FINAL
NAVAL AIR STATION ALAMEDA
Restoration Advisory Board (RAB) Meeting Minutes

May 5, 2011

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

The following participants attended the meeting:

Co-Chairs:

Derek Robinson	Base Realignment and Closure (BRAC) Program Management Office (PMO) West, BRAC Environmental Coordinator (BEC), Navy Co-chair
Dale Smith	Restoration Advisory Board (RAB) Community Co-chair

Attendees:

RAB Members

Richard Bangert	Carol Gottstein, M.D.	Daniel Hoy
George Humphreys	Joan Konrad	James Leach
Kurt Peterson	Jean Sweeney	Jim Sweeney
Michael John Torrey		

Community Members/ Public Attendees

Steve Bachofer	Doug Biggs (Alameda Point Collaborative)	Maureen Cardigan
Morton Chalfy	Susan Galleymore	Amy Gilligan
Gretchen Lipow	Jojo (Student)	Michelle (Student)
Yesenia (Student)		

Navy Members

Curtis Moss	Navy Project Manager (PM)
Bill McGinnis	Navy Lead Remedial Project Manager
Tony Megliola	Navy Base Closure Manager

Regulatory Agencies

James Fyfe	California Environmental Protection Agency Department of Toxic Substances Control (DTSC)
Melinda Garvey	U.S. Environmental Protection Agency (EPA)
Karen Tott	DTSC
John West	San Francisco Bay Regional Water Quality Control Board (Regional Water Board)

City of Alameda Representatives

Doug deHaan	Alameda City Council
Peter Russell	Russell Resources/ Alameda Reuse and Redevelopment Authority (ARRA)

Contractors

Geoff Compeau	Shaw Environmental, Inc.
Pete Coutts	Shaw Environmental, Inc.
Neil Hart	Shaw Environmental, Inc.
John McGuire	Shaw Environmental, Inc.
John McMillan	Shaw Environmental, Inc.
Campbell Merrifield	Trevet Environmental Consultants
Tommie Jean Valmassy	Tetra Tech EM Inc.

The meeting agenda is provided as Attachment A.

MEETING SUMMARY

Dale Smith (RAB Community Co-chair) called the May 2011 former Naval Air Station Alameda (Alameda Point) RAB meeting to order. Derek Robinson (Navy Co-Chair) welcomed all to the meeting and asked for introductions.

I. Community and RAB Comment Period

James Leach (RAB member) asked that his email be removed from Ms. Smith's distribution list and Ms. Smith agreed.

Doug Biggs (Alameda Point Collaborative) thanked the Navy and Shaw Environmental for their efforts to support local employment programs. Mr. Biggs thanked the Navy for cleaning up the lead in the soil outside Midway bungalows, and for the efforts to keep the residents informed.

Richard Bangert (RAB member) suggested the Navy include a short paragraph on the agenda describing what an item is about. He said the agenda is often posted to the internet as a notice of a meeting, and if there is no description, there is no public interest. Mr. Robinson asked for clarification about when a description for an agenda item should be included. Mr. Bangert said a standard item such as the BCT Update would not likely be of interest, but a presentation by a Navy Project Manager would. Carol Gottstein (RAB member) said including the common name of a site instead of just a site number would be helpful.

Dr. Gottstein said the Alameda Sun newspaper does not include the RAB meetings in the community calendar they publish, although the Navy does take out an advertisement for the meeting. Dr. Gottstein suggested both the Alameda Sun and Alameda Journal should be contacted to have the RAB meetings listed as a regular meeting in the community calendar section. Mr. Robinson said he will add the contacts for those newspapers to the email distribution list.

George Humphreys (RAB member) said that last month it was stated that tarry refinery waste does not present any risk, which he does not think has been demonstrated by the Navy.

Mr. Humphreys said there was a discussion at last month's RAB meeting about the vapor barriers under buildings that were built in the Alameda Landing and Shinsei Gardens. Part of the discussion was that those vapor barriers were temporary until the benzene/naphthalene plume is cleaned up. He reviewed the informational fact sheet that the Navy prepared on the subject dated October 2008. The figure that shows the proposed treatment areas for biosparging does not include the whole footprint of Shinsei Gardens housing, so there will be some area of the plume that is not cleaned up under the building. Therefore, that vapor barrier will have to be relied upon forever unless lines are slanted down under the buildings to treat that area.

Mr. Humphreys asked for realistic dates to be shown on the action items rather than updating with each month's meeting date.

Mr. Humphreys commented on the information he received relating to the fuel lines on the north side of the Seaplane Lagoon. He said there are a lot of fuel lines shown in the area and the drawings indicate that some of them were filled with concrete. However, if those lines were leaking and if there is oil in the soil or in the fill material around those lines, they could still be a source of continued oil leakage into Seaplane Lagoon. Dr. Gottstein requested a hard copy of the figures. Ms. Smith said as RAB Co-Chair she needs to receive all the materials the RAB members are receiving to ensure that they are in the proper format and accessible. She requested the figures be made available in an 11x17 format. Peter Russell (consultant to ARRA) said he will print 15 copies of the figures in 11x17 color format for the RAB members for the next meeting.

Doug deHaan (Alameda City Councilman) asked when the manifold of fuel lines to the north of Seaplane Lagoon shown in the figures would be discussed. Mr. Robinson asked if Mr. deHaan was requesting a presentation for a future agenda item. Mr. deHaan asked if any characterization of the fuel lines had been done. Mr. Robinson said the petroleum program has been characterizing petroleum sites, and it is likely those have been characterized, but he would have to confirm that. Mr. West said the Petroleum Management Plan reviews and prioritizes the petroleum projects, and quite a few of the sites have been characterized. Mr. Robinson reminded the RAB that their focus is the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) program sites, not the petroleum program. He said that, typically, petroleum program updates are given to the RAB once a year.

