



TETRA TECH EM INC.

June 29, 2006

Dear RAB Members,

On behalf of the Navy, enclosed please find the April 5, 2006 final RAB meeting minutes for your information and records.

If there are any questions regarding the enclosed minutes, please contact Carolyn Hunter at (415) 222-8297 or [Carolyn.hunter@ttemi.com](mailto:Carolyn.hunter@ttemi.com).

Sincerely,

Carolyn Hunter  
Community Relations Specialist  
Tetra Tech EMI

**FINAL**  
**MEETING MINUTES**  
**RESTORATION ADVISORY BOARD**  
**NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD**  
**CONCORD, CALIFORNIA**  
**APRIL 5, 2006**

These minutes reflect general issues raised, agreements reached, and action items identified at the Restoration Advisory Board (RAB) meeting for Naval Weapons Station Seal Beach Detachment Concord (NAVWPNSTA Seal Beach Det Concord), California. The meeting was held from 6:30 p.m. to 8:30 p.m. on April 5, 2006, at the City of Concord Permit Center, Building D in Concord, California. Agreements and action items are described by topic under Sections I through VII and are summarized in Section VIII. A list of participants and their affiliations is included as Attachment A, and the meeting agenda is included as Attachment B.

**I. WELCOME, INTRODUCTIONS, PUBLIC COMMENT, AND AGENDA APPROVAL**

**Welcome and Introductions**

The RAB Community Co-Chair, Mary Lou Williams (Concord resident) called the RAB meeting to order and initiated a round of introductions for attendees.

**Public Comments**

Ms. Williams opened the floor to public comments. No public comments were offered.

**May 2006 RAB Agenda Approval**

Kim Jacobsen (Navy RAB Co-chair) reviewed the proposed agenda for the RAB meeting on May 3, 2006. The Navy is currently trying to determine the location of the May 2006 RAB meeting. It will either be at the City of Concord Permit Center Building or the Willow Pass Community Center. Once the Navy finalizes the meeting location, an e-mail will be sent to the RAB. The Navy plans to provide two presentations for the May 2006 RAB meeting which include:

- Arsenic at Inland Magazine Area
- Site 13 Groundwater Monitoring Results

Ms. Jacobsen asked the RAB to approve the May 2006 agenda. The RAB approved the agenda.

**Action Item**

1. The Navy will send the RAB members an e-mail confirming the location of the May 3, 2006 meeting once it has been determined.

## **II. MARCH 2006 RAB MEETING MINUTES APPROVAL**

Ms. Jacobsen asked the RAB for comments on the minutes from the meeting on the March 1, 2006. There was not a quorum of RAB members present to vote on the March 1, 2006 meeting minutes. The approval of the March 2006 RAB meeting minutes will be tabled until the May 3, 2006 meeting.

### **Action Item**

2. The RAB will approve the March 1, 2006 RAB meeting minutes at the May 3, 2006 meeting.

## **III. COMMITTEE REPORTS AND ANNOUNCEMENTS**

Ms. Williams opened the floor for committee reports and announcements. No committee reports or announcements were offered.

## **IV. SITE 22 DATA PACKAGE**

Joanna Canepa (Tetra Tech EMI [TtEMI]) provided an introduction to the Site 22 data package that was provided as a handout to the RAB in response to an action item from the March 1, 2006 meeting. Ms. Canepa stated that this material is for the RAB's review prior to the presentation the Site 22 sampling results planned at the May 3, 2006 RAB meeting. If RAB members have questions or comments on the data package prior to the May 2006 meeting, they can e-mail or call Ms. Jacobsen or Ms. Williams. Any questions or comments received on the Site 22 data package, the Navy will try to incorporate into the presentation provided on May 3, 2006.

Igor Skaredoff (Martinez resident) asked whether any of the sample results provided in the data package were taken offsite in the neighborhood on the Site 22 fenceline. Ms. Canepa stated that some of the sampling points were at the outer boundary of the Navy's property line, but no samples were collected offsite. The Base Realignment and Closure (BRAC) Navy team was unable to attend the April RAB meeting, but will be available to answer questions on the Site 22 sampling at the March 3, 2006 RAB meeting.

## **V. REMEDIAL PROJECT MANAGER (RPM) UPDATE**

### **Navy Update**

Ms. Jacobsen reviewed the Navy RPM update (Attachment C).

Ms. Jacobsen stated that on March 24, 2006 the Navy officially announced that Jerry Dunaway will be the BRAC Environmental Coordinator (BEC) for Detachment Concord. Mr. Dunaway was unable to make the April 2006 RAB meeting but will attend the May 3, 2006 RAB meeting.

