

**HUNTERS POINT SHIPYARD**  
**RESTORATION ADVISORY BOARD MEETING MINUTES**  
**22 FEBRUARY 2007**

These minutes summarize the discussions and presentations from the Restoration Advisory Board (RAB) meeting held from 6:00 p.m. to 8:00 p.m. Thursday, February 22, 2007, in the Earl P. Mills Auditorium. A verbatim transcript was also prepared for the meeting and is available in the information repository for Hunters Point Shipyard (HPS) and on the Internet at <http://www.navybracpmo.org/bracbases/california/hps/default.aspx>. The list of agenda topics is provided below. Attachment A provides a list of attendees. Attachment B includes action items that were requested or committed to by RAB members during the meeting.

**AGENDA TOPICS:**

- (1) Welcome/Introductions/Agenda Review
- (2) Approval of Meeting Minutes from the January 25, 2007 RAB Meetings
- (3) Navy Announcements
- (4) Community Co-Chair Report/Other Announcements
- (5) Hunters Point Shipyard Groundwater
- (6) Hunters Point Groundwater Monitoring and Remediation
- (7) Technical Assistance Grant (TAG) Update
- (8) Subcommittee Reports
- (9) Community Comment Period
- (10) Adjournment

**MEETING HANDOUTS:**

- Agenda for February 22, 2007, RAB Meeting
- Meeting Minutes from the January 25, 2007 RAB Meeting
- Navy Monthly Progress Report, February 22, 2007
- PowerPoint Presentation, Hunters Point Shipyard Groundwater
- PowerPoint Presentation, Hunters Point Groundwater Monitoring and Remediation
- Membership Bylaws and Community Outreach (MBCO) and Technical Review Subcommittee Meeting Minutes from January 9, 2007
- MBCO and Technical Review Subcommittee Meeting Minutes from February 8, 2007
- Economic Subcommittee Meeting Minutes from February 15, 2007
- Economic Subcommittee Meeting Minutes from September 6, 2006

**Welcome/Introductions/Agenda Review**

Marsha Pendergrass, facilitator, called the meeting to order at 6:00 p.m. Ms. Pendergrass welcomed everyone to the meeting. All attendees introduced themselves and the organization they represent. She confirmed that there was a quorum of community RAB members present to conduct business at the meeting.

**Approval of Minutes from the January 25, 2007 RAB Meetings**

Ms. Pendergrass said that approval of the minutes is needed for the RAB meeting on January 25, 2007. The RAB meeting minutes were approved unanimously as written and were accepted into the record.

1 Ms. Pendergrass addressed the status of the action items:

2 **Carry-over Item Number 1:** Keith Forman, HPS Base Realignment and Closure (BRAC)  
3 Environmental Coordinator (BEC) to provide an Environmental 101 class on a Saturday once at  
4 least 3 new community members join the RAB. This action item will be carried over until  
5 March 2007.

6 **Carry-over Item Number 2:** Dr. Ray Tompkins, RAB member, to compose a letter from the  
7 HPS RAB to the City of San Francisco requesting that Innes Avenue be cleaned regularly to  
8 protect residents from dust. The letter will also be provided to Lennar and the HPS RAB. This  
9 action item will be carried over until March 2007.

10 Dr. Tompkins made a motion to amend the RAB agenda to move the acceptance of new RAB  
11 members and the MBCO Subcommittee Report to the beginning of the meeting. Those applying  
12 for RAB membership can then be accepted and be able to participate in RAB business for the  
13 rest of the meeting. Keith Tisdell, Community RAB Co-chair, seconded the motion. Ms.  
14 Pendergrass suggested welcoming those applying for RAB membership to the RAB table, but  
15 having the vote on the applications as listed later in the agenda. Barbara Bushnell, RAB  
16 member, stated that it's out of order to move the vote to the beginning of the meeting. There  
17 should be an introduction and discussion of the applicants and there is other RAB business to  
18 take care of first. Consequently, this item should be handled the way it is listed in the agenda.