Mr. deHaan said as a representative of the City of Alameda, he would like to request more information because the area is being considered for redevelopment and it is important to understand if it has been characterized or is scheduled to be characterized. Bill McGinnis (Navy) said Dr. Russell regularly attends the petroleum program meetings as the consultant to the ARRA. He said the Navy has met with City of Alameda staff to discuss the status of the CERCLA and petroleum program sites with regard to transfer activities. Mr. deHaan said discussions between the Navy and City staff are good because the City of Alameda is re-envisioning the redevelopment plan and the area north of Seaplane Lagoon is critical.

II. Co-Chair Announcements

Mr. Robinson thanked Mr. Bangert for forwarding the link to the CNET slide show about the Alameda Point Seaplane Lagoon dredging project (http://news.cnet.com/2300-13639_3-10007633.html?tag=mncol).

Mr. Robinson said the air museum requested one or both of the two large anchors found in the Seaplane Lagoon. The request has been forwarded to Washington D. C. for a decision to be made.

Mr. Robinson said a tour has been scheduled for Saturday, July 16th at 9AM. He said the tour bus will stop at four sites, locations still to be determined. He passed around a sign up sheet for the tour, noting there is limited room on the bus.

Mr. Robinson said eight old apartment buildings had been demolished by the City of Alameda. He said the Navy agreed to allow the City to demolish the buildings under the terms of the lease in furtherance of conveyance (LIFOC). Michael John Torrey (RAB member) asked if the building in front of the Red Cross Building would be demolished as well. Ms. Smith said that is the WAVES building and a group was against the demolition of that building at this time.

III. OU-2B Alternative Roundtable

Mr. Robinson said the goal of the roundtable discussion is to describe the alternatives in the OU-2B Feasibility Study Report and request input from the RAB community members. Curtis Moss (Navy PM) led the roundtable discussion of the OU-2B second revised draft feasibility study report (Attachment B-1).

During the review of slide 7, soil remedial alternatives, Mr. Humphreys asked if the volumes of impacted soils listed were based on excavating all impacted soils or only the first 2 feet below ground surface (bgs). Mr. Moss said the depths of the excavations depend on the location, installation restoration (IR) site, and concentrations, all of which are detailed in the feasibility study report. Ms. Smith asked if the feasibility study was limited to only a lateral investigation. Mr. Moss said no, the depth of the excavation is established based on the depth to the water table, typically between 4 and 5 feet bgs. Mr. Robinson said the depth of the excavations were established by the concentration of the contaminants. Mr. Moss said remedial alternative S-2, excavation and disposal of impacted soils, will allow for residential reuse or unrestricted reuse. Mr. Robinson said typically both residential and commercial reuse scenarios are reviewed to determine remedial alternatives, but because the contaminants were localized, the cost differences were negligible and so unrestricted soil excavations were the only soil alternatives fully developed.

During the review of slide 8, analysis of soil remedial alternatives, Ms. Smith asked how far apart the samples were collected, as at IR Site 3 it appeared they were collected 10 to 15 meters apart. Mr. Moss said it depends on the location and the constituent of concern. He said for the Basewide Polycyclic Aromatice Hydrocarbon (PAH) Study, the Navy used a grid pattern on 50 foot centers to collect samples at Alameda Point to establish background concentrations. Dr. Gottstein asked if there is a document available that lists the background concentrations. Mr. Robinson said it is included in the feasibility study report as an appendix and in the information repository. Dr. Russell said the site-specific ambient level for PAHs at Alameda Point is an average benzo(a)pyrene equivalent concentration of no more than 0.62 parts per million (ppm) with no individual sample location greater than 1 ppm. Dr. Gottstein asked if the history of refineries operating at Alameda Point were the source of elevated PAHs at Alameda Point. Dr. Russell said former manufactured gas plants at what is now Jack London Square also are likely important sources.

Mr. Humphreys asked what the background concentrations were for metals at Alameda Point. Mr. McGinnis said there is a report that documents the background concentrations. Mr. Moss said the remediation goals (RG) presented in the feasibility study report are the background concentrations. Kurt Peterson (RAB member) asked for clarification if all impacted soils will be removed or only soils to a certain depth. Mr. Robinson said the depth of an excavated area depends on the contaminant, the excavation footprint, and the depth at which the contaminant was identified. Mr. Peterson asked if all impacted soil is going to be removed. Mr. Moss said the risk assessment included soils down to a depth of 8 feet bgs, and at Alameda Point groundwater is found at approximately 4 to 5 feet bgs. It is generally accepted that soil below the water table is an incomplete pathway for the residential exposure scenario. The risk to a

construction worker is evaluated separately. Mr. Peterson asked if 5 feet, the depth to groundwater, would be a maximum depth. Mr. Moss said yes, at most locations, the depth to groundwater would be the maximum excavation depth.

Jean Sweeney (RAB member) asked about figures that showed high levels of manganese and iron under Building 360 that are not consistent with the figures in the feasibility study report. Mr. Robinson said metals that were above background or presented a risk were evaluated in the FS Report. Mrs. Sweeney asked if the locations under the building meant the concentrations were not a risk. Mr. McGinnis said the information is included in the risk assessment. Dr. Gottstein stated, speaking as a medical doctor, iron and manganese are elements the human body needs to survive, but metals such as lead, nickel and arsenic are not.