### **Environmental Protection Agency (EPA) Update**

Phillip Ramsey (EPA) reviewed the EPA RPM update (Attachment C).

Mr. Ramsey stated that EPA has provided the Navy 2 official letters during the month of March 2006, including:

- EPA's approval of the Navy's Site Management Plan extension request for Solid Waste

Management Units (SWMU) Sites 2, 5, 7, and 18 Draft Treatability Study from March 30, 2006 to June 30, 2006.

- EPA comments on the Draft Final Remedial Action Work Plan for Site 1 Tidal Area Landfill Cover Construction

Mr. Skaredoff asked whether volatile organic compounds (VOC) were present at the SWMU Sites 2, 5, 7, and 18. Mr. Ramsey stated confirmed that VOCs are present in soil gas and groundwater, and that the treatability study will be conducted to evaluate cleanup options, including bioremediation and air sparging. Mr. Skaredoff asked what happens to the air that is released during air sparging. Mr. Ramsey stated that the Bay Area Air Quality Management District regulates what is released into the air, and that the levels of VOCs that would be released may be below levels that would require a permit. Ms. Jacobsen stated that the technologies to deal with VOCs will be examined during the treatability study. Mr. Skaredoff asked if the SWMU Sites 2, 5, 7, and 18 will be kept by the military. Ms. Jacobsen confirmed that the Army is evaluating whether to keep SWMU Sites 2, 5, 7, and 18.

Mr. Ramsey stated that EPA provided a letter to the Navy on April 5, 2006 invoking informal dispute on the Site 1 Landfill Remedial Action Work Plan. EPA needed additional time to review the Site 1 Landfill Work Plan and the Navy's response to comments. Ms. Jacobsen stated that the Navy has agreed to extend EPA's review time on the Site 1 Landfill Remedial Action Work Plan. Mr. Skaredoff asked if there is a correlation between the extraction well comments provided by EPA and invoking the informal dispute resolution process. Mr. Ramsey stated that there is no correlation between EPA's comments on the extraction wells and invoking informal dispute.

#### **Water Board Update**

Alan Friedman (San Francisco Bay Regional Water Quality Control Board [Water Board]) stated that he has been on the Concord team for one month and is in the process on getting caught up on the site. Mr. Friedman stated that he attended an introductory site tour of the Sites on March 3, 2006.

Mr. Friedman stated that the Water Board provided the Navy with comments on the Tidal Area Landfill Remedial Action Work Plan on April 5, 2006.

Mr. Friedman stated that the Water Board is currently reviewing the Sampling and Analysis Plan (SAP) Addendum for Tidal Area Sites 2, 9, and 11 and is planning on providing the Navy with comments.

#### **VI. DRAFT ADDENDUM 01 DATA GAPS SAP TIDAL AREA SITES 2, 9, AND 11**

John Bosche (TtEMI) provided a presentation on the Draft Addendum 01 Data Gaps SAP for Tidal Area Sites 2, 9, and 11. The presentation is included as Attachment D.

Wayne Akiyama (Shaw Environmental Group) asked if mercury at the site is speciated. Mr. Bosche stated that mercury is not speciated; sediment invertebrate tissue samples collected at the site show that the mercury is bioavailable.

Mr. Skaredoff asked if the Tidal Area Sites are flooded with water because of all of the additional rain that has occurred. Mr. Bosche stated that the Tidal Area is not more flooded than usual this year. The Tidal Area is full of water during high tide due to the break down of the tide gate. Mr. Skaredoff asked if the Tidal Area is going to be kept as a wetland in the future. Mr. Ramsey stated that the formerly drier conditions of the Tidal Area provided pickleweed, with is a plant that provides habitat for the endangered

Salt Marsh Harvest Mouse.

Ms. Jacobsen stated that the Navy is looking into the issue of whether to fix the tide gate. Ms. Jacobsen said eventually Army is going to be responsible for the Tidal Area and this decision has to be coordinated with them. Currently the Navy and the Army are discussing the future of the tide gate. Ms. Jacobsen had a meeting with the Navy's Resident Officer in Charge of Construction (ROICC) regarding Site 1 and the tide gate was discussed and visited. There are some technical factors that need to be discussed before making the decision to repair the tide gate. Funding limitations is another issue which impacts the ability to repair the tide gate. As part of the Site 1 cap installation, the construction contractor plans to install an aqua barriers above Rhodes Road during the Tidal Area Landfill cap construction to dry out the site enough for construction. But repair of the tide gate downstream wouldn't be able to be completed in time for the cap construction and therefore does not effect the construction schedule.

