

**FINAL**  
**NAVAL AIR STATION ALAMEDA RESTORATION ADVISORY BOARD**  
**MEETING SUMMARY**

<http://www.efds.w.navy.mil/environmental/AlamedaPoint.htm>  
Building 1, Suite 140, Community Conference Center  
Alameda Point  
Alameda, California

May 5, 2005

The following participants attended the meeting:

**Co-Chairs:**

Thomas Macchiarella      Base Realignment and Closure (BRAC) Program Management Office  
(PMO) West, BRAC Environmental Coordinator (BEC), Navy  
Co-chair

Jean Sweeney              Restoration Advisory Board (RAB) Community Co-chair

**Attendees:**

Jeannette Anderson      Sullivan International Group (Sullivan)

Doug Biggs                Alameda Point Collaborative (APC)

Neil Coe                    RAB

Anna-Marie Cook        U.S. Environmental Protection Agency (EPA)

Doug Davenport        Tetra Tech EM Inc. (Tetra Tech)

Kathalina Fuentes        Community Member

Jennifer Gibson         Sullivan

Corrina Gould            Community Member

Diane Heinze             Port of Oakland

Linda Henry              Brown and Caldwell

Rosa Heredia            Community Member

Lisa Houlihan            U.S. Coast Guard (USCG)

Judy Huang                Regional Water Quality Control Board (RWQCB)

George Humphreys      RAB

Terry Iwagoshi            Weston Solutions Inc.

Eric Johansen            Bechtel Environmental Inc. (Bechtel)

Elizabeth Johnson      City of Alameda (City)

Joan Konrad              RAB

Marcia Liao                Department of Toxic Substances Control (DTSC)

Patrick Lynch	Community Member
Kurt Peterson	RAB
Kevin Reilly	RAB
Peter Russell	Russell Resources Inc./City of Alameda
Michael Schiess	Community Member
Dr. Sophia Serda	EPA
Dale Smith	RAB/Audubon Society/Sierra Club
Jim Sweeney	RAB Vice Community Co-chair
Luann Tetirick	RAB
Michael John Torrey	RAB/Housing Authority of the City of Alameda

The meeting agenda is provided in Attachment A.

## **MEETING SUMMARY**

### **I. Approval of Minutes**

Ms. Sweeney, Community Co-Chair, called the meeting to order at 6:30 p.m.

Ms. Sweeney asked for comments on the minutes from the RAB meeting held on April 7, 2005.

Mr. Torrey, Ms. Smith, and Mr. Humphreys provided the following comments:

#### Mr. Torrey's Comments

- On page 10 of 10, first paragraph, revise "2005 Small Business Gold Classic" to read "2005 Small Business Golf Classic."
- On page 10 of 10, second paragraph, third sentence, revise "contractor" to read "contractors."

#### Ms. Smith's Comments

- On page 4 of 9, fifth paragraph, first sentence, revise "Ms. Konrad asked requirements that would apply...." to read, "Ms. Konrad asked about requirements that would apply...."
- On page 5 of 9, third paragraph, first sentence, revise "Mr. Newton stated that follow receipts of comments..." to read "Mr. Newton stated that following receipt of comments..."
- On page 5 of 9, fifth paragraph, last sentence, revise "This screening level is using during sampling...." to read "This screening level is used during sampling..."

#### Mr. Humphreys' Comments

- On page 5 of 9, first paragraph, last sentence, revise "caused during the last major earthquake because of water entering and leaving the estuary at a rate of every 30 minutes" to read "caused during the Anchorage, Alaska, earthquake because of water entering and leaving the estuary every 30 minutes."

The minutes were approved based on incorporation of the previous comments.

## **II. Co-Chair Announcements**

Ms. Sweeney said that the Navy has received comments from the RWQCB in response to the request for No Further Action at Site 14 and that the comments are available if the RAB would like to review them.

Mr. Macchiarella noted that he would e-mail the upcoming documents handout (Attachment B-1) to the RAB on Monday, May 9.

Mr. Macchiarella said that he would take photographs of the RAB during the meeting to post on the Navy's web site.

## **III. Presentation on Site 30 Remedial Investigation Report**

Mr. Johansen began the presentation by introducing himself and Ms. Henry, who discussed the human health risk assessment (HHRA) for the Site 30 remedial investigation (RI) report. The presentation is included as Attachment B-2 to these minutes.

Mr. Johansen said that the HHRA concluded that the risks to school children and staff and risks due to indoor air were within the risk management range. The risks for future residents above the risk management range were posed by benzene in groundwater if groundwater was used for drinking water, and by arsenic in soil.

Mr. Torrey asked if benzene in groundwater would be a problem for animals. Mr. Johansen replied that there is no exposure pathway for animals to contact the groundwater. Mr. Johansen further clarified that the HHRA is conservative, so it assumes that residents would be using groundwater. In fact, however, all water used for future residents would be pumped in by the East Bay Municipal Utilities District (EBMUD).

Mr. Johansen also mentioned that a single elevated result for metals and polychlorinated biphenyls (PCBs) was removed during the fall 2004 time-critical removal action (TCRA).

Mr. Johansen said that no further site characterization is necessary and that the Navy is moving forward to the feasibility study (FS) to address the arsenic in soil. He added that the Navy will continue to address groundwater in a separate study.

Mr. Johansen then provided a brief description and history of the site. He noted the location of the site on the map and of both the George P. Miller Elementary School and Woodstock Child Development Center. Mr. Johansen pointed out that the site was paved in the late 1950s. He showed historical aerial photographs of the site's development for the years 1937 through 1993 (Slides 9 through 12).

Mr. Humphreys asked what buildings were next to the site. Mr. Macchiarella replied that residential housing is to the north and east (Coast Guard Housing). Mr. Humphreys suggested that an area located in the Kollman Circle area could be a source of groundwater contaminants.

Mr. Johansen reviewed the project objectives, including comparing onsite groundwater with the area-wide plume, characterizing the nature and extent of soil contamination, collecting data to conduct the HHRA and ecological risk assessment (ERA), and using the risk assessments to support the Navy's recommendation for either no further action or for further action, including a FS.

Mr. Johansen then provided an overview of the extensive soil and groundwater sampling used for the investigation. In response to a request from Mr. Reilly, Mr. Johansen defined "FWBZ" as "first water bearing zone" and "bgs" as "below ground surface." Mr. Johansen also noted that 186 historical samples were also used in the investigation.

Dr. Serda asked for the locations of past and present areas of bare ground at the George P. Miller Elementary School. Mr. Johansen replied that the areas of previously exposed soil were in the southwestern corner of the site, but that the area was paved as part of the TCRA. Mr. Johansen added that there is some landscaping in front of the building and some exposed soil in the staff lunch area currently, but most areas are now paved.

Mr. Johansen discussed some key physical characteristics of the site. He noted that the upper 2 to 3 feet of soil appear to be imported fill materials, which show contamination by arsenic. He said that the 2- to 8-foot clay layer below the fill material acts as a protective barrier, restricting vapor migration from the groundwater. A fine-grain sand layer below the clay layer holds the groundwater contaminated by volatile organic compounds (VOC). Mr. Johansen used cross section maps of the site to illustrate that the clay layer is much thicker in the western part of the site, where the elementary school and childcare center are located.

Mr. Humphreys inquired whether the clay layer was typical of this area. Mr. Macchiarella replied that it is not typical of the other fill materials in the area and that the clay layer fill may have been brought in from another source.

Ms. Smith asked if Site 30 was part of the original island. Mr. Macchiarella replied that it was not; the original island was farther east and south and this site was originally marsh.

Mr. Johansen showed a slide of the plume of benzene in groundwater (Slide 19), which Mr. Macchiarella pointed out was the same figure the RAB had seen in the OU-5 groundwater RI/FS. Mr. Coe inquired as to the depth of groundwater, which Ms. Henry replied is about 4 feet.