During the review of slide 9, Mr. Moss said the figures identified the lead and PAH impacted soils at IR Site 3. Mr. deHaan asked what the source of the lead was. Melinda Garvey (EPA) said the area was an abandoned fuel storage area. Mr. deHaan asked if the area has been investigated for petroleum contamination, and if there are plans to address any contamination. Mr. Robinson said yes, the contamination will be addressed. Mr. deHaan asked why the lead in the fuel manifold area next to the lagoon is not being addressed under the CERCLA process. Mr. Robinsons said the site is being addressed by the petroleum program first, and may become a part of the CERCLA program if necessary. Mr. Moss said the source may not have been lead additives for fuel as the lead is in the soil, not a plume. Mr. Humphreys asked if the Borax plant was the source. Mr. Moss said no. Mr. deHaan said the area with high lead in soil is south of the PX [post exchange] building in what was once a garden supply area. Mr. Robinson reminded the RAB that the remedy includes excavation to unrestricted reuse, and although the actual footprint may change, the end reuse will be unrestricted. Mr. Peterson asked if the areas beneath buildings would be exceptions. Mr. Robinson said that is being evaluated. Mr. Humphreys said there appears to be a cut out near Building 517. Mr. McGinnis said samples have been collected beneath the building floor and the concentrations were below cleanup levels, which is documented in the feasibility study report.

Also during the review of slide 13, Mr. Peterson said groundwater Plume 4-1 appears to flow to the West (toward Seaplane Lagoon) while Plume 4-2 does not. Mr. Moss said there was a successful removal action in the area of Plume 4-2 as shown by the “c” shape in the source area. Mr. Moss said in 2006 a removal action was completed in the area. Mr. Peterson said the figure on Slide 17 shows Plume 4-2 was treated with high temperature thermal treatment and it modified the shape of the plume in the alley between Building 360 and 163. Mr. Torrey asked how the heating works. Mr. Humphreys said it was a six phase electrical heat that was installed in the ground. Mr. McGinnis said the ground is heated to just below the boiling point of water, and the VOCs boil off because their boiling points are lower than that of water. Mr. Moss said after the VOCs are heated, they vaporize, and the steam is captured using vapor extraction wells.

Dr. Gottstein asked if the zero-valent iron (ZVI) is planned for use in alternative G-2. Mr. Moss said potentially, as a permeable reactive barrier (PRB). He said the technology for the PRB could use mulch (an organic source), or ZVI as a treatment but a decision on the technology has not been made at this time and the remedial design contractor will evaluate which is the best type

of barrier. Dr. Gottstein said that at the March RAB meeting a letter from the RAB indicated ZVI treatment was ineffective at OU-2B. Mr. McGinnis said that this is a different application; the PRB technology creates a permeable barrier as opposed to using ZVI to treat a source zone. Ms. Smith asked for clarification if the ZVI is nano. Mr. Moss said it would not be nano.

Mr. Humphreys asked if the plumes will be surrounded by the PRB so the water cannot get out without being treated. Mr. McGinnis said the water will flow through the PRB and be treated. Dr. Russell said the PRB is not designed to provide any resistance. Mr. McGinnis said one way to install the PRB is to dig a trench and install the amended medium (such as ZVI), and as the water flows through the trench, it reacts and is treated. So after passing through the PRB, it is clean. He said in this case groundwater will be extracted and injected back in to create the preferential path of groundwater flow. Ms. Smith asked if tidal influence will also be considered. Mr. Robinson said that is a factor that will be further evaluated during the remedial design phase.

Mr. Humphreys commented that if the beginning treatment technology selected is to use heat treatment, that should be used first before ZVI because the iron could interfere with the electrical heating. Mr. Moss said if that technology is the selected remedy, the heat will be used in a focused manner on the source zones. Mr. Humphreys commented on the use of in-situ chemical oxidation (ISCO), stating the Navy should consider the metals also because the reagents used in ISCO will solubilize some of these metals. So his comment is that the Navy look at the metals concentrations and the proposed ISCO locations before beginning. Ms. Smith asked if the soils will be treated before the groundwater. Mr. McGinnis said there is a "treatment train," meaning one phase or treatment method comes first, and then the next and so on. He said in alternative G3, the plan is to treat the source zones first; beginning with the most aggressive treatments and with the appropriate technology, like the thermal treatment; followed by either the in-situ bioremediation (ISB) or the monitored natural attenuation (MNA).

Mr. Peterson asked if any of the treatment technologies are more disruptive to redevelopment. Mr. Moss said the thermal treatment only requires about one year to be completed, and the ISCO or ISB are longer term treatments that are not as disruptive, but would require a restriction for ongoing access to monitoring wells.

Mr. Bangert asked if the high temperature thermal treatment technology will not be used because of the presence of high voltage lines. Mr. Robinson said yes, in some areas that is true. Mr. Bangert asked if the high voltage lines were not present, would the treatment time be significantly reduced by using the high temperature thermal treatment, allowing prime real estate to be redeveloped sooner. Mr. Robinson said the long time frames reflect the amount of time it will take groundwater to reach drinking water standards, not how long it will be until the land can be redeveloped. Dr. Russell said for example the Navy is treating a benzene/naphthalene plume in an area where Shinsei Gardens was built and they coordinated with the developer on the placement of wells for long term monitoring once the initial treatment phase was completed. Daniel Hoy (RAB member) suggested it would be helpful to know the cleanup time frame for redevelopment as opposed to the overall cleanup time frame. Mr. Robinson said the Navy could add a time frame for the aggressive treatment and passive treatment phases. Mr. Hoy said if the

footprint of the treatment equipment and the duration for each phase could be identified, that would be helpful. Mr. Robinson said that would be useful information and the Navy will discuss how to present that information.