## **VII. TIDAL AREA SITE 1 LANDFILL CAP DESIGN CHANGE**

John Bosche (TtEMI) provided a presentation on the Tidal Area Site 1 Landfill Cap Design Change. The presentation is included as Attachment E.

Mr. Skaredoff asked if the Navy anticipated high tides in the landfill when working on the cap design and implementation. Mr. Skaredoff is concerned that future flooding could impact the integrity of the landfill cap. Mr. Bosche stated that research was done on the highest tide on record and the Navy used that as an indicator during the cap design. Mr. Skaredoff asked if the plants the Navy will use on the landfill for erosion control will be strong enough to with hold tidal fluctuations. Mr. Bosche stated that the Navy took the tides into consideration when determining the types of vegetation used for erosion control on the landfill.

Mr. Skaredoff expressed concern that there would not be enough monitoring of the tides and the landfill cap erosion once the work had been completed. Mr. Ramsey stated that there are going to be reviews of the Tidal Area Landfill remedy every five years to make sure that the alternative chosen is still effective. Mr. Ramsey also stated that there is going to be annual monitoring of the land use controls for the site to make sure everything is in functioning as intended.

## **VIII. NEXT MEETING AND ACTION ITEMS**

The next RAB meeting is scheduled for 6:30 to 8:30 p.m. on Wednesday, May 3, 2006; the meeting location is to be determined.

The following action items were generated during the RAB meeting on April 5, 2006:

<b>No.</b>	<b>Action Item</b>	<b>Target Date for Completion</b>	<b>Completion Date (or Status)</b>
1	The Navy will send the RAB members an e-mail confirming the location of the May 3, 2006 meeting once it has been determined.	4/28/06	This action item was completed
2	The RAB will approve the March 1, 2006 RAB meeting minutes at the May 3, 2006 meeting.	5/3/06	This action item was completed on 6/7/06

**ATTACHMENT A**

**ATTENDEES AND AFFILIATIONS  
RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CALIFORNIA**

**APRIL 5, 2006**  
(One Page)

**ATTENDEES AND AFFILIATIONS  
RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CALIFORNIA**

**APRIL 5, 2006**

<u>Name</u>	<u>Affiliation</u>	<u>Telephone</u>
Wayne Akiyama	Shaw Environmental, Inc.	(925) 288-2003
John Bosche	TtEMI	(415) 222-8295
Harry Byrne	Concord Resident	(925) 686-4815
Joanna Canepa	TtEMI	(425) 673-3652
Alan Friedman	Water Board	(510) 622-2347
Ernie Galang	IPT West	(650) 746-7469
Tim Hadley	City of Concord	(925) 671-3082
Carolyn Hunter	TtEMI	(415) 222-8297
Kim Jacobsen	Navy, NAVFAC Southwest	(619) 532-1448
Mike Mecey	Interested Party	(916) 203-7517
Jim Pinasco	DTSC	(916) 255-3719
Phillip Ramsey	EPA	(415) 972-3006
Anne Rikkelman	Concord Resident	(925) 689-2662
Bill Schaal	TN and Associates	(415) 760-6624
Igor Skaredoff	Martinez Resident	(925) 229-1371
Cindy Welles	Clyde Resident	(925) 685-2698
Mary Lou Williams*	Concord Resident	(925) 685-1415

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Notes:

*	Community Restoration Advisory Board (RAB) Member
DTSC	Department of Toxic Substances Control
EPA	U.S. Environmental Protection Agency
IPT West	U.S. Navy Integrated Project Team West, NAVFAC SW
TtEMI	Tetra Tech EM Inc.
Water Board	San Francisco Bay Regional Water Quality Control Board

**ATTACHMENT B**

**AGENDA  
RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CALIFORNIA**

**APRIL 5, 2006**

(One Page)

## AGENDA

### NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD RESTORATION ADVISORY BOARD MEETING

Wednesday, April 5, 2006

6:30 p.m. – 8:30 p.m.