Ms. Smith asked what chemical concentrations were represented in the figure. Mr. Johansen replied that the concentrations of benzene range from 1 part per billion (ppb) to several 1,000 ppb. Mr. Coe also noted that the higher concentrations were at depth, and Mr. Johansen concurred.

Mr. Johansen then showed a slide demonstrating that benzene concentrations are higher at greater depths. Mr. Johansen noted that the shallower groundwater was used for vapor modeling because contaminants in this area are more likely to be volatilized. Mr. Johansen then showed a similar slide for naphthalene, which displayed the same trend of higher concentrations at depth.

Mr. Johansen summarized the findings of the investigation and said that the contamination in groundwater is consistent with the area-wide plume. In addition, no evidence was found of a source to groundwater from on-site soil. Elevated concentrations of benzene and naphthalene are located at depth in the western portion of the site.

Mr. Johansen summarized the findings of the soil investigation. He noted that 16 chemicals exceeded EPA's preliminary remediation goals (PRG), and that the chemicals generally are distributed evenly across the site. He added that arsenic, iron, and vanadium were frequently detected above background levels and PRGs. The concentration of arsenic was higher in soils at 0 to 2 feet bgs and polycyclic aromatic hydrocarbons (PAH) are at higher levels below 2 feet. He also clarified that iron, vanadium, and

PAHs are not risk drivers, and noted that one sample with very high concentrations was removed as part of the TCRA in the fall 2004.

Mr. Johansen summarized the results of the Ecological Risk Assessment. He noted that the hazard index was greater than 1 for 7 organic and 8 inorganic chemicals, but that the lack of habitat negates the need to conduct further assessment of ecological risk at the site.

Mr. Coe asked about the thickness of the asphalt beneath the playground, and Mr. Johansen answered that it is approximately 6 inches.

Ms. Konrad commented that the school might be closed in the future and that the RAB does not know the site's future use. Ms. Henry answered that the HHRA evaluates risk using very conservative assumptions, and examines the risk as if the asphalt was not there.

Ms. Henry said that an assumption of the HHRA is that the site would be used as residential in the future. Ms. Henry then summarized the results of the risk assessment and noted the only unacceptable risk was shown for hypothetical future residents who were drinking the groundwater.

Mr. Torrey asked if the residents were drinking the groundwater, and Ms. Henry clarified that the risk assessment includes a conservative assumption, required by EPA, that future residents would be drinking the groundwater. In actuality, however, future residents would not be drinking the groundwater, but would be drinking water provided by EBMUD. Ms. Cook clarified that this process is only a model used to estimate risk.

Mr. Torrey then asked how the HHRA could assume the residents are drinking groundwater but the animals present on the site are not. Ms. Henry replied that the animals would have no direct exposure to the approximately 4 feet bgs groundwater, and that future residents, adults and children, which are more sensitive receptors, were used in the model.

Mr. Coe noted that usually asphalt is laid on top of base rock, which is used as a foundation, to which Ms. Henry noted that there is sandy base under the asphalt that is approximately 2 feet thick.

Ms. Henry noted that the risk associated with chemicals in soil is above the risk management range, but that most is posed by chemicals that are naturally occurring. She said that if the naturally occurring chemicals were removed, the risk falls within the risk management range for EPA.

Ms. Henry discussed the risk from indoor air, noting that all results were within the risk management range. Ms. Smith then asked how the risk is evaluated, and Ms. Henry replied that risk assessors use data for all the volatile chemicals that were detected in the shallow groundwater, calculate a statistic to yield a concentration that is above the average, and consider the possible release of vapors into the school. She also noted that the crawl space has been sampled in the school and that these chemicals were not detected. Ms. Henry reviewed the risk for school children and noted that the risk was all within the risk management range, even when assuming that there was no pavement. Ms. Henry noted that the results from a special California Office of Environmental Health Hazard Assessment model for school children also indicate that risk is within the risk management range.

Ms. Henry summarized the results of the HHRA. She said that risk for school children and staff is within the risk management range and that risk for future residential indoor air is also within the risk management range. The exposure point concentration (EPC) for lead was above the acceptable level for children because of a single elevated result for lead in soil; however, that soil was removed during the

TCRA. Finally, she noted that the risk for future residents from all exposure is above the risk management range caused by benzene in groundwater only if the future residents drink the groundwater, and for arsenic in soil by DTSC's standards.

Dr. Serda said that EPA is still reviewing the document but has concerns with arsenic in soil for future residents. Ms. Cook agreed that EPA also has concerns about arsenic in soil for future residents. Ms. Sweeney noted that some argue that arsenic is naturally occurring in the bay area and she hopes that the regulators take note of the elevated levels. Ms. Cook replied that these elevated levels are not consistent with Alameda Point. Dr. Serda suggested that the imported fill base for the asphalt was contaminated. Mr. Coe noted that the imported fill base probably came from the quarry at the top of 73<sup>rd</sup> Avenue in the Oakland Hills; this material is often called "Red Rock" and is basically decomposed granite. Ms. Henry then noted that the Great Valley Soils from the Oakland Hills are known to be high in arsenic and consistent with the levels seen at this site.

Ms. Cook said that the Defense Reutilization and Marketing Office (DRMO) may have brought in the arsenic-laden base when it began storing materials on site. She added that the demonstration of a correlation between the contaminated soil on site and the soil from the quarry would help resolve the matter.

Mr. Johansen closed the presentation by noting that the Navy is also concerned about the arsenic in soil and plans to move forward to the FS to address arsenic in soil. He continued that the chemicals in groundwater will be addressed under a separate Navy study.

#### **IV. Alameda Point PAH Vegetation Assessment**

Dr. Serda gave a presentation about a study she conducted to assess PAHs in homegrown produce. Dr. Serda noted that people are concerned about chemical exposure through homegrown produce, and that she received adequate funding to complete this study.

Dr. Serda explained the methods of her study and stated that she took direct measurements using existing vegetation. She added that produce and soil samples were collected together. Dr. Serda showed slides (Attachment B-3) of tomato plant roots, fava bean roots, fig and apple trees, and hairy cat's ear (an edible flower). Dr. Serda also noted that she had established two reference areas in Alameda. The number of samples, sample types, and location are listed on Attachment B-4.

Ms. Johnson asked if people were eating the entire hairy cat's ear plant or just the flower, Dr. Serda clarified she asked people who were collecting the plant what portion they ate and they told her only the flower is eaten. Ms. Sweeney noted that this plant is considered a weed.

Dr. Serda summarized the results of her study; she said that no PAHs were detected in any of the vegetation, even with the very low detection limits of 62 micrograms per kilogram. She also noted that these actual data were of benefit in understanding risk to residents from homegrown produce. Ms. Johnson asked if there would be a report issued with the findings; Dr. Serda replied that she will write the report.

#### **V. BCT Activities**

Ms. Liao distributed a handout that summarizes the Base Realignment and Closure (BRAC) Cleanup Team (BCT) activities for April 2005 (Attachment B-5). The last meeting was held on April 19, 2005,

and agenda items included resolution of issues on the Site 34 draft final RI work plan, the Site 30 RI report, and the site management plan.

Ms. Liao noted that Site 34 is a new RI site, which is located between Sites 14 and 15. The primary risk drivers at Site 34 are PCBs and arsenic. Cadmium, chromium, lead, and PAHs are also reported at concentrations above PRGs.

The Navy proposed to collect soil and groundwater samples using a modified grid focusing on potential source areas and preferential migration pathways, such as the buildings, aboveground storage tanks, and the fuel line (Phase 1). In addition, four shallow groundwater wells and one deep well will be installed (Phase 2) if needed. The draft work plan is scheduled to be submitted in June 2005.