Ms. Smith asked what the Navy proposes to capture metals such as lead, arsenic, and mercury, if they are mobilized during ISCO. Mr. Moss said the Navy will monitor for the metals if it happens.

Ms. Smith asked if the industrial lines and the storm sewer lines at the site where the archeological materials were found are the same thing. Mr. McGinnis said they are not the same things; the industrial lines are more like sanitary sewers and did not drain into Seaplane Lagoon. Ms. Smith asked if the industrial lines will be remediated as part of the treatment as they are broken in several places, and there may be isolated contamination in place or leakage from the broken lines. Mr. Moss said if the lines are within a source zone and it is applicable they will be addressed as part of the treatment technology.

Ms. Smith commented that she is not in favor the PRB alternative and would like the Navy to consider other reductive possibilities, such as the use of iron or hydrogen. She said it is easier to inject hydrogen than liquids at these sites, and requested that the Navy consider that.

Mrs. Sweeney commented she is in favor of the low temperature thermal heat over the PRB. She asked if there is a way that the utility lines can be protected so a higher temperature heat can be used. Mr. Humphreys asked if it would be cost effective to remove the electrical lines altogether to speed up the clean up process. Mr. Moss said it is not just electrical lines, it is the main utility corridor for the island so moving or removing it is not possible. Mr. Moss said the Strategic Environmental Research and Development Program (SERDP) study will prove valuable in determining the effectiveness of ISCO in OU-2B.

Dr. Gottstein asked how the no action alternative is scored "good" for the short term effectiveness criterion. Mr. Robinson said that criterion is a measure of the consequences of the remedial action, such as how the community is impacted, the increased carbon dioxide or diesel emissions from trucking, and those types of impacts. He noted the terms can be confusing, but the definitions are prescribed by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

Mr. Peterson asked if the case studies for the ISCO and in-situ bioremediation (ISB) proposed in alternatives G3A and G3B demonstrate the same success rate, and if so why spend $5 million more to implement one over the other. Mr. McGinnis said the Navy has more experience with ISCO at Alameda Point than ISB, but the technologies work differently and each is more appropriate based on specific site conditions.

Joan Konrad (RAB member) asked if the regulators had any comments they could share. The DTSC, EPA, and Water Board representatives all said the document is currently in the review process.

IV. BCT Update

Mr. Robinson said there would be no BCT update. Mr. McGinnis provided a handout of recent and upcoming deliverables and fieldwork schedule (Attachment B-2).

V. Approval of April 7, 2011 RAB Meeting Minutes

Ms. Smith asked for comments on the April 2011 RAB meeting minutes.

Dr. Russell provided the following comments:

- Page 6, second paragraph, last sentence, revise the phrase "and both originate at Buildings 5 and 400" to "and both originate in the vicinity of Buildings 5 and 400".

- Page 10, third paragraph, sixth sentence, “He said the interim remedy for sub-slab depressurization or similar technique will allow for residential reuse by not allowing a vapor intrusion path to cause an unacceptable human health risk, as at Shinsei Gardens.” Dr. Russell said the text should be revised to, “He said the interim remedy for sub-slab depressurization or similar technique will allow for residential reuse by not allowing a vapor intrusion path to cause an unacceptable human health risk. This is the approach used at Shinsei Gardens.”

Mr. Sweeney provided the following comment:

- Page 9, fourth paragraph, seventh sentence, “Mr. Sweeney asked if the area could be used for residential or commercial development and the Navy has no obligation for the TRW.” the text should be revised to, “Mr. Sweeney asked if the area could be used for residential or commercial development and whether the Navy has an obligation for the TRW.”

Mr. Humphreys provided the following comments:

- Page 6, third full paragraph, first sentence, should be revised from “Mr. Humphreys asked if a clamshell style bucket is being used to complete the dredging” to “Mr. Humphreys asked why a clamshell style bucket is shown in one photo and why a backhoe style bucket is shown in another.”

- Page 7, third paragraph, last sentence should be revised from, “She said that the sediment drying is expected to be completed in October” to “She said that most of the material will be off-site before October.”

- Page 8, third paragraph, Mr. Humphreys requested the names of the members removed from the RAB be printed, as well as the name of the member that is unable to attend but

the RAB voted to continue sending packets. The RAB voted 6 in favor, 1 opposed and 2 abstained to allow the minutes to reflect the names of the RAB members discussed. The paragraph will be revised as follows:

> Mr. Robinson said five RAB members have not attended a meeting in over a year. He attempted to contact each, but was unable to locate current contact information for two of them. Mrs. Sweeney said according to RAB guidelines if a RAB member does not attend three meetings in a year members may vote to remove the member from the RAB. The RAB voted to remove Ardella Dailey, Tony Dover, Bill Smith and Luann Tetirick as RAB members, and they will no longer receive RAB packets. Bert Morgan will remain on the RAB and on the mailing list as he has a conflict and cannot attend Thursday evening meetings.

Ms. Smith provided the following comment:

- Page 10, third paragraph, thirteenth sentence, "Mrs. Sweeney asked if the residences would be near the plume related to Barry's old establishment where natural attenuation was the selected remedy." Barry's should be spelled Beery's. There was discussion about the proper spelling of the establishment, and finally Mrs. Sweeney suggested the sentence should be revised as: "Mrs. Sweeney asked if the residences would be near the plume related to John Beery's old plume to the east of the Fleet Industrial Supply Center Alameda (FISCA) where natural attenuation was the selected remedy."