19 Dr. Tompkins explained that the reason he would like to have applications considered at the  
20 beginning of the meeting is that the RAB is recruiting members and it is important that  
21 applicants feel included in the RAB meetings. He added that other committees he is a part of  
22 address organizational business at the beginning of a meeting with presentations after. Mr.  
23 Forman asked Ms. Pendergrass, as a meeting facilitator, to provide her input on this issue. Ms.  
24 Pendergrass responded that the HPS RAB developed the order of the RAB agenda over time, and  
25 this format was set to maximize the time for the full RAB to participate in presentations on the  
26 HPS program. As a result, the organizational business was moved to the latter part of the  
27 meeting. The motion passed with six in favor and one opposed to the motion.

#### 28 **MBCO Subcommittee Report**

29 Mr. Tisdell explained that the MBCO Subcommittee has approved an HPS RAB application  
30 from Michael McGowan, Arc Ecology. Dr. Tompkins seconded the motion to accept Mr.  
31 McGowan's application. Ms. Bushnell noted that she approved Mr. McGowan's application and  
32 he is an incredible RAB applicant. There is a consideration, however, that he has a business  
33 address for Arc Ecology in zip code 94124 (where the RAB is actively recruiting) but may not  
34 live in the community. She recommended Mr. McGowan be allowed to introduce himself to the  
35 RAB, but then attend a few RAB meetings to see how he works with the community before  
36 being considered for RAB membership.

37 Dr. Tompkins noted that in the RAB Bylaws, on individual candidacy for RAB membership, an  
38 applicant is a stakeholder if he/she works in the community, so residency is not a criteria for  
39 membership. Jesse Mason, RAB member, added that Arc Ecology has had a seat on the HPS  
40 RAB for many years and is an organization that has represented the local community on a  
41 number of issues. Consequently, Mr. McGowan, a scientist working with Arc Ecology, should  
42 be allowed to join the RAB tonight. Mr. Tisdell noted that he has personally seen Mr. McGowan  
43 take in interest in activities at HPS and he has visited the shipyard to look at Lennar's activities.  
44 Therefore his RAB membership should not be delayed.

1 Mr. McGowan thanked the RAB members for considering his application. He noted that he is a  
2 Staff Scientist with Arc Ecology, which is part of the Community Window on the Shipyard. His  
3 background is as a biologist and he was formerly a Senior Research Scientist at San Francisco  
4 State University (SFSU), now retired. He is also an adjunct professor of biology at SFSU and  
5 the University of San Francisco. Mr. McGowan stated that he believes he can contribute to the  
6 HPS RAB by providing another perspective on technical documents that complements Dr.  
7 Tompkins chemical knowledge. As a biologist, he would be able to communicate technical  
8 information about cleanup at HPS back to the community. He has lived in the Bay Area for  
9 thirty-five years and anything that happens around the Bay Area has an influence on himself and  
10 his environment. Mr. McGowan's application for RAB membership was accepted with one  
11 abstention and he was welcomed to the RAB table.

12 Mr. Tisdell explained that the MBCO Subcommittee has approved an HPS RAB application  
13 from Larry Frias, Bayview Resident. Mr. Van Houten seconded the motion to accept Mr. Frias'  
14 application. Mr. Mason said that he knows Mr. Frias and has a great deal of respect for him.  
15 The address that Mr. Frias provided, 100 Cargo Way, however, is a contaminated area by the  
16 railroad. Consequently, he is not certain that Mr. Frias actually lives at that address in the trailer  
17 behind Evans Street. He recommended having Mr. Frias attend a few RAB meetings to see how  
18 he works with the community prior to accepting his application.

19 Mr. Frias said that he would appreciate becoming a member of the HPS RAB. He would like to  
20 become a member to productively participate in deliberation on the issues affecting the  
21 Bayview/Hunters Point community. Mr. Frias' application for RAB membership was accepted  
22 with one abstention and he was welcomed to the RAB table.

23 Mr. Tisdell noted that the MBCO and Technical Review Subcommittee meeting minutes from  
24 January 9, 2007 and February 8, 2007 are available this evening. At the February 8, 2007  
25 meeting the process for recruiting new RAB members was discussed.