Mr. Reilly asked if any foundations remained on the site, and Mr. Macchiarella replied that he believes that some foundations remain and others were removed.

Ms. Liao also said that the BCT members received the Site 30 RI report presentation that was given during this meeting.

Ms. Liao said that the Navy presented the proposed revisions to the model for the site management plan for fiscal year 2006 and that the proposed model is expected to provide a more realistic schedule for each site. The regulators agreed to review and provide comments, if any, before the next BCT meeting.

Ms. Liao said that the Navy has responded to agency comments about the proposed active treatment of the groundwater plume and further delineation of the plume at its northern edge presented in the Site 26 proposed plan. The active treatment will be in situ chemical oxidation followed by bioremediation and then groundwater monitoring. She noted that the cleanup level will be equivalent to the maximum contaminant level (MCL) and that institutional controls restricting residential use will be in place until the MCL is reached. The draft proposed plan is expected to be issued in June 2005.

Ms. Cook noted that the Navy has not agreed to the MCLs but has agreed to values close to the MCLs.

Mr. Sweeney asked what treatment would be used, and Ms. Liao answered in situ chemical oxidation. Mr. Macchiarella noted that the proposed plan has not been submitted and that this discussion is merely a preview.

Mr. Humphreys noted that natural attenuation was previously proposed, and Ms. Cook said that the active treatment would be a faster remedy.

Ms. Sweeney asked about the depth of the samples at Site 34, and Mr. Macchiarella replied that the work plan would provide this information.

Ms. Sweeney also inquired as to the severity of contamination in the area of the proposed golf course. Mr. Macchiarella replied that the upcoming site characterization will answer that question. Ms. Sweeney commented that the area might not become a golf course. Ms. Cook noted that the site would be cleaned up to unrestricted use levels or that an institutional control would be established to restrict residential use. Ms. Sweeney asked if the land was proposed for public trust land. Ms. Johnson noted that public trust land does not allow for residential development.

Mr. Humphreys asked about the location of the water tank used by Pan Am with respect to the golf course. Mr. Macchiarella responded that he believes the tank was in the general area of Site 34.

Ms. Cook clarified that it is near Site 15. Mr. Humphreys asked if any samples have been collected of waste material disposed of inside the tank. Ms. Cook replied that some samples have been collected as part of a UST [underground storage tank] excavation project, and that the soil may have been placed in that tank.

## **VI. Community and RAB Comment Period**

Ms. Johnson issued an invitation to the Alameda Point Community Meeting, which will be held Saturday, May 7, 2005, from 9:30 a.m. to 12:30 p.m. (Attachment B-6). This meeting will discuss future land use for the majority of Alameda Point.

Ms. Sweeney noted that this is the same weekend as the Park Street Fair.

Mr. Coe asked if the design of the future golf course considers the potential existence of subsurface contamination. Ms. Johnson replied that the Environmental Impact Statement for the golf course assumed that the Navy had completed all necessary cleanup. Mr. Coe then asked about the dredge materials that will be used for the golf course, and Ms. Johnson responded that the city hope to bid for the maintenance dredge; she also noted that the dredge materials would have to pass certain standards to be used.

Ms. Sweeney asked if the July meeting would interfere with the 4<sup>th</sup> of July plans, the RAB briefly discussed this and Mr. Macchiarella concluded that the RAB meeting would stay on its normal schedule, which will be on July 7. Ms. Johnson noted that the Alameda Reuse and Redevelopment Agency (ARRA) meeting would also be on that night.

Ms. Sweeney noted that some RAB members were absent and asked that the RAB members please contact her if they cannot attend.

There were no further comments, and the meeting was adjourned at 8:30 p.m.

**ATTACHMENT A**

**NAVAL AIR STATION ALAMEDA  
RESTORATION ADVISORY BOARD MEETING AGENDA  
May 5, 2005**

(One Page)

# ***RESTORATION ADVISORY BOARD***

***NAVAL AIR STATION, ALAMEDA***

## ***AGENDA***

**MAY 5, 2005 6:30 PM**

**ALAMEDA POINT – BUILDING 1 – SUITE 140**

**COMMUNITY CONFERENCE ROOM**

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

<b><u>TIME</u></b>	<b><u>SUBJECT</u></b>	<b><u>PRESENTER</u></b>
<b>6:30 - 6:45</b>	<b>Approval of Minutes</b>	<b>Ms. Jean Sweeney</b>
<b>6:45 - 7:00</b>	<b>Co-Chair Announcements</b>	<b>Co-Chairs</b>
<b>7:00 – 7:45</b>	<b>Site 30 Remedial Investigation Report Presentation</b>	<b>Mr. Darren Newton &amp; Mr. Eric Johansen</b>
<b>7:45 – 8:15</b>	<b>Alameda Point PAH Vegetation Assessment</b>	<b>Dr. Sophia Serda</b>
<b>8:15 – 8:25</b>	<b>BCT Activities</b>	<b>Ms. Marcia Liao</b>
<b>8:25 – 8:45</b>	<b>Community &amp; RAB Comment Period</b>	<b>Community &amp; RAB</b>
<b>8:45</b>	<b>RAB Meeting Adjournment</b>	

## **ATTACHMENT B**

### **NAVAL AIR STATION ALAMEDA RESTORATION ADVISORY BOARD MEETING HANDOUT MATERIALS**

- B-1 List of significant Navy CERCLA program documents for May/June 2005, presented by Thomas Macchiarella, BRAC PMO-West. May 5, 2005. (1 page)
- B-2 Remedial Investigation Report IR Site 30, presented by Eric Johansen, Bechtel, and Linda Henry, Brown and Caldwell, May 5, 2005. (18 pages)
- B-3 Homegrown Produce PAH Assessment Presentation. Presented by Sophia Serda, U.S. Environmental Protection Agency. (10 pages)
- B-4 Homegrown Produce PAH Assessment Handout. Provided by Sophia Serda, U.S. Environmental Protection Agency. (1 page)
- B-5 April 2005 BCT activities update. Presented by Marcia Liao, Department of Toxic Substances Control (DTSC). May 5, 2005. (1 page)
- B-6 Handouts on the Alameda Point Community Meeting. Provided by Elizabeth Johnson, City of Alameda. (1 page)

**ATTACHMENT B-1**

**LIST OF UPCOMING CERCLA DOCUMENTS FOR MAY/JUNE 2005**

**(1 PAGE)**

**Alameda Point Restoration Advisory Board Meeting  
May 5, 2005**

***Significant Navy CERCLA program documents planned for  
May/June 2005***

- Site 17 (Seaplane Lagoon) Draft Final Feasibility Study
- Draft Final Datagap Sampling Workplan (Offshore sediments)
- Site 26 (Western Hangar Zone) Final Feasibility Study Report
- Site 28 (Todd Shipyard) Draft Final FS Report
- OU-2B (Sites 3, 4, 11 & 21) Draft Final Remedial Investigation Report
- OU-1 (Sites 6, 7, 8 and 16) Draft Final Feasibility Study Report
- Draft amendment to the Site Management Plan

**ATTACHMENT B-2**

**REMEDIAL INVESTIGATION REPORT IR SITE 30, PRESENTED BY ERIC JOHANSEN,  
BECHTEL, AND LINDA HENRY, BROWN AND CALDWELL, MAY 5, 2005.**

**(18 PAGES)**



# Welcome

**BRAC**  
PMO WEST

## **Remedial Investigation Report IR Site 30 George P. Miller Elementary School and Woodstock Child Development Center**

Darren Newton  
Remedial Project Manager  
BRAC Program Management Office West  
Linda Henry, Brown and Caldwell  
Eric Johansen, Bechtel  
RAB Meeting, May 5, 2005