The April 2011 RAB meeting minutes were approved with the above requested modifications.

VI. Action Items

The status of previous action items was reviewed and is provided in the updated table below.

The meeting was adjourned at 8:30 PM. The next RAB meeting will be held at 6:30pm on Thursday June 2, 2011, at 950 West Mall Square, Alameda.

Action Items

Items grayed out have been completed at or since the April RAB meeting.

Action Items:	Previous Item #/ Action Item Status/ Action Item Due Date:	Initiated by:	Responsible Person:
1. Request for Presentations: a. Site 25 Plume Status Tracking b. OU-2C, Building 5/5A	 a./ Pending / 2011 b./ Pending / 2011	RAB	Mr. Robinson

Action Items:	Previous Item #/ Action Item Status/ Action Item Due Date:	Initiated by:	Responsible Person:
Demolition Costs and Feasibility Postponed Presentations (pending further action or information prior to scheduling the presentation): 1. Site 1 Radiological RD/RA work plan			
2. Mr. Fyfe and Mr. West will check on responsibility of City of Alameda to post signs warning about consumption of fish near the Seaplane Lagoon.	6/ Pending/ June 2, 2011	Dr. Gottstein	Mr. Fyfe, Mr. West
3. Peter Russell will provide 15 copies of the 11x17 diagram of the fuel lines along the north side of the Seaplane Lagoon	New/ June 2, 2011	Dr. Gottstein	Dr. Russell

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ATTACHMENT A

Naval Air Station Alameda Restoration Advisory Board Meeting Agenda, May 5, 2011, (1 page)

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RESTORATION ADVISORY BOARD

NAVAL AIR STATION, ALAMEDA

AGENDA

MAY 5, 2011, 6:30 PM

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

TIME	SUBJECT	PRESENTER
6:30 – 6:35	Welcome and Introductions	Community and RAB
6:35 – 6:50	Community and RAB Comment Period*	Community and RAB
6:50 – 7:05	Co-Chair Announcements	Co-Chairs
7:05 – 8:05	OU-2B Alternative Roundtable	Curtis Moss
8:05 – 8:15	BCT Update	
8:15 – 8:30	Approval of Minutes Review Action Items	Dale Smith
8:30	RAB Meeting Adjournment	

* If there is time at the end of the agenda, additional comments will be taken.

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ATTACHMENT B-1

Draft Feasibility Study Report Revision Two, Operable Unit 2B (18 slides)

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WELCOME

Draft Feasibility Study Report Revision Two

Operable Unit 2B

IR Sites 3, 4, 11 and 21
Alameda Point, California

Remediation Advisory Board Meeting
May 5th 2011

Curtis Moss, PG
Navy BRAC PMO West

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OU2B FS- Roundtable Agenda

- Introduction
  - Purpose
- Site Locations
- CERCLA History Summary
- Remedial Alternatives for Soil & Groundwater
- Response Actions for Soil & Groundwater
- Summary of Previous Removal Actions & Pilot Studies

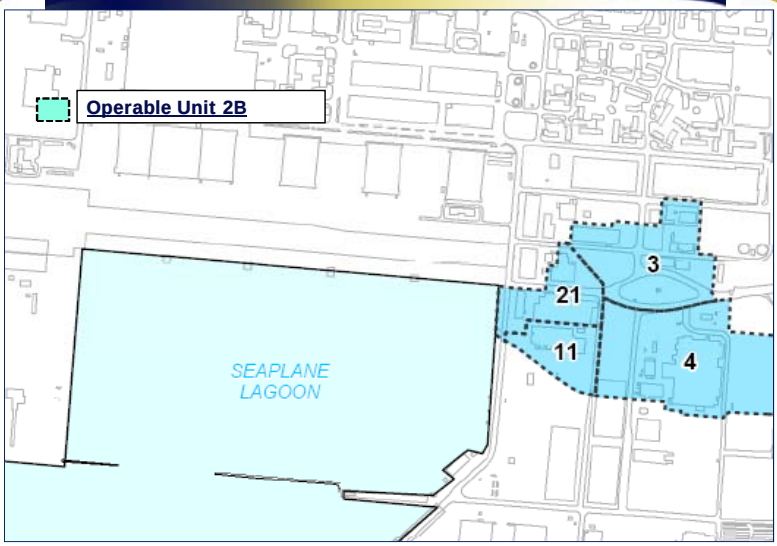
2

OU2B CERCLA HISTORY

- Final RI Report (2005)
- Draft FS Report (2005)
- Bldg 360 Removal Action (2006- 2007)
- Data Gaps Sampling (2008-2009)
- Revised Draft FS Report (2010)
- Supplemental Data Gap Investigation (DGI) (2010)
- Revision Two Draft FS Report (2011)
- Pilot Tests/Treatability Studies (2004-2011)

