Information Contact:

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2 November 2006

ATTACHMENT B-4

MEMO ON PROPOSED PLAN FOR IR SITE 1

(One Page)

James D. Leach
GLOBAL PERSPECTIVES
P. O. box 2859
Alameda, CA 94501-0859

TO: RESTORATION ADVISORY BOARD MEMBERS

November 2, 2006

SUBJECT: PROPOSED PLAN FOR SITE 1

Dear Fellow Board Members;

As implied by the name of this Board, our involvement here is to oversee and be advocates for the restoration of the former Alameda Naval Air Station. According to my dictionary, **restoration** means “putting, or bringing back, into a former, normal, or unimpaired state or condition”.

It seems to me that the Proposed Plan for Site 1 does not fit this objective. A “cover” does not restore the integrity of the site.

On the other hand, one perhaps should not question the judgment of our consultants, or the Navy, for following the lead and example of our highest officials in government. They, too, knew about breaches to the integrity of their office (in the Senate, for example), but instead of removing the pollution they covered it up. Covering up untruths, error, and embarrassments seems to be the norm among our leaders; therefore, should we do the same?

Let's face it, the proposed plan for Site 1 is a “cover-up” of an error that we know about. It is not a plan for restoration.

Very truly yours,

Jim Leach

ATTACHMENT B-5

TAPP GRANT PRELIMINARY REVIEW ON PROPOSED PLAN FOR IR SITE 1

(Nine Pages)

OBSERVATIONS

Draft Proposed Plan for Site 1

Peter Strauss

petestrauss1@comcast.net

415-647-4404

Methodology

- Review Published Documents, including basic CERCLA Documents
- Meet with RAB focus/technical group
- Ask Questions

Site 1



Site 1 Plan Observations

- Divided up into eleven categories
 - Actions That I Agree With
 - Data Gaps
 - Scope
 - Groundwater
 - Soil
 - Ecological Risk
 - Rad Assessment and Cleanup
 - Burn Area
 - Human Risk
 - Cap Design
 - ARARs (Applicable or Relevant and Appropriate Requirements)
 - Range Cleanup
 - Institutional Controls

Actions That I Agree With

- Excavation and Removal of the Burn Area
- Removal of All Radium Contaminated Wastes from Areas 3, 5 and 1b.
- Removal of the Berm from the Firing Range

Data Gaps

- The resolution of many data gaps are not addressed in the proposed plan. These should be resolved prior to the Record of Decision. The most important of these include:
 - **Analysis of groundwater in the burn area for dioxins/furans.**
 - **Radiological survey of the riprap slope areas.**
 - **Wetlands evaluation.**
 - **Geophysical surveys.**
 - **Analysis for 1,4-dioxane in groundwater.**
 - **Assessment of residual impacts in the waste disposal area.**
 - **Analysis for explosive constituents in groundwater.**

Scope

- The proposed plan does not cover the contamination that potentially has emanated from Site 1 into the Bay and the inner harbor. The proposed plan should include these areas.

Groundwater

- The characterization of the VOC plume is incomplete.
- There is concern that remedy may cause the release of other contaminants (Radium, metals).
- A network of “Guard wells” (i.e., extraction wells at the downstream boundary of the treatment zone) and “Sentinel Wells” (monitoring wells to ensure that the guard wells are capturing released contaminants) should be developed and included in the plan.
- I recommend that the Navy to not rely on Monitored Natural Attenuation (MNA) for a major role in the groundwater remedy.

Comparison of Alameda Point Soil Cleanup Goals and Moffett Sediment Cleanup Goals

Contaminant	Alameda Pt.	Moffett – Salt Marsh	
		TRV _{low}	TRV _{high}
PCB $\mu\text{g}/\text{kg}$	380	59	210
DDT $\mu\text{g}/\text{kg}$	1,200	0.51	109
Lead mg/kg	56	0.01	93
Zinc mg/kg	300	6.5	314

- $\mu\text{g}/\text{kg}$ micrograms per kilogram
- mg/kg milligrams per kilogram
- TRV threshold reference value

Ecological Risk -Conclusions

- There has not been a full survey to identify special-status 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 should be considered in risk calculations.

Radiological Characterization and Cleanup

- Little attention is paid to how radionuclides can be mobilized by changing environmental conditions. Because this landfill is an unlined pit, it is incumbent upon the Navy to further investigate factors that would mobilize contaminants
- The Plan should include a monitoring system to ensure that radionuclides left in place will not be transported in the future.
- Radium would be left in place within Area 1a. I recommend that the Navy establish a low threshold level for wastes that are left.