# Bottom Line on HHRA

**BRAC**  
PMO WEST

- Risks for school children and staff within risk management range
- Risks for indoor air are within risk management range
- The risks for future residents above risk management range:
  - Benzene in GW from area wide plume (if GW was used as a drinking water, which it is not)
  - Arsenic in soil (DTSC only)
- Single metals/PCB hit removed during Fall 2004 TCRA (Shaw)



## Recommendations

**BRAC**  
PMO WEST

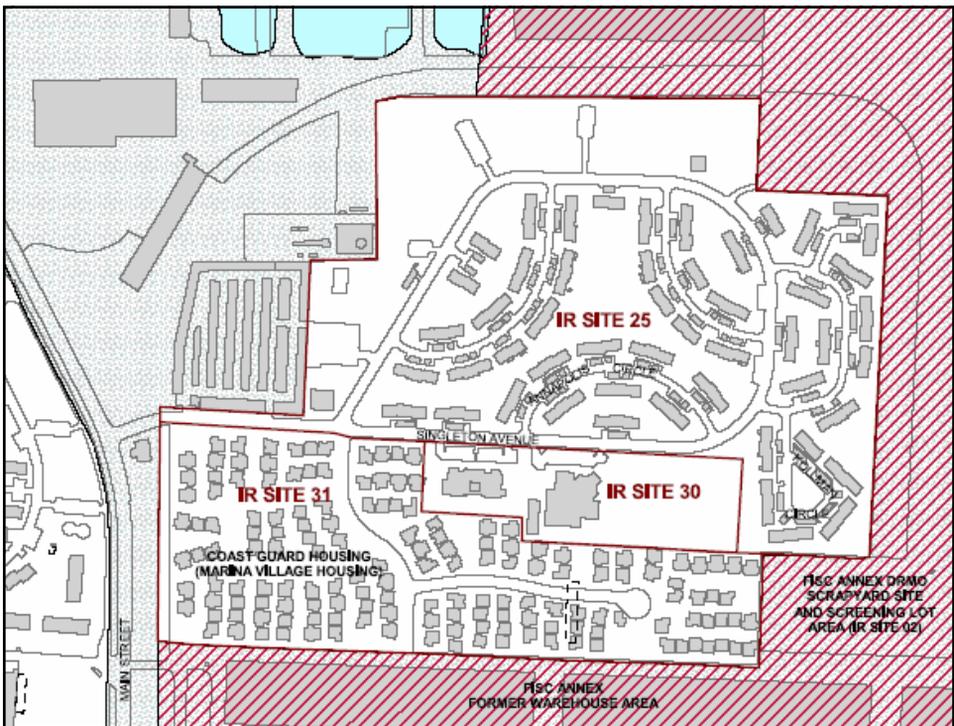
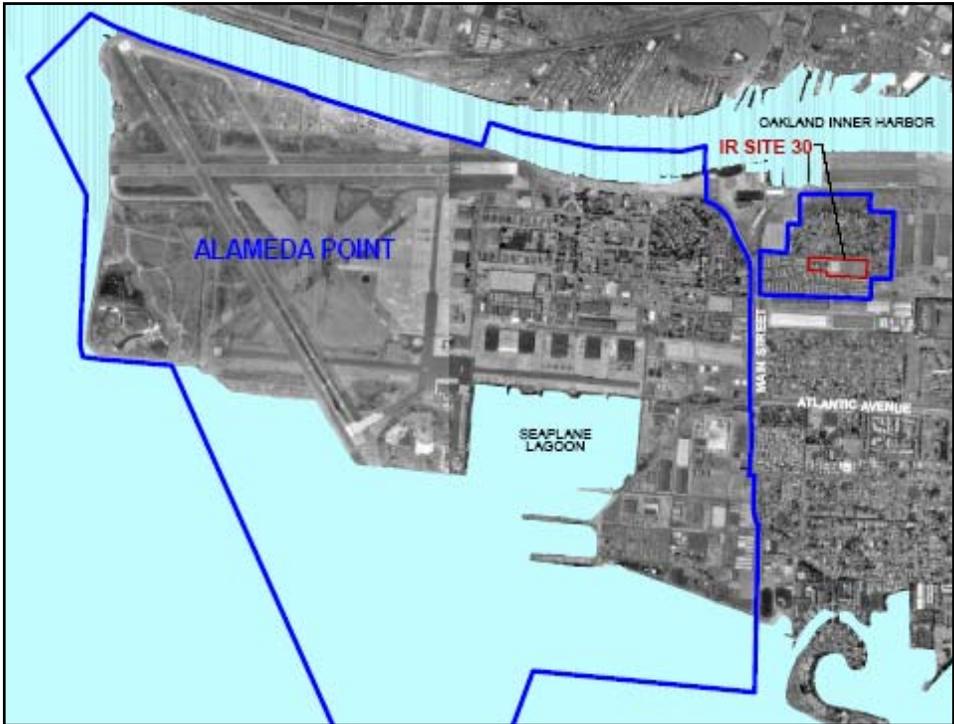
- No further site characterization needed
- Move to FS to address the arsenic in soil
- Continue addressing GW and associated remedy under a different study as part of the OU-5 areawide VOC plume



## Agenda

**BRAC**  
PMO WEST

- Site Description and History
- Project Objectives
- Investigation Overview
- Key Physical Characteristics
- Nature and Extent of Contamination
- Human Health Risk Assessment
- Recommendations/Schedule





## Site Description

**BRAC**  
PMO WEST

- George P. Miller Elementary School and Woodstock Child Development Center
- Site is 6.6 acres in size and primarily covered with buildings and hardscape (asphalt and concrete)
- Area-wide VOC plume underlies site
- Time Critical Removal Action (TCRA) for PAHs performed November 2004