3

OU-2B/IR Site Location



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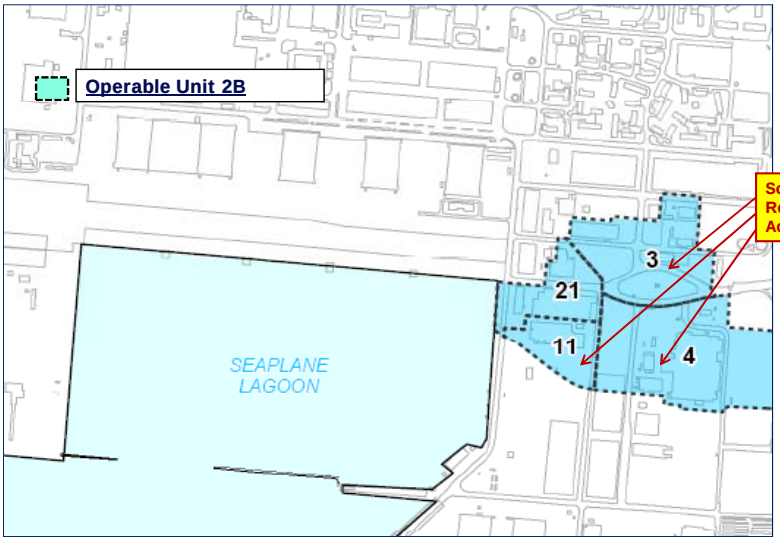
Proposed Soil Response Actions



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Soil Remedial Action Objectives

Soil Remedial Action Objectives (RAOs):

- Protect future receptors from unacceptable risks due to exposure to constituents of concern (COCs) in soil.
- Reduce PAH concentrations in soil to be consistent with the Alameda Point background concentrations.

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FS Evaluation - Soil
Soil Remedial Alternatives

IR Sites 3, 4, and 11

- Alternative S-1: No Action
- Alternative S-2: Excavation and Disposal of Impacted Soil (Residential Reuse)
  - Impacted soil would be excavated
  - Excavated soil to be analyzed & disposed at an approved disposal facility
  - Impacted soil volumes
    - IR Site 3: 3,900 bank cubic yards (bcy)
    - IR Site 4: 7,450 bcy
    - IR Site 11: 1,750 bcy

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FS Evaluation – Soil
Analysis of Remedial Alternatives

NCP Criterion	S-1: No Action	S-2: Excavation and Disposal of Impacted Soil (Residential Reuse)
Overall Protection of Human Health and the Environment	Not Satisfied	Satisfied
Compliance with ARARs	--	Satisfied
Long-Term Effectiveness	○	●
Reduction in Toxicity, Mobility, and Volume	○	◑
Short-Term Effectiveness	○	◑
Implementability	●	◑
Cost ($ million)	--	◑ ($6.5M)
State and Community Acceptance	TBD	TBD

○ Poor ◑ Fair ● Good

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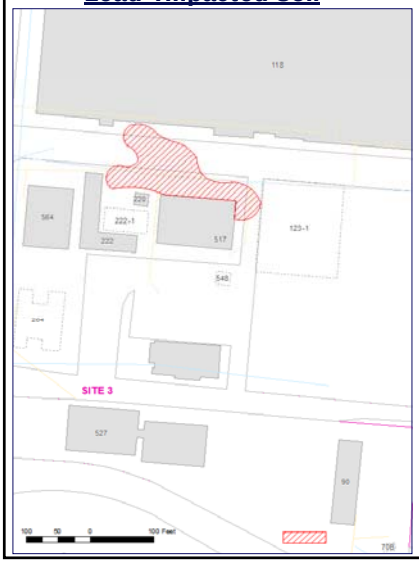
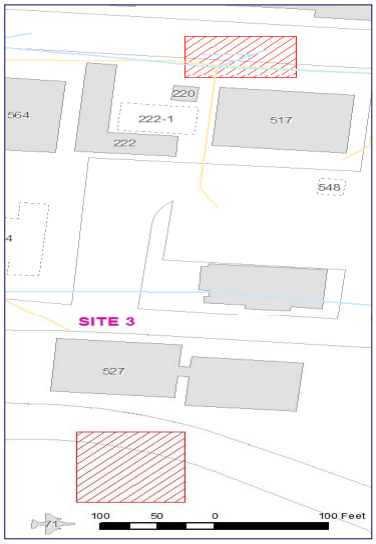
Soil Remedial Action Areas
Lead/PAH-Impacted Soil at IR Site 3