Burn Area

- Excavation activities at this area extend into groundwater, requiring a dewatering filtration system. Extracted groundwater is assumed to require treatment for removal of dissolved heavy metals and VOCs. Dioxins/furans are still being investigated, and it is not clear whether the treatment system will capture those contaminants.

Human Risk

- EPA sets acceptable exposure levels for known or suspected carcinogens at levels that represent an excess upper bound lifetime cancer risk to an individual of between 10^{-4} and 10^{-6} . I recommend that the Navy adopt the 10^{-6} as its remedial goal.
- The risk assessment should include the latest information, including the 2006 finding by the National Academy of Sciences (NAS) that affirms EPA's 2001 draft health risk assessment for TCE .

Cap Design and Remediation of Area 1

- If waste is going to remain in place, then an engineered cap that limits water infiltration is necessary.
- The cap design should include a bio-barrier to prevent burrowing animals.
- It is unclear that the Navy has considered the Golf course in the cap design. A golf course would impose additional structural parameters in the case of a seismic event, and would require a great deal of irrigation water that would infiltrate the cap.
- The Soil Cap alternative proposes to use dredge materials from Oakland Harbor. This may not be clean soil and requires additional study to ensure that there are not additional contaminants being added to the cover.

Cap Design and Remedy for Area 1 (cont'd)

- The discussion of seismic stabilization should be revisited and decided on before adoption of the proposed remedy.
- A major criticism of the proposed plan is that it has not characterized the waste cells adequately. Thus, the proposed remedy is uncertain both in terms of cost and effectiveness.
- Climate change is likely to cause sea levels to rise about 3 feet over the next 100 years. Proposed remedies that are adjacent to the Bay should take this into consideration

Applicable or Relevant and Appropriate Requirements (ARARs)

- 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. I encourage the RWQCB to ensure compliance with these Resolutions.

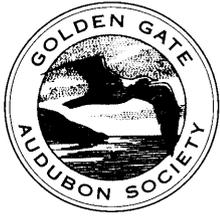
Institutional Controls

- It is crucial that the Plan make clear who would be responsible for maintaining the stability and performance of the cap after the proposed re-use of Site 1 (golf course, beach, and trails).

ATTACHMENT B-6

COMMENTS ON PROPOSED PLAN FOR IR SITE 1

(One Page)



*As part of a project to protect
the Bay Area Blue-tailed Grackle*

Summary of Comments on Draft Feasibility Study IR Site 2, West Beach Landfill and Wetlands, Alameda Point, California

Batelle and BBL, September 2006

Prepared and Presented by June A. Oberdorfer, PhD, PG, ChG and Patrick G. Lynch, PE for November 2, 2006 RAB Meeting

It is the opinion of Golden Gate Audubon that this Feasibility Study does not call for adequate capping of all impacted soil. Additionally, the “Groundwater Monitored Natural Attenuation” section does not substantiate the occurrence of attenuation processes at the site nor predict the length of time for adequate attenuation to occur. We urge the RAB to recommend that the U.S. Navy revise the FS to address these and other deficiencies before accepting this document.

• The removal of radioactive areas is an integral part of cleanup for IR Site 2 and must be adequately addressed.

1. The cleanup must include the wetlands, an area with human health risks not addressed in the FS. It is ambiguous in the FS if radium will be addressed in the wetlands.
2. Additionally, the U.S. Navy must extend removal to clean depth, not just to surface soil.

• The landfill cap uses an inadequate “footprint” and must define and include all waste and impacted soil areas.

1. The soil cover does not address higher subsurface contamination and does not protect groundwater, which discharges to surface water.
2. Dredge fill material, if used, must be certified as clean (well below “background,” which is actually quite high based on the statistics used to determine it).
3. The engineered cover will most likely be a prescriptive cover (with low-permeability layer) in accordance with California regulations. The proposed alternative may not be the best or most cost-effective. Additional design criteria need to be provided in the FS to support the effectiveness evaluation. An engineered cover would address groundwater/surface water impact and reduce ecological risk to birds in wetland ponds that were identified in the Remedial Investigation document.

• The Groundwater Monitored Natural Attenuation (MNA) section of the FS does not:

1. Actually document that attenuation is occurring.
2. Include the 14 years of groundwater monitoring data in this document *or* in the RI document.
3. Perform a trend analysis to see if concentrations are increasing or decreasing.
4. Establish a time period to achieve acceptable concentrations in groundwater, nor ensure that such a time period is short enough.
5. Address the ecological risk to birds in wetland ponds during the attenuation period.

For more information, contact Samantha Murray, Conservation Director:
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