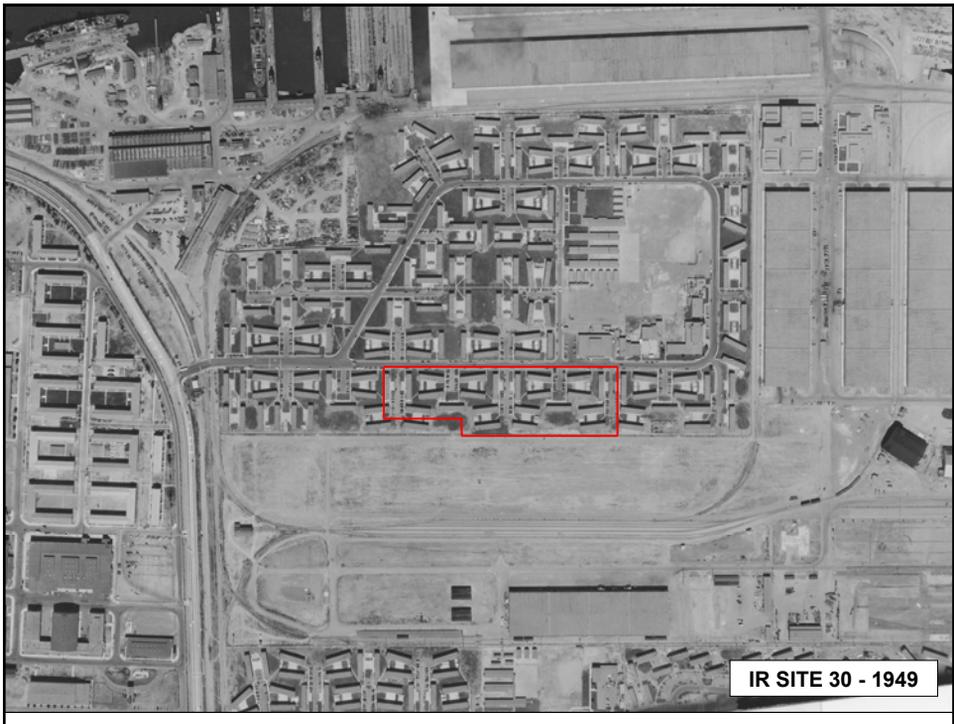
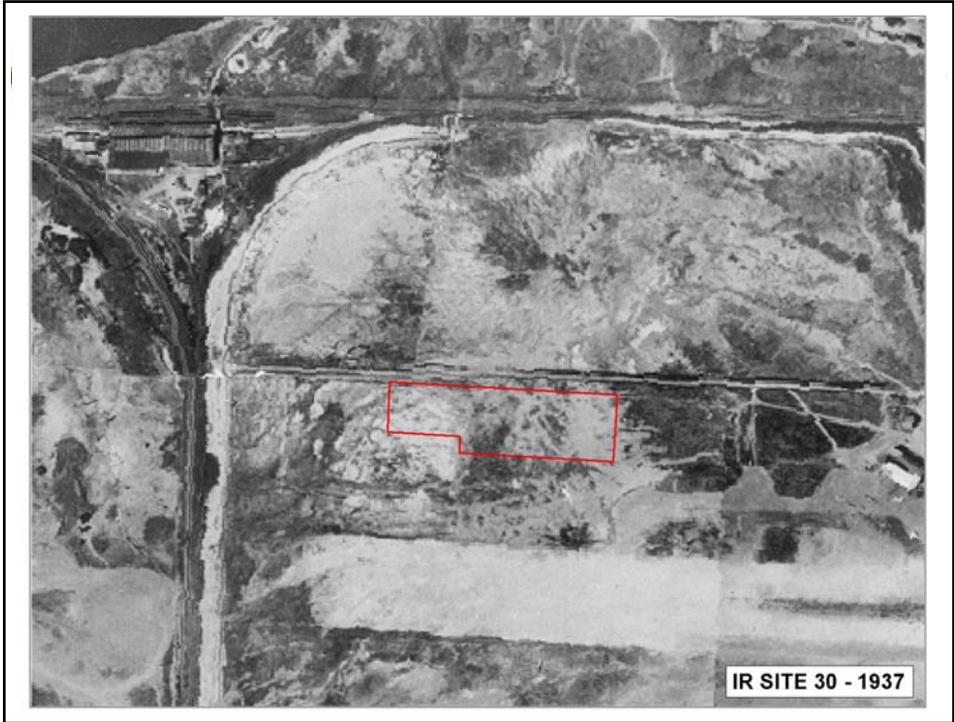
## Site History

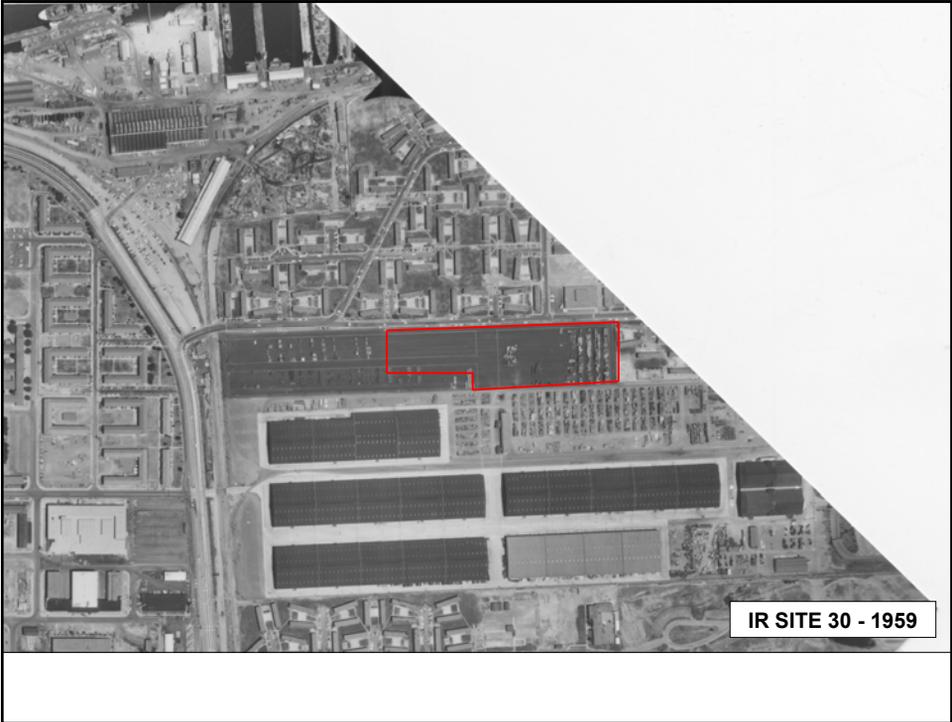
**BRAC**  
PMO WEST

- Marsh Lands/Tidal Flats (prior to 1920s)
- Fill Material Placed (1920-1930)
- Undeveloped Land (1940)
- Military Housing (1947 to 1959)
- Storage of DRMO materials (1959 to 1975)
- George P. Miller Elementary (1975)
- Woodstock Child Development Center (1985)

Notes:

All dates are approximate and based on Aerial Photographic interpretation – these photos have some time series gaps  
DRMO – Defense Reutilization and Marketing Office







## Project Objectives

**BRAC**  
PMO WEST

- Compare onsite groundwater to that of the area-wide plume
- Characterize the nature and extent of soil contamination
- Collect sufficient data to conduct human health risk assessment (HHRA) and ecological risk assessment (ERA)
- Use risk assessment results to support Navy recommendations of NFA or further action (including a progression to feasibility study [FS])



## Overview of Investigation

**BRAC**  
PMO WEST

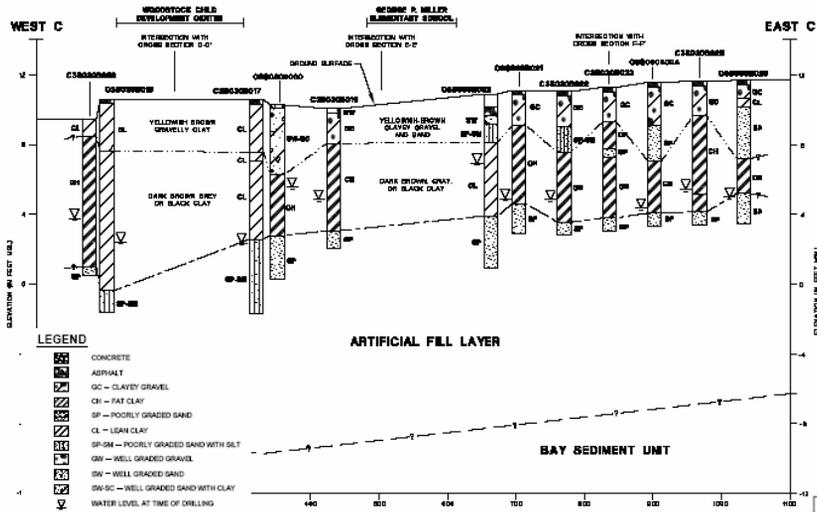
- 30 DPT borings to 8 feet bgs (modified grid)
  - 91 soil samples
  - 50 samples for VOCs
  - 34 samples for SVOCs, pest/PCBs, metals
  - 17 samples for all parameters
- 16 GW samples from 8 locations
  - upper FWBZ @7-12 feet bgs (VOCs, SVOCs, pest/PCBs, metals)
  - lower portion FWBZ @ 15-20 feet bgs (VOCs)
- Historic Data – 186 PAHs samples and misc. analysis from EBS samples