Lead-Impacted Soil



PAH-Impacted Soil

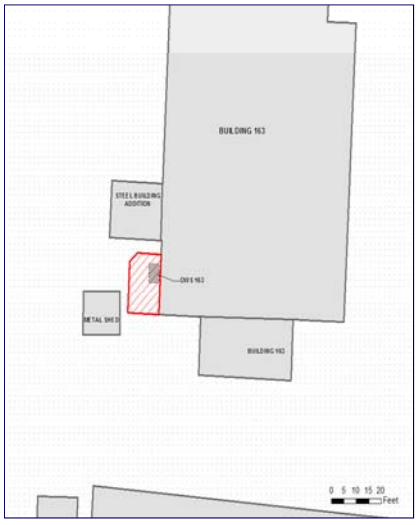


Remedial Action Area

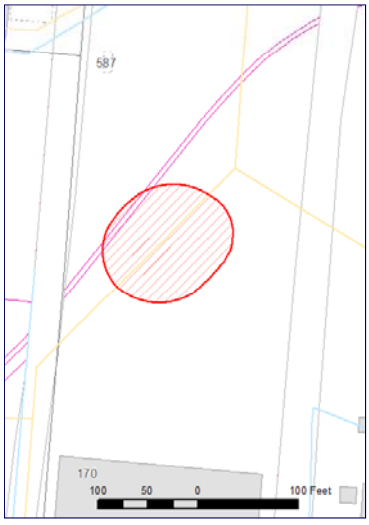
9

Soil Remedial Action Areas
IR Site 4

PCB and Pesticide-Impacted Soil



Arsenic and Antimony-Impacted Soil



Remedial Action Area

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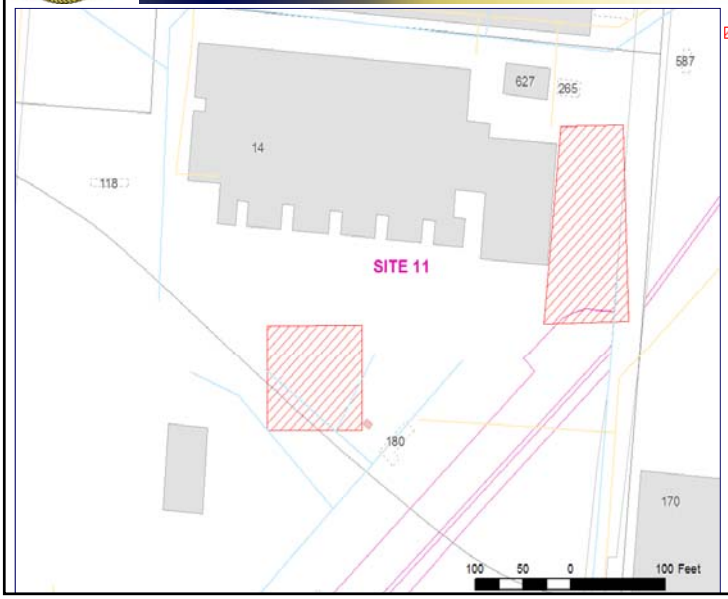
Soil Remedial Action Area
PAH-Impacted Soil at IR Site 11



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Groundwater
Remedial Action Objectives

The following RAOs were developed for evaluation of groundwater impacted VOCs at OU-2B :

- Protect future receptors from unacceptable risks associated with inhalation of VOCs in groundwater.
- Protect future receptors from unacceptable risks associated with ingestion of VOCs in groundwater.
- Minimize the potential for migration of VOCs in groundwater entering Seaplane Lagoon.

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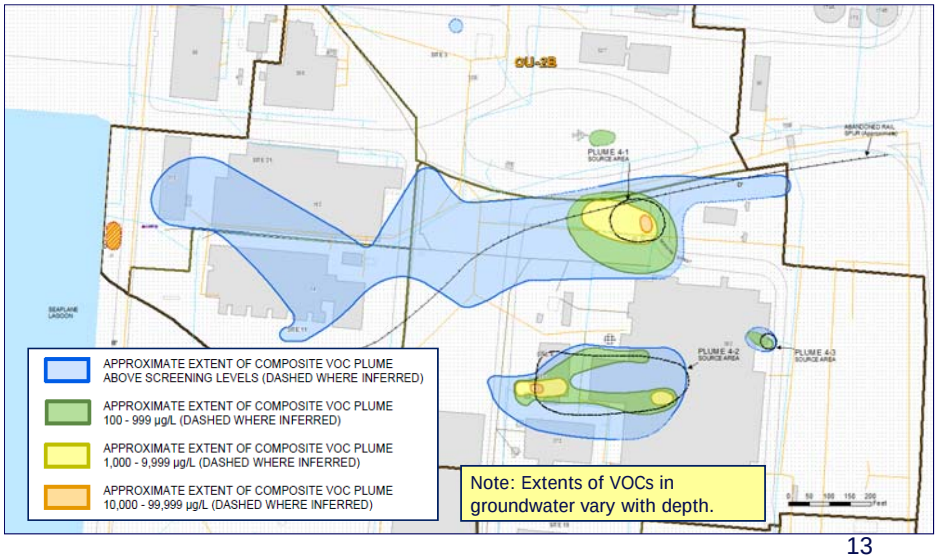
OU-2B Groundwater Extent of Contamination (5-15 ft bgs)



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Groundwater Remedial Alternatives

- **Alternative G-1**: No Action
- **Alternative G-2**: In-Situ Thermal Treatment (ISTT) of Source Zones, Treatment at the Seaplane Lagoon using Permeable Reactive Barrier (PRB), Monitored Natural Attenuation (MNA) and Institutional Controls (ICs)
- **Alternative G-3:** Source Zone Treatment, Shallow Groundwater Treatment, MNA and ICs
  - **Option G-3a:** ISTT of Source Zones and Shallow Groundwater Treatment using In-Situ Chemical Oxidation (ISCO)
  - **Option G-3b:** ISTT of Source Zones and Shallow Groundwater Treatment using In-Situ Bioremediation (ISB)
- **Alternative G-4:** Treatment of Entire Plume using Groundwater Recirculation, Permeable Reactive Barriers, and ICs

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Groundwater Cleanup (Residential Reuse) Analysis of Alternatives

NCP Criterion	G-1	G-2	G-3a	G-3b	G-4
Overall Protection of Human Health and the Environment	Not Satisfied	Satisfied	Satisfied	Satisfied	Satisfied
Compliance with ARARs	--	Satisfied	Satisfied	Satisfied	Satisfied
Long-Term Effectiveness	○	◑	●	●	●
Reduction in Toxicity, Mobility, and Volume	○	◕	◑	◑	●
Short-Term Effectiveness	●	○	◔	◔	◑ *
Implementability	●	◑	◕	◔	○
Cost ($ million)	--	◑ ($17.2M)	◔ ($19.5M)	● ($14.1M)	○ ($22.1M)
State and Community Acceptance	TBD	TBD	TBD	TBD	TBD
Cleanup Time	23-67 years	18-48 years	12-36 years	12-36 years	18-48 years

○ Poor ◔ Poor to Fair ◑ Fair ◕ Fair to Good • Good

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Schedule

- Issued Revised Draft Revision 2 FS – April 2011
- Agency/RAB Review- April 2011 – June 2011
- Issue Draft Final – July 2011
- Finalize FS in August 2011