Location: City of Concord Permit Center - 1950 Parkside Drive - Concord, CA 94520

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- 6:30 – 6:40      Call to Order
- Welcome
  - Introductions
  - Public Comments
  - May Agenda Approval
- Lead: Community Co-chair
- 6:40 – 6:50      Approval of March 1, 2006 Meeting Minutes  
Review Unresolved Business  
Lead: Navy Co-chair
- 6:50 - 7:30      Committee Reports/Announcements
- RAB Announcements, Reports or other business
  - Remedial Project Managers' Update (Navy/EPA/DTSC/RWQCB)
- 7:30 – 7:40      Break
- 7:40 – 8:10      Presentation of Draft Addendum 01 Data Gaps Sampling and Analysis Plan Tidal Area  
Site 2, 9, 11.  
Presenter: TTEMI
- 8:10 – 8:30      Presentation of Tidal Area Site 1 Landfill Cap Design Change  
Presenter: TTEMI
- 8:30              Adjourn

**ATTACHMENT C**

**NAVY AND ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL PROJECT MANAGER'S UPDATE  
RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CALIFORNIA**

**APRIL 5, 2006**

(2 Pages)



## ***Navy RPM/BCT Update for 5 April 2006 Meeting of Naval Weapons Station Seal Beach, Detachment Concord Restoration Advisory Board (RAB)***

Summary of Navy Remedial Project Manager (RPM) and Base Closure Team (BCT) Activities since the last RAB Meeting held on Wednesday, 1 March 2006.

### **Tidal Area**

- **3 March 2006** – The Navy, USEPA, DFG, and the SFBRWQCB conducted a site walk of Site 31 to review sampling locations.
- **6 March 2006** – The Navy issued a letter submitting the document entitled “Draft Final Remedial Action Work Plan for the Site 1 Landfill Cover, Naval Weapons Station Seal Beach Detachment Concord”. This document provides the plan to install a landfill cover at Site 1 as required by the Record of Decision.
- **8 March 2006** – The Navy issued Draft Meeting Minutes from the February 23, 2006 Supplemental Feasibility Study Remedial Project Managers meeting to agencies (USEPA submitted comments on 22 March 2006).
- **13 March 2006** - The Navy issued Draft Meeting Minutes of the 28 February 2006 Base Realignment And Closure Cleanup Team (BCT) /RPM meeting (USEPA submitted comments 23 Mar 2006).
- **15 March 2006** - The Navy issued Final Meeting Minutes from the 25 January 2006 Final Base Realignment and Closure Team/Remedial Project Managers meeting.
- **15 March 2006** – The Navy issued the draft agenda and meeting materials for the 5 April 2006 RAB meeting.
- **23 March 2006** – The Navy met with project managers from USEPA to review historical aerial photographs of Sites 2, 9, and 11.
- **24 March 2006** - The Navy issued Final Meeting Minutes of the 23 February 2006 monthly Remedial Project Managers’ meeting.
- **4 April 2006** - The Navy met with the project managers from USEPA, DTSC, DFG, and the SFBRWQCB. This was our regular monthly meeting. Proposed Phase 2 data gap sampling locations for Site 11 were also discussed.

### **Inland Area**

- **23 March 2006** - The Navy issued an extension request from 30 March 2006 to 30 June 2006 for the submittal of the Treatability Study Work Plan for SWMU Sites 2, 5, 7, and 18 (USEPA issued an extension approval on 30 March 2006).
- **24 March 2006** - The Navy issued a notification letter announcing Jerry Dunaway as the appointed BRAC Environmental Coordinator for Concord.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION IX  
75 Hawthorne Street  
San Francisco, CA 94105

U.S. Environmental Protection Agency  
Restoration Advisory Board Update  
April 5, 2006

Correspondence Issued:

- C March 30, 2006: EPA approval of Navy's March 23, Site Management Plan (SMP) Extension Request for Solid Waste Management Units (SWMUs) Sites 2, 5, 7, and 18 (extended Draft Treatability Study Work Plan from March 30, 2006, until June 30, 2006)
- C April 5, 2006: EPA review of Navy's March 6, 2006, "Draft Final Remedial Action Work Plan for IR Site 1 Tidal Area Landfill Cover Construction Naval Weapons Station Seal Beach Detachment (NWS SBD) Concord, California". Due to a design change in the landfill cover design, EPA has invoked informal dispute with the Navy, in order that final changes can be discussed and final agreement reached.
- C March 21, 2006: Email, EPA comments on Draft Litigation Area Feasibility Study minutes from Feb. 23, meeting
- C March 21, 2006; Email, EPA comments on Draft February RPM minutes from Feb. 28 meeting

Meetings/Site Visits:

- C March 3, 2006: Site Visit -Site 31 (former Fertilizer Plant Site) and Tidal Area Site 11 (Wood Hogger)
- C March 9, 2006: EPA-Navy review of aerial photographs for Tidal Area Site 11
- C April 4, 2006: Project Manager's Meeting  
Major Topics:  
Site 1 Remedial Action Work Plan; Tidal Area Sites Sampling and Analysis Plan
- C April 5, 2006: Concord RAB