#### 26 **Navy Announcements**

27 Mr. Forman indicated that he will be on reserve duty the weeks of March 12th, 19th, and 26th,  
28 2007. During that time the Navy HPS team will still be in transition searching for a new Lead  
29 Remedial Project Manager (RPM). Ralph Pearce, Navy RPM, is currently acting as lead RPM,  
30 and Melanie Kito, Navy RPM, will be the temporary BEC while Mr. Forman is on reserve duty.  
31 Therefore, Mr. Pearce and Ms. Kito will be leading the March 22, 2007 RAB meeting. He noted  
32 that he will be in San Francisco the week of March 5, 2007 and able to attend any community  
33 meetings held that week.

#### 34 **Community Co-Chair Report/Other Announcements**

35 Mr. Tisdell explained that he has an issue for the RAB concerning police personnel running stop  
36 signs and speeding at the shipyard with no consideration of other people. He presented a motion  
37 to send a letter from the RAB stating these concerns to the Mayor of San Francisco, the San  
38 Francisco Police Department, and the Commander of the Police Laboratory at HPS. Mr. Van  
39 Houten seconded the motion. Mr. Tisdell explained that at the shipyard at noon today he was at  
40 a stop sign preparing to turn left. Out of the corner of his eye he saw a police car going about  
41 fifty-five miles an hour that ran the stop sign. If he had continued through that stop sign there  
42 would have been an accident. In response to a question from Charles Dacus, RAB member, Mr.  
43 Tisdell indicated that there is no one currently monitoring traffic on the base.

1 Mr. Van Houten noted that there is also a safety issue with police personnel speeding in the  
2 community right outside of the base. The Police Department should be setting the example but  
3 they are not, which leads others to speed and run stop signs as well. Police cars travel down  
4 Innes Avenue as if it was a freeway, and frequently, there are children crossing that street. He  
5 added that he would like the letter to also go to some of the neighborhood organizations. Ms.  
6 Bushnell indicated that the letter should go to the Mayor and to Chief of Police Heather Fong  
7 jointly rather than being copied to the Mayor. In response to a question from Dr. Tompkins, Ms.  
8 Bushnell noted that sending the letter to the Mayor and the Chief of Police would mean the rest  
9 of the police department's chain of command would be informed of the issue. The motion was  
10 approved unanimously.

11 Mr. Tisdell explained that there were three explosions near the police laboratory yesterday and  
12 he has discussed those incidents with Mr. Forman and Mr. Pearce. He would like to know what  
13 was involved in those explosions since there was an issue last year with the police laboratory  
14 detonating a grenade. Mr. Forman responded that the Navy is going to investigate those  
15 incidents.

16 Ms. Bushnell noted that there was an article in the *San Francisco Chronicle* about the police  
17 laboratory detonating something at HPS five days ago. Mr. Forman clarified that the *San*  
18 *Francisco Chronicle* article covered a separate incident and a Community Notification Plan  
19 (CNP) Message was distributed regarding that detonation. In fact, the Navy will follow up with  
20 a CNP message once an explanation from the police department on the three explosions is  
21 received.

22 Dr. Tompkins said that the lease agreement for the police laboratory does not permit any  
23 explosives testing at HPS, so there should be consequences. Mr. Forman responded that the  
24 laboratory lease is with the San Francisco Redevelopment Agency (SFRA). He explained that  
25 the CNP message on the previous detonation said that a portion of a stick of dynamite was found  
26 and was taken off the shipyard for detonation. Dr. Tompkins asked that the Navy also  
27 investigate what the consequences would be, like removal from the shipyard, if the laboratory  
28 has violated their lease agreement. Ms. Pendergrass noted that the Navy does not have any  
29 authority for removing the police laboratory from the shipyard. Mr. Forman indicated that he  
30 would find out what occurred yesterday and if the laboratory did indeed violate their lease  
31 agreement. That would then have to be discussed with the SFRA to determine a course of  
32 action.

### 33 **HPS Groundwater (Presentation)**

34 Mr. Forman explained that there will be two parts to the presentation on HPS Groundwater. The  
35 first presenter is Mark Walden, Navy RPM, who is the program manager for the basewide  
36 groundwater monitoring program. The goal tonight is to teach the RAB attendees about the  
37 groundwater program and groundwater at HPS. The Navy would also like feedback on how well  
38 this technical material was presented and if the information was easy to understand. It can be  
39 difficult to present technical material and the goal is to have the RAB understand the material  
40 and learn more about the HPS program.