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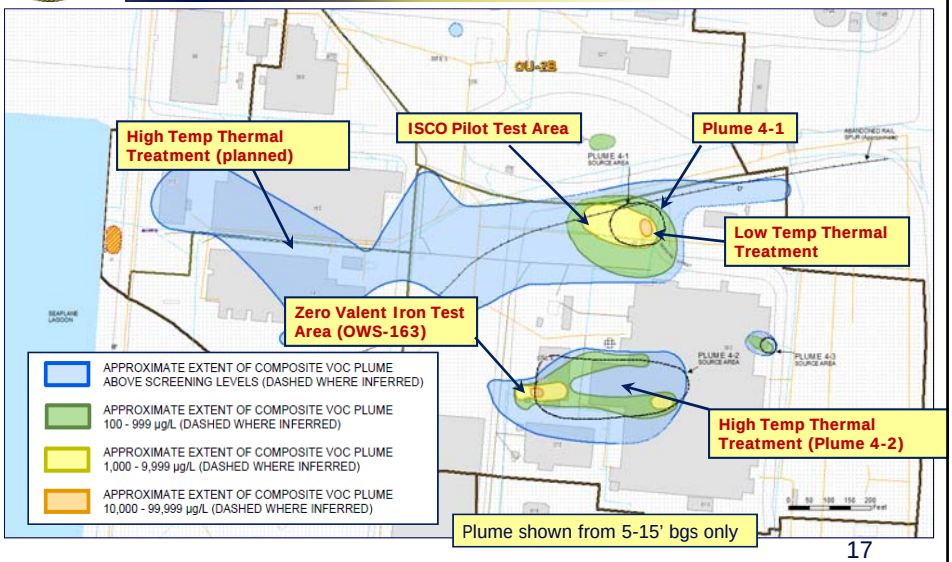
Pilot Tests



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OU2B CHLORINATED SOLVENTS PILOT TESTS

Pilot Test	Location	Successful?	Insight Gained
In Situ Chemical Oxidation (ISCO)	Plume 4-1	Yes	Reduced TCE levels, yet additional ISCO needed to reduce source zone mass
Low Temp. In Situ Thermal Treatment (ISTT)	Plume 4-1	No	Not cost effective due to duration required to remove contamination
ISTT	Bldg. 360	Yes	99.5% mass reduction in median VOCs in source area
Zero Valent Iron	Bldg. 163	No	Cannot inject slurry below 18' bgs (target zone 5-50' bgs)
TCE Mass Flux Treatability Study	Plume 4-1	Ongoing	Measure TCE flux from source zone, future treatment

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ATTACHMENT B-2

Recent and upcoming deliverables and fieldwork schedule (2 pages)

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Recent and Upcoming Deliverables, April 14, 2011
Alameda Point, Alameda, CA

Recent		
Site	**Document**	**Transmittal Date**
Basewide	Draft CERCLA 5-Year Review	2/21/2011
OU-2B	Draft FS	4/6/2011
OU-2A	Final FS Report	4/8/2011
OU-2C	Draft Final FS	4/8/2011
Site 34	Final ROD	4/11/2011

Upcoming		
Site	**Document**	**Transmittal Date**
OU-2C	Final FS	5/10/2011
EDC-17	Draft Final Addendum to Final Site Inspection Report	TBD
EDC-12	Draft Final Addendum to Final Site Inspection Report	TBD
Site 1	Draft Remedial Design/Remedial Action Work Plan	5/25/2011
OU-2C	Draft Storm Drain FS Addendum	7/29/2011

Active and Upcoming Fieldwork, April 14, 2011
Alameda Point, Alameda, CA

Sites	Start	End*	Description of Fieldwork
OU2A & 2B	3/8/2011	4/8/2011	Data Gaps Sampling
Site 2 Predesign Investigation	3/14/2011	4/15/2011	Predesign investigation in support of RD (soil gas sampling, geophysical sampling, trenching, etc) --- complete except for soil gas sampling due to weather
Site 4	4/1/2011	5/15/2011	Plume 4-1 TS DNAPL/Hydrogeological assessment: Enhanced Dissolution Test/ tracer tests
Basewide GW	5/1/2011	5/21/2011	Spring Sampling Event
OU-1	5/1/2011	5/31/2011	Performance Groundwater Monitoring IR Sites 6 and 16, OU-1
Site 35 RA	4/18/2011	6/2/2011	Pre-excavation sampling, site excavation, verification sampling, site restoration, and associated field activities
Site 24	5/8/2011	6/8/2011	Pre-design sampling
Site 32	5/2/2011	7/15/2011	Radiological Characterization Survey and Sampling
Site 17 Remediation	9/13/2010	12/31/2011	Land support facilities construction began October 18, 2010. Mobilization for IR Site 17 source control remedial activities began the week of November 29, 2010. Dredging began in January 2011 and is in progress.
Site 21 (OU-2B)	1/1/2011	2/1/2012	Wells sampled and decommissioned. Continuing pre-con of SPH dual cell array/ Bldg 162 wall demo/ install power lines
OU-5/FISCA IR02 Remediation	10/6/2008	10/6/2012	Biosparge / vapor extraction system Eastern Biosparge Area construction completed May 2009; Marina Village Western Biosparge Area biosparge area construction completed 10/6/2009. Treatment system running well. Calculated mass reduction of 2,822 pounds of benzene and 69,961 pounds of naphthalene after ~1 year of operation for the Eastern Biosparge Area. Variable frequency drives contributing to efficiency.

* Ordered by End Date