Prepared by:

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(415) 972-3006

**ATTACHMENT D**

**DRAFT ADDENDUM 01 DATA GAPS SAMPLING AND ANALYSIS PLAN TIDAL  
AREA SITES 2, 9, AND 11 PRESENTATION  
RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CALIFORNIA**

**APRIL 5, 2006**

(10 Pages)



**Overview of Draft Addendum  
Data Gaps Sampling and Analysis Plan  
Tidal Area Sites 2, 9, and 11**

**Naval Weapons Station Seal Beach  
Detachment Concord**

by  
**John Bosche, P.E.**  
Tetra Tech

April 5, 2006

**Presentation Overview**



**•Tidal Area Sites and History**

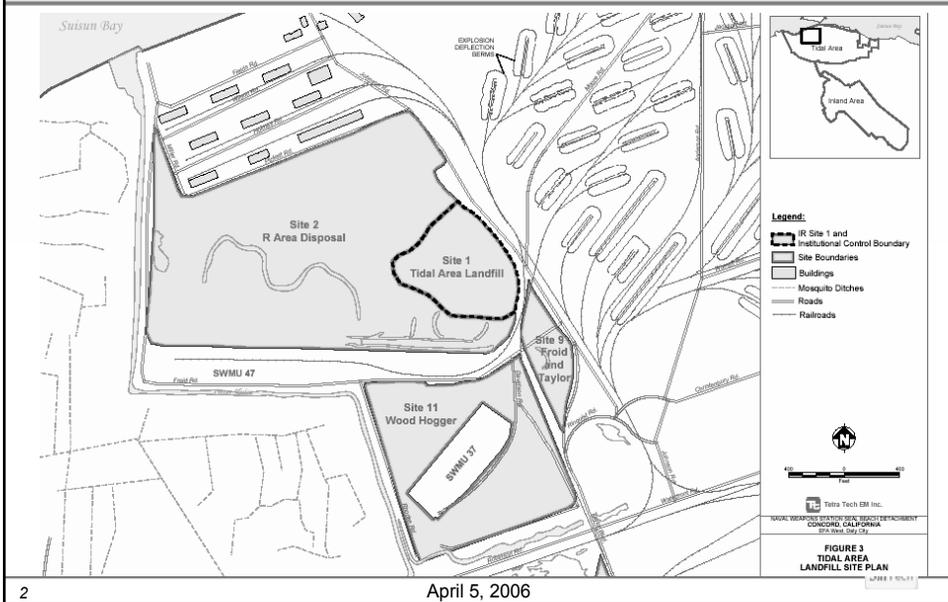
- Site Location and History of Operations
- Timeline of Previous Investigations

**•Draft Final RI in Progress**

- First Round Data Gaps Sampling Results
- Second Round Draft Data Gap Proposed Sampling
  - Proposed Sampling
  - Next Steps

**• Questions and Answers**

## Tidal Area Sites



## Sites 2, 9, and 11 History of Operations



- **Pre-1927:** Pacific Coast Shipbuilding Company
- **1927:** Navy acquires property for ordnance storage and handling
- **1942:** Waterfront handling facilities begin (1944 Port Chicago explosion)
- **1999:** US Army obtained indefinite use permit for munitions handling in Tidal Area



## Site 2: R Area



- 66 acre area bordered by Baker Rd, Pickett Rd, & Froid Rd
- Segregation area formerly used to group and repackage munitions
- Typical wastes: wood crates, munitions containers, steel banding, paint waste, and wood debris
- Habitats: mosaic of brackish & salt marsh
- Status: RI in progress; no data gaps identified in this area



## Site 9: Froid and Taylor



- Small 4.5 acre area, borders Taylor Blvd. and bisected by Froid Rd.
- Former location of a 5-inch spent white phosphorous rocket round & scrap metal debris
- Habitat – upland, non-native grasses and pond surrounded by small wetland (limited tidal flow)
- Status: RI in progress; no data gaps identified in this area



## Site 11: Wood Hogger



- 30-acre area, operated mostly from 1950's to 1972, borders Otter Slough and south of Froid Rd

- Multiple Operations

- incinerator to burn wood chips (sold chips 1969-1972)
- crates treated with pentachlorophenol (wood preservative) and used wood hogger to create wood chips
- Recently used as storage area for scrap metal and wood



- Habitat

- upland, non-native grasses
- paved areas
- intermittent ponds (tidal wetlands)