41 Mr. Walden noted that he is a geologist and has been with the Navy for approximately 4 years.  
42 He has been the project manager for the HPS basewide groundwater program for about a year.

43 Mr. Walden stated that this presentation will review basic groundwater principles, provide a few  
44 general definitions, and cover the hydrogeology of the shipyard. Hydro means water and  
45 geology is the study of the earth. So hydrogeology is the study of water and how and where it

1 flows. A groundwater aquifer is a unit of geological material that includes sand, silt, clay, rock,  
2 or a combination of these materials. The aquifer unit contains water and has the ability to  
3 transmit that water from one place to another. The presentation will cover how water flows  
4 through an aquifer and where it goes. Groundwater contaminants at the shipyard will also be  
5 covered in the presentation. The contaminants currently found at the shipyard include solvents,  
6 metals, oils, and petroleum products.

7 Mr. Walden provided a figure showing the hydrologic cycle or water cycle. He explained that as  
8 water evaporates from the ocean and the vapor forms clouds and eventually it rains. Where rain  
9 lands on the ground surface it runs into rivers, lakes, and creeks, and eventually runs from the  
10 surface into the ocean or Bay. Rain also soaks into the ground and eventually makes its way into  
11 an aquifer in the water table. The water table is the first water encountered below the ground  
12 surface. In the aquifer there is a saltwater/fresh water interface, and since fresh water is less  
13 dense it will float above the salt water. The water in the water table at HPS eventually flows into  
14 the Bay.

15 Mr. Walden provided a figure of the hydrogeology and water bearing zones at the shipyard.  
16 Under the surface, the soil is moist but is not saturated with water so the water there does not  
17 move. Then there is the water table where water collects and will start to flow. Where the water  
18 table is first encountered is called Water Bearing Zone (WBZ) A, or the A Aquifer. This zone  
19 varies in depth from 10 to 20 feet below ground surface (bgs) and is where the vast majority of  
20 contaminants at the shipyard are found. Below the A Aquifer is a layer called Bay Mud that  
21 retards or slows down the movement of groundwater in the subsurface, but is not really a barrier.  
22 This layer is not found everywhere at HPS, but is found over the majority of the shipyard.  
23 Below the bay mud is WBZ B or the B Aquifer. This aquifer is not continuous but is found in  
24 scattered locations at HPS. Below the B Aquifer is bedrock, which is also found in scattered  
25 location at HPS. Sometimes water enters the bedrock in fractures.

26 Mr. Walden provided a figure showing how water flows at HPS. He explained that groundwater  
27 at the shipyard flows slowly to the Bay. The lines on the figure have numbers that show how far  
28 below ground surface groundwater would first be encountered in an area. So a line that has a  
29 five means that at a five foot elevation relative to average sea level groundwater would first be  
30 encountered. Just like on the surface, groundwater flows from high to low areas. This means  
31 that groundwater will flow from a five foot elevation to a lower elevation and eventually to the  
32 Bay. The rate that groundwater flows is very slow, an average of less than an inch a day. Some  
33 areas have a faster or slower flow, but the average flow rate is one to two feet per year.

34 Mr. Walden reviewed the contaminants that are found in each parcel at HPS. At Parcel B, the  
35 primary contaminants are solvents that were used to clean equipment. Solvents were stored in  
36 tanks and vats in various areas throughout the parcel, but are concentrated in two areas. The  
37 highest solvent concentrations in groundwater at Parcel B are 400 parts per billion (ppb). To put  
38 that in the context of time, a million seconds is roughly three weeks, and a billion seconds is  
39 roughly eleven years.

40 Mr. Walden explained that Parcel C is where the majority of industrial activities took place at  
41 HPS. Solvents were also stored in tanks and vats at Parcel C and there was piping used to  
42 transfer solvents to another tank, possibly a waste tank. Parcel D has two areas with  
43 contamination, and one area has solvent and chromium VI contamination. Chromium VI is  
44 associated with electroplating. In the other area there are solvents that were kept in tanks and  
45 vats similar to the other parcels. Parcel E-2 also has two areas with solvent contamination  
46 similar to the other parcels. At Parcel E there was a pit used to separate oil and water. Oil and

1 water were put in the pit and oil would rise to the top and be removed for recycling. That area  
2 has been capped with a soil cover and is no longer open.