# Figure 2-6, Geologic Cross Section C-C

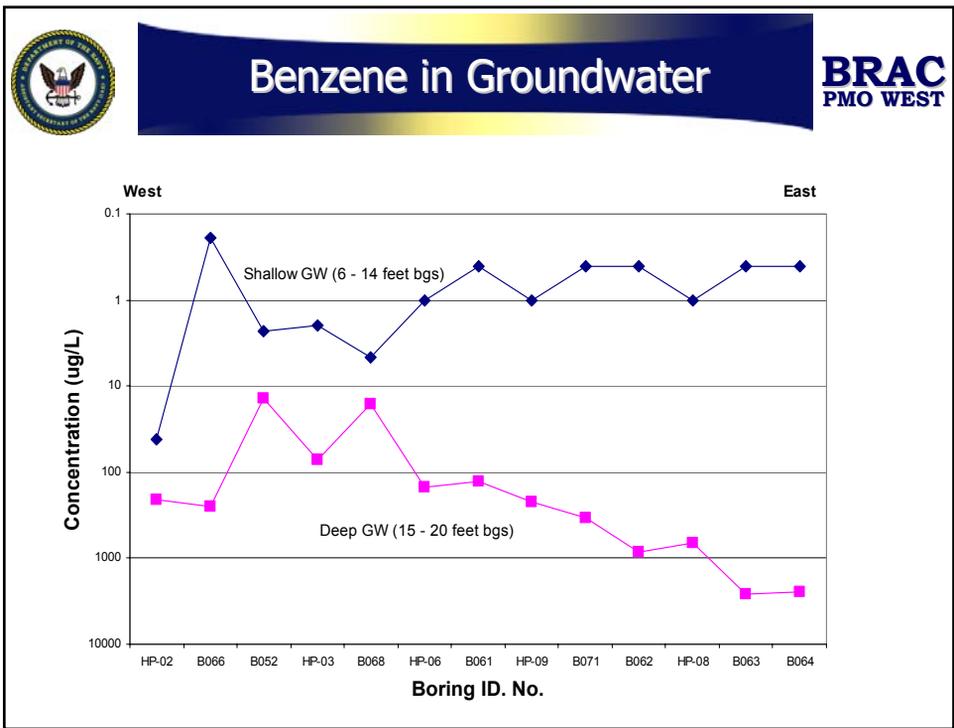
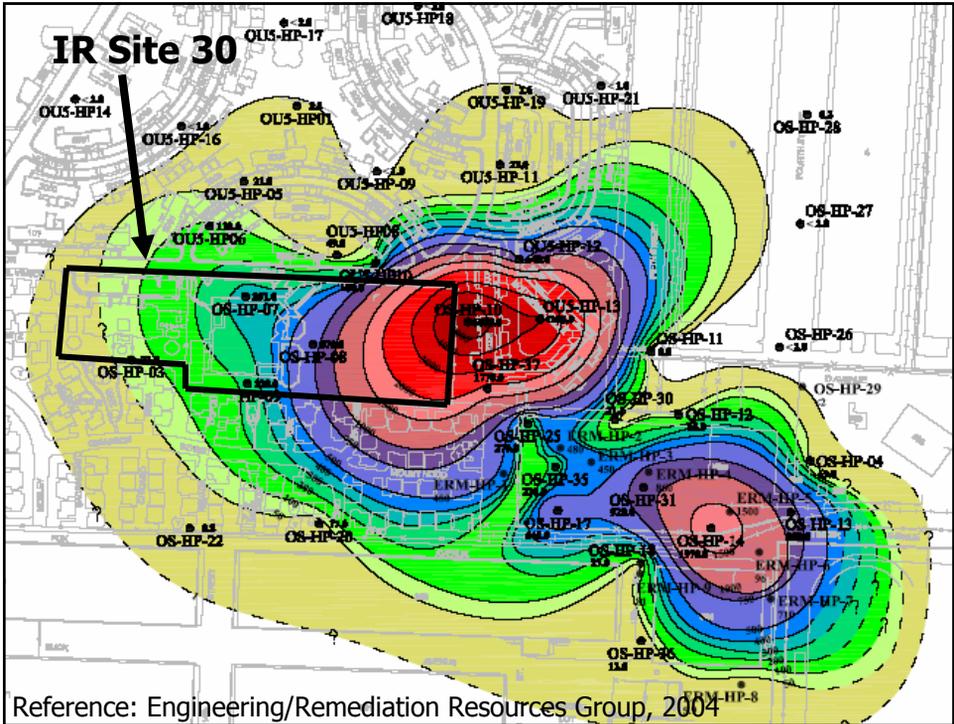
**BRAC**  
PMO WEST



# Figure 2-10, Isopach Map - Clay Thickness

**BRAC**  
PMO WEST

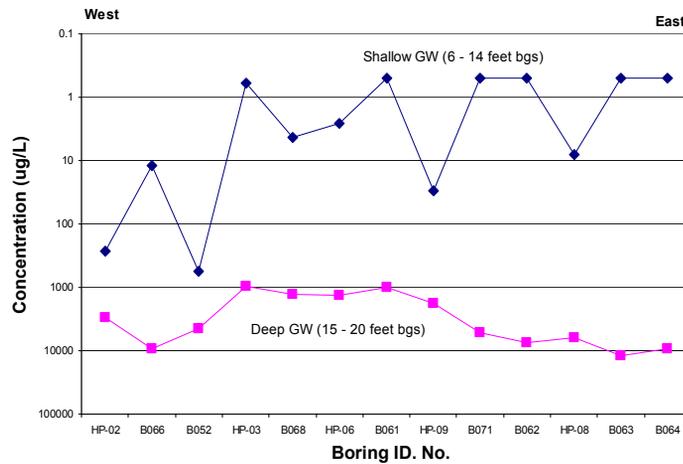






## Naphthalene in Groundwater

**BRAC**  
PMO WEST



## N&E of Contamination (GW)

**BRAC**  
PMO WEST

- Overall chemical composition of onsite GW is consistent with the area-wide plume.
- There is no evidence of a source to groundwater from onsite soil.
- Elevated concentrations of benzene (B066) and naphthalene (B052 and B066) in the western portion of site.



## N&E of Contamination (Soil)

**BRAC**  
PMO WEST

- 16 chemicals exceed the preliminary remediation goals (PRGs): 7 PAHs, 1 PCBs (Aroclor 1254), 8 metals
- Chemicals generally evenly distributed across site
- Only arsenic, iron and vanadium were frequently reported above background and PRGs
- Arsenic tends to be higher in upper 2 feet
- PAHs have higher concentrations below 2 feet bgs
- Iron, vanadium and PAHs are not risk drivers



## N&E of Contamination (Soil)

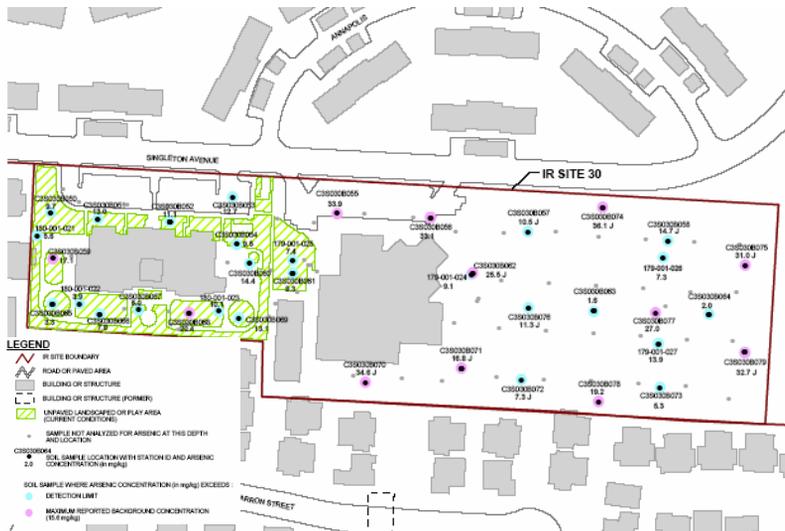
**BRAC**  
PMO WEST

- One single sample (C3S030B068 @ 0.0 to 0.5 feet bgs) from exposed soil behind WCDC is exception to trends.
  - 12 metals with highest concentrations
  - Cd, Cr, Cu and Pb exceed PRGs only in this sample
  - Elevated concentration of Aroclor 1254
- 5 by 5 sq foot area to a depth of 2 ft bgs was removed during TCRA (2004) around the single sample point