Status: Data gap identified in area with elevated mercury in wetland sediment; additional sampling proposed

## South West Corner of Site 11: Wood Hogger Site



## Otter Slough



- **10.5 acre area, borders R-Area and Wood Hogger**
- **Only perennial body of water in Tidal Area; channelized to drain**
- **Not a formal site, but of concern due to proximity to other sites.**
- **Habitat – tidally influenced water body, associated with Suisun Bay**
- **Status: RI in progress**



## Timeline of Investigations



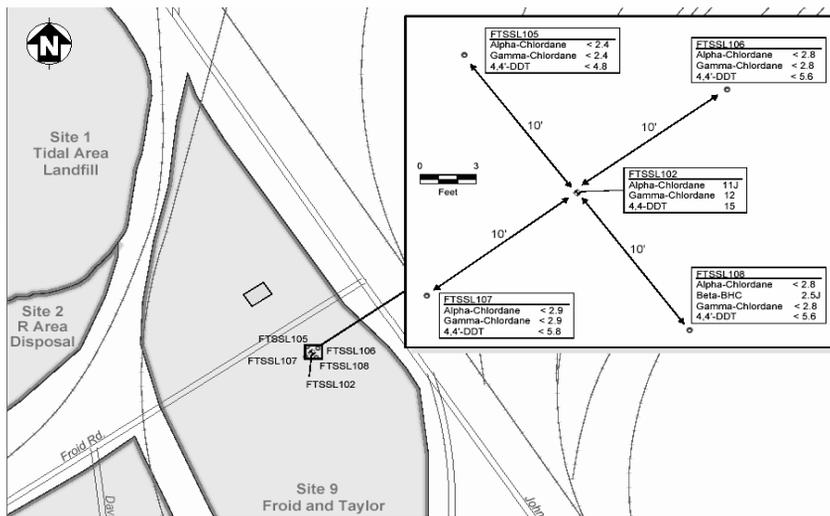
- **1983: Sites identified by Navy Initial Assessment Study**
- **1992: Site Inspection Completed**
- **1994-1995: Work plans and sampling plans completed for RI**
- **1995: First round of RI field work conducted**
- **1997: Draft RI Report submitted**
- **1998: SAP prepared and second round RI field work conducted**
- **1999: Draft final RI submitted (4-volume report)**
- **2002: Revised draft final Ecological Risk Assessment submitted**
- **2003: Revised draft final RI submitted**
- **2005: Data Gaps Sampling and Analysis Plan**
- **2005: Data Gaps Sampling Performed**
- **February 23, 2006: Data Gaps Sampling and Analysis Plan Addendum**
- **Summer 2006: Second Round Data Gaps Sampling**

# First Round Data Gaps Sampling



- 4 samples analyzed at Site 9 in 2005 for pesticides
  - One location from 1995 sampling showed elevated pesticides in sediment (12 mg/kg chlordanes and 15 mg/kg DDT)
  - 2005 step-out samples did not detect chlordanes and DDT
  
- 101 samples analyzed in 2005 at Site 11 for mercury
  - Samples from 1995 detected elevated mercury
  - 81 Otter Slough samples - 2 exceed sediment eco-risk benchmark of 0.71 mg/kg (maximum detected 0.9 mg/kg)
  - 20 Rhodes Road samples found mercury (88 mg/kg max.)

## Site 9 Pesticide Sample Results



# Site 11 Mercury Sample Results



# Aerial View of SW Corner of Site 11, Wood Hogger



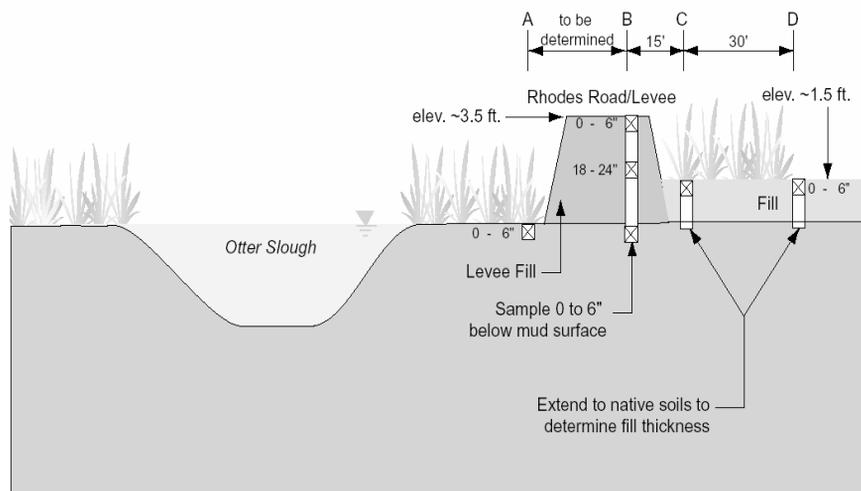
## Data Gaps Identified to Complete Remedial Investigation – Site 11



### Mercury in Southwest Corner of Site 11

- Elevated mercury along the length of Rhodes Road in the levee fill (up to 88 parts per million)
- Mercury concentrations to the North, East, and West are not delineated
- Mercury is known to bioaccumulate and biomagnify in the food chain
- *Additional samples are warranted in the southwest corner of Site 11 to more fully characterize the nature and extent of mercury in sediment at the site*

## Proposed Sampling



## Proposed Sampling



- 12 sample locations on levee
- 6 sample locations west of levee
- 29 sample locations east of levee
- 9 sample locations around incinerator and wood hogger
- 18 step out sample locations
- 98 samples total
- Navy and EPA discussing possible additional sampling locations in Otter Slough

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April 5, 2006

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## Next Steps



- **February 24, 2006 to April 25, 2006: Agency and community review of draft SAP Addendum**
- **June 24, 2006: Draft final SAP Addendum**
- **July 24, 2006: Final SAP Addendum**
- **August 2006: Data gaps sampling**
- **January 11, 2007: Draft RI Report**

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April 5, 2006

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## Questions



**ATTACHMENT E**

**TIDAL AREA SITE 1 LANDFILL CAP DESIGN CHANGE PRESENTATION  
RESTORATION ADVISORY BOARD MEETING  
NAVAL WEAPONS STATION SEAL BEACH DETACHMENT CONCORD, CALIFORNIA**

**APRIL 5, 2006**

(6 Pages)



## Overview of Landfill Cap Design Modification Tidal Area Landfill, Site 1

### Naval Weapons Station Seal Beach Detachment Concord

by  
John Bosche, P.E.  
Tetra Tech

April 5, 2006



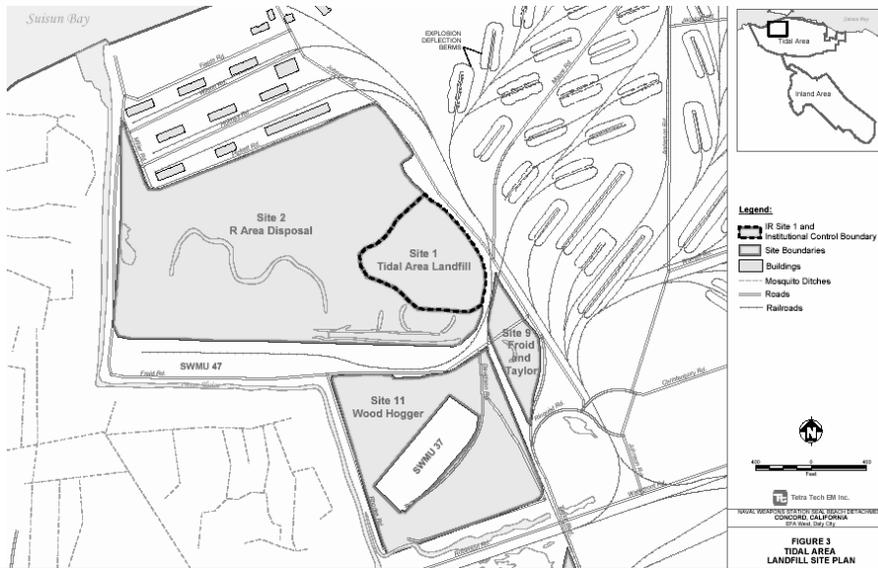
## Review of Key Information



- **ROD signed by Navy, EPA, and DTSC (March, May, & June 2004)**
  
- **Landfill Cap Design**
  - Final Design (completed June 2005)
  - Final Design Revision (completed February 2006)
  - Design Modification makes cap more protective
  
- **Landfill Cap Construction by TN & Associates**
  - Phase I awarded (September 2005)
    - Construction of gas monitoring probes (completed October 2005)
    - Remedial Action Work Plan
      - Draft Remedial Action Work Plan (October 18, 2005)
      - Draft Final Remedial Action Work Plan (March 6, 2006)
  - Phase II cap construction now funded for construction summer 2006