Figure 4-6, Arsenic in soil (0-2 feet bgs)

**BRAC**  
PMO WEST



## ERA Summary

**BRAC**  
PMO WEST

- Conducted a Tier 1 screening-level ERA
- Hazard index is greater than one for 7 organic and 8 inorganic chemicals
- There is no suitable habitat for special-status species
- No further assessment of ecological risk is recommended



# HHRA

**BRAC**  
PMO WEST

- Conducted baseline human health risk assessment
- Assessed risk to school children
- Assessed current exposure



# Risk Assessment Results (RME)

**BRAC**  
PMO WEST

Exposure Scenario	Cancer	Hazard Index
Residential (incl. GW)		
U.S. EPA	$2 \times 10^{-2}$	157
DTSC	$2 \times 10^{-2}$	157
Occupational		
U.S. EPA	$1 \times 10^{-5}$	0.5
DTSC	$8 \times 10^{-5}$	0.5
Construction		
U.S. EPA	$2 \times 10^{-6}$	0.6
DTSC	$8 \times 10^{-6}$	0.6



## Total Risk for Residential Receptors

**BRAC**  
PMO WEST

Exposure Scenarios	U.S. EPA Cancer Risk	DTSC Cancer Risk
Total	$2 \times 10^{-2}$	$2 \times 10^{-2}$
Groundwater*	$2 \times 10^{-2}$	$2 \times 10^{-2}$
Soil	$2 \times 10^{-4}$	$6 \times 10^{-4}$
Incremental Soil	$6 \times 10^{-5}$	$3 \times 10^{-4}$

\*Greater than 99.99% of the risk is associated with household risk, which will not exist



## Residential Indoor Air

**BRAC**  
PMO WEST

Residential*	U.S. EPA	DTSC
Indoor Air	$2 \times 10^{-6}$	$1 \times 10^{-5}$
Outdoor Air	$4 \times 10^{-7}$	$8 \times 10^{-7}$

\* Due to volatiles in soil and groundwater



HHRA  
Current Risk for School Children - OK

**BRAC**  
PMO WEST

Risk	U.S. EPA	DTSC
Indoor Air	$4 \times 10^{-7}$	$4 \times 10^{-6}$
Soil (arsenic)	$4 \times 10^{-5}$	$1 \times 10^{-4}$



HHRA  
Current Risk for School Children - OK

**BRAC**  
PMO WEST

- Adjusted a residential child (0-6 yrs) for 250 days a year of exposure to represent the WCDC
- Children at Miller School will have lower exposure times and less exposure to soil than at the WCDC



## Comparison between HHRA and OEHHA Model

**BRAC**  
PMO WEST

- In addition to the traditional HHRA we ran a special model for school children called the Office of Environmental Health Hazard Assessment (OEHHA) model. Analyzed for arsenic, benzene and naphthalene in model.
- Results of the OEHHA model were consistent with the HHRA and were within the risk management range.



## HHRA Conclusions

**BRAC**  
PMO WEST

- School children and staff - risks within management range
- EPC for lead is above acceptable level for children due to single elevated hit behind childcare facility. This soil was removed during TCRA
- Future residential indoor air - risks within management range
- Future residents - risk above management range due to benzene in GW (only if assumed a drinking water source) and arsenic in soil (DTSC only)



## Recommendations

**BRAC**  
PMO WEST

- The Navy recommends that an FS be conducted to evaluate options to address arsenic in soil.
- Chemicals in GW are being addressed under a separate Navy Proposed Plan and Record of Decision (PP/ROD).



## Schedule

**BRAC**  
PMO WEST

- ✓ • March 21, 2005 – Draft RI report to Agencies
- ✓ • April 19, 2005 – Present RI to BCT
- May 5, 2005 – Present RI to RAB
- May 20, 2005 – Comments due on Draft RI report
- July 19, 2005 – Draft Final RI report to Agencies
- August 18, 2005 – Final RI report

**ATTACHMENT B-3**

**HOMEGROWN PRODUCE PAH ASSESSMENT PRESENTATION. PRESENTED BY SOPHIA  
SERDA, U.S. ENVIRONMENTAL PROTECTION AGENCY**

**(10 PAGES)**





















**ATTACHMENT B-4**

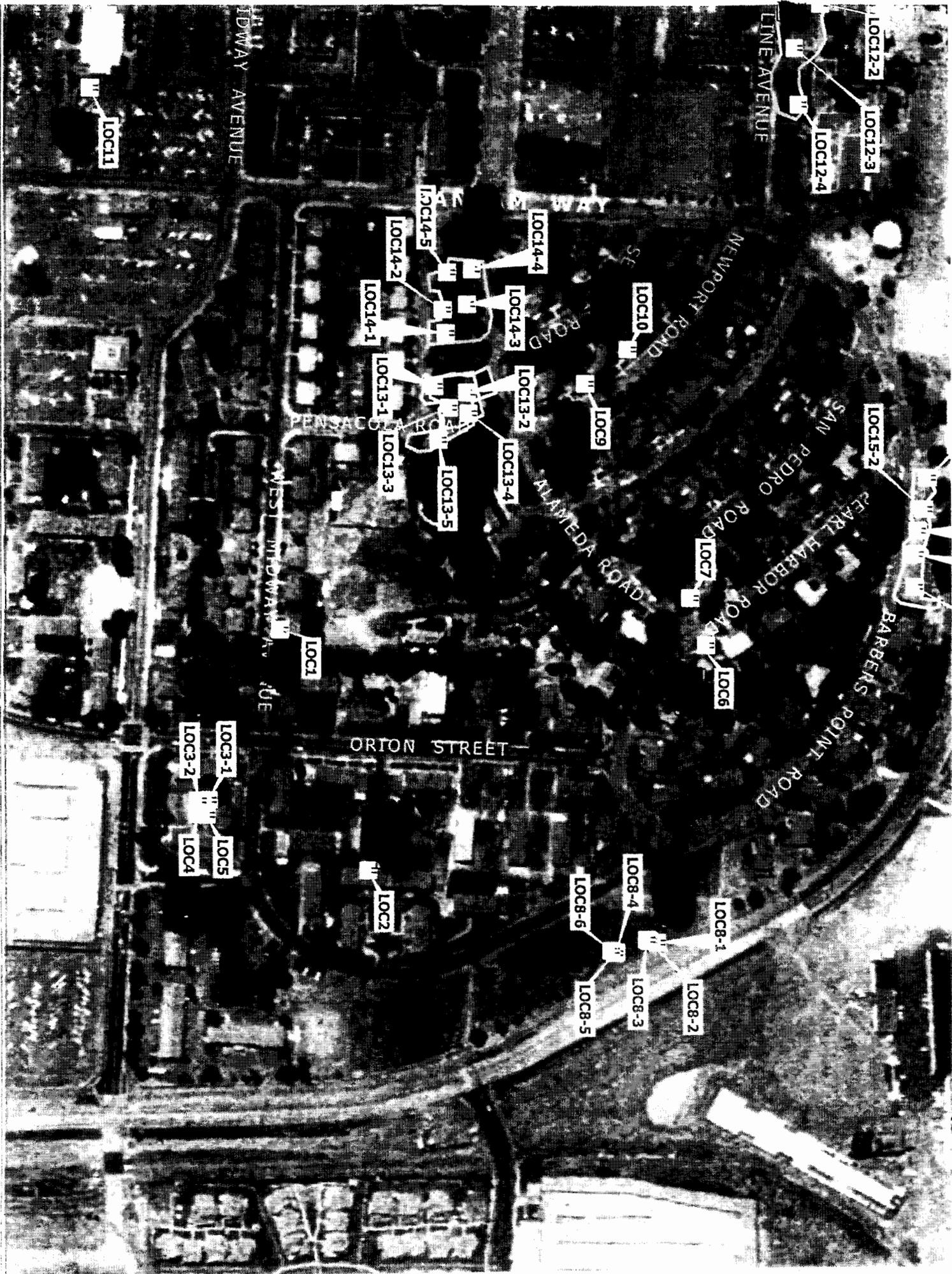
**HOMEGROWN PRODUCE PAH ASSESSMENT HANDOUT. PROVIDED BY SOPHIA  
SERDA, U.S. ENVIRONMENTAL PROTECTION AGENCY**