**30 Years of Groundwater Monitoring and Periodic Cap Inspection & Maintenance**

Site 1 Landfill Cap Design  
**Tidal Area Landfill Location**



April 5, 2006

Site 1 Landfill Cap Design  
**Present Landfill Condition**



April 5, 2006





## Record of Decision – Reason for Design Modification

- New information requires landfill cap permeability design modification
- Permeability is a measure of the ability of a material to transmit fluids through it
- Original design – cap meets California Regulations (permeability of  $1 \times 10^{-6}$  centimeters per second [cm/sec] or the permeability of the underlying geologic materials, whichever is less)
- 2005 geotechnical testing determined permeability of underlying geologic materials ( $1 \times 10^{-7}$  -  $1 \times 10^{-8}$  cm/sec)
- Design modification required



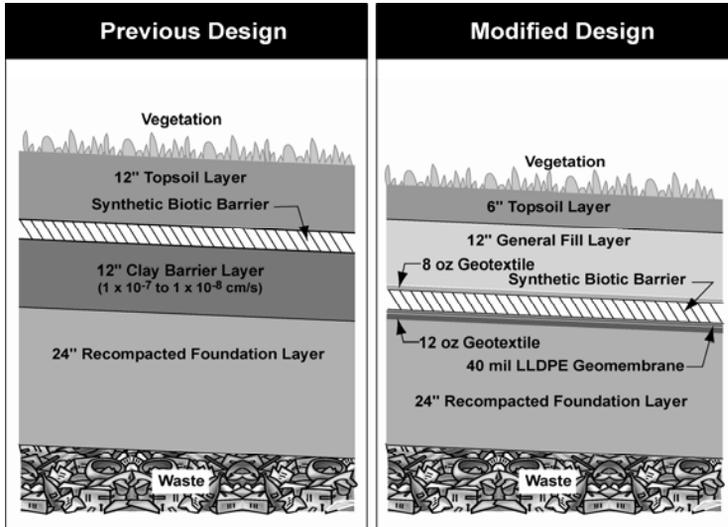
## Design Modification

**Substitutes a geosynthetic liner for the clay soil layer**

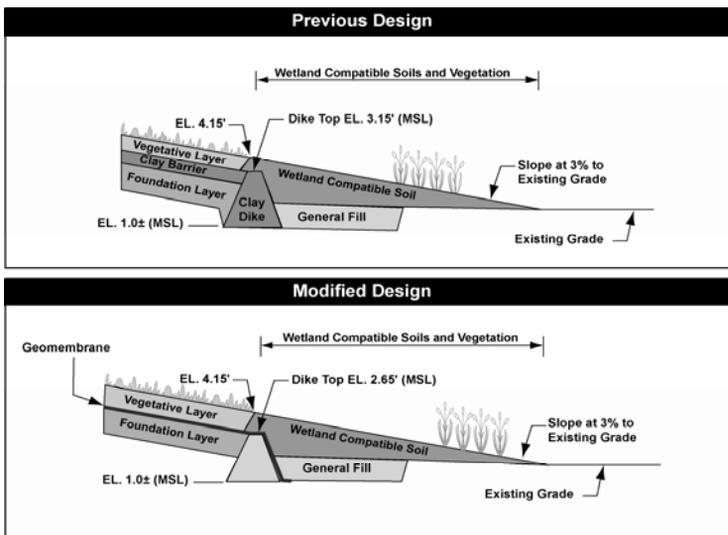
**Benefits of geosynthetic liner:**

- more protective
- less permeable ( $1 \times 10^{-11}$  cm/sec) than clay barrier layer ( $1 \times 10^{-7}$  cm/sec)
- less permeable barrier will pass less water through cap
- is more durable and will not dry and crack
- less costly than a clay liner

## Design Modification Cross Section – Cap Detail



## Design Modification Cross Section – Perimeter Dike Detail



## Documentation of Change



### **Under CERCLA design changes are either:**

- minor (considered non-significant)
- significant (requires an explanation of significant differences)
- major (requires an amendment of the ROD)

**Navy and agencies are determining if the design modification is a minor or significant change**

## Construction and Maintenance Schedule



- |                     |   |
|---------------------|---|
| • 4/6/06 – 6/1/06   | <b>Preconstruction Activities</b>   |
| • 6/14/06 – 9/13/06 | <b>Landfill Cap Construction</b>  |
| • 9/14/06 – 4/4/07  | <b>Vegetation Establishment</b>   |
| • 2007 – 2037       | <b>Post Closure Maintenance and Monitoring<br/>California Code of Regulations, Title 27</b> |



# QUESTIONS ?