**(1 PAGE)**

TABLE 1. Plant and Soil Samples Collected at Each Sampling Location  
 Alameda Point Site  
 Alameda, CA

Location	Target Plant	Plant Parts Sampled	Number of Plant Samples	Soil Profile Depth (cm)	Number of Soil Samples
1 (house #25)	Apple tree (one plant)	10 apples	1	89	1
2 (house #759)	Apple tree (one plant)	10 apples	1	61	1
3 (house #785)	Apple tree (two plants)	5 apples	1	61	1
4 (house #785)	Cherry tomato (10 plants)	40 tomatoes	2	15	2
5 (house #785)	Cherry tomato (10 plants)	20 tomatoes	1	61	1
6 (house #749)	Cherry tomato (10 plants)	20 tomatoes	1	30	1
7 (house #11)	Apple tree (two plants)	20 apples	2	60	1
8 (house #99)	Faba bean (six plants)	27 faber bean seeds	1	15	1
9 (house # 2801 front)	Apple tree (one plant)	10 apples	1	52	1
10 (house # 2801 back)	Apple tree (one plant)	10 apples	1	30	1
11 (Alameda towncenter)	Fig tree (one plant)	21 fig fruits	2	43	2
12 (O' Club)	Hairy Cat's-car (>100 plants)	100g flowers	1	15	1
13 (house #450)	Hairy Cat's-car (>100 plants)	100g flowers	1	24	1
14 (house #500)	Hairy Cat's-car (>100 plants)	100g flowers	1	24	1
15 (Pearl Harbor Road)	Hairy Cat's-car (>100 plants)	100g flowers	1	27	2
Ref. Area 1 (Ref. 1-2)	Tomato (6 plants)	20 tomatoes	2	24	2
Ref. Area 2 (Ref. 3)	Tomato (3 plants)	10 tomatoes	1	30	1
Ref. Area 2 (Ref. 4-6)	Apple trees (three plants)	5-10 apples/sample	3	42-67	3

Ref. = Reference, g = gram, cm = centimeter, > = more than.



**ATTACHMENT B-5**

**APRIL 2005 BCT ACTIVITIES UPDATE. PRESENTED BY MARCIA LIAO, DEPARTMENT  
OF TOXIC SUBSTANCES CONTROL (DTSC). MAY 5, 2005.**

**(1 PAGE)**

## APRIL 2005 BCT ACTIVITIES

### I. Monthly BCT Meeting (April 19, 2004)

#### a. Site 34 RI Workplan Preview

Site 34 is located between Sites 14 and 15. The primary activities that occurred at the site include woodworking, metal working, storage, sandblasting, painting, and fuel transfer. The primary risk drivers are PCB and arsenic. Metals including cadmium, chromium, and lead, and polycyclic aromatic hydrocarbons (PAHs) are also reported to be above the preliminary remediation goals (PRGs).

The Navy proposed to collect soil and groundwater samples using a modified grid focusing on potential source areas and preferential migration pathways. If needed, four shallow wells and one deep well will be installed.

The draft workplan is to be submitted in June.

#### b. Site 30 RI Report Presentation

The presentation was same as the one given tonight.

#### c. SMP Model

The Navy presented the proposed revisions to the model for the Site Management Plan (SMP) for fiscal year 2006 because of delays found with the current model. The proposed model is expected to provide a more realistic schedule for each site. The regulators agreed to review and provide comments, if any, before the next BCT meeting.

### II. Site 26 Proposed Plan (April 12, 2005)

Navy responded to agency comments, in particular EPA's, and proposed active treatment of the groundwater plume and further delineation of the plume at its northern edge. The cleanup level will be equivalent to the Maximum Contaminant Level (MCL). Institutional Control (IC) restricting residential use will be in place until the MCL is reached. The draft Proposed Plan is expected to be due in June.

**ATTACHMENT B-6**

**HANDOUTS ON THE ALAMEDA POINT COMMUNITY MEETING  
(1 PAGE)**

# Alameda Point Community Meeting

Shape the future of Alameda Point (Alameda Naval Air Station)

*Your Voice Counts!*

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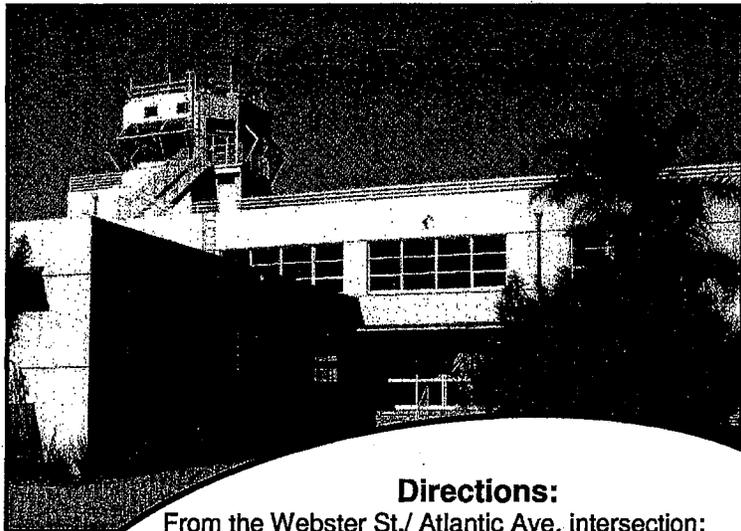
Saturday, May 7, 2005

9:30 a.m. - 12:30 p.m.

Control Tower Building, Alameda Point  
(2175 Monarch St. at the corner of West Tower and Monarch)

Your ideas and opinions will shape the development plan for Alameda Point! Your ideas will influence:

- Neighborhood Quality
- Housing
- Waterfront Use
- Open Space Design
- Tradeoffs
- Mixed Use
- Historic Preservation
- Traffic



#### Directions:

- From the Webster St./ Atlantic Ave. intersection:
- Go down **Atlantic Ave. (Ralph Appezzato Pkwy)** toward Alameda Point
  - Turn right on **Main St.** - go 1.2 mi
  - Turn left on **NAVY WAY** - go < 0.1 mi
  - Bear right on **LEXINGTON ST** - go 0.1 mi
  - Turn right on **W RED LINE AVE** - go 0.3 mi
  - **W RED LINE AVE** becomes **MONARCH ST**

*This meeting is sponsored by the  
City of Alameda  
and is hosted by the  
Alameda Point Advisory Committee*

For more information, contact Andrew Thomas at 510-747-6881 or [athomas@ci.alameda.ca.us](mailto:athomas@ci.alameda.ca.us); or visit us online at [www.alameda-point.com](http://www.alameda-point.com)

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