3 Mr. Walden explained that there is a term non-aqueous phase liquids that describe liquids that  
4 are not dissolved in water. Oil is an example of a non-aqueous phase liquid that floats to the  
5 surface. There is light non-aqueous phase liquid (LNAPL) that floats and dense non-aqueous  
6 phase liquid (DNAPL) that sinks. At the shipyard there are some areas with LNAPL  
7 contamination but no DNAPL has been identified based on the latest groundwater  
8 measurements. Groundwater is tested for LNAPL and DNAPL once a year.

9 Mr. Walden reviewed groundwater use at HPS. The City of San Francisco imports water for  
10 drinking water or any household or industrial uses. That water is imported from the Hetch  
11 Hetchy watershed system located east of the City. The City does not allow groundwater use  
12 within the city limits for drinking water or any household, agricultural, or industrial purposes.  
13 The reason groundwater is not used at HPS is that there is a natural high salt content to the water  
14 close to the Bay. If there was a well at HPS pumping groundwater it would tend to draw more  
15 salt water into the shipyard from the Bay.

16 Mr. Walden summarized the main topics of the presentation. Groundwater flows through HPS at  
17 slow rates to the Bay. Areas of contamination have been identified at each parcel and those  
18 contaminated areas are decades old. Groundwater contamination is fairly stable and each area is  
19 monitored every three months to see if contamination is changing in any way. Remedies are  
20 currently being evaluated at each parcel to determine the best way to cleanup the groundwater  
21 contamination.

22 Patricia Brown, RAB member, asked if the tanks of solvents have been removed. Mr. Walden  
23 replied that the tanks have been removed in some areas, but he is not certain that all the tanks  
24 have been removed. Some tanks were located underground and some were concrete-lined pits.  
25 In Parcel C the Navy is conducting treatability studies to study ways to treat groundwater  
26 contamination, and those seem to be working well.

27 Harrell Powell, Bayview-Hunters Point resident, asked if a pit was dug into the ground at Parcel  
28 E and oil and water was just thrown in the pit for separation. Mr. Walden confirmed that oil and  
29 water was just poured in the pit and oil is still present in that area. In response to a question from  
30 Mr. Powell, Mr. Walden confirmed that oil contamination could trickle to the Bay. Mr. Forman  
31 added that the site at Parcel E is a large 5-acre site that in the future will be a large project for the  
32 HPS program.

33 Sudeep Rao, Literacy for Environmental Justice, asked if there was anything still in the solvent  
34 tanks. Mr. Walden responded that the tanks were drained before removal. Mr. Rao asked for  
35 examples of DNAPL and chlorinated solvents. Mr. Walden replied that the primary chlorinated  
36 solvents at HPS are trichloroethylene (TCE) and tetrachloroethylene (PCE). No DNAPL has  
37 been found at HPS during the last round of measurement.

38 Mr. McGowan asked if the boundaries of the contaminated areas in the parcels are well defined.  
39 Mr. Walden replied that the boundaries are well defined and there are monitoring wells around  
40 the contaminated areas and throughout the shipyard that monitor plume migration. Mr.  
41 McGowan asked if there are any estimates of the solvent quantities in the groundwater that can  
42 be used to calculate how long it would take for those contaminants to flow out naturally. Mr.  
43 Walden responded that there are no estimates of solvent quantities in the groundwater. In his  
44 opinion, however, those plumes that have been present for 50 years have moved about 150 feet  
45 over those years. That is based on a flow rate of three feet per year for example, which is

1 actually a high flow rate for HPS. Consequently, it does not appear that contamination has  
2 reached the Bay and groundwater monitoring supports that conclusion. Mr. Forman added that  
3 on the parcel figures provided there are nice round shapes showing where contamination is  
4 present. Those shapes are just for presentation purposes and do not represent the actual shape of  
5 the areas with groundwater plumes.

### 6 **Hunters Point Groundwater Monitoring and Remediation (Presentation)**

7 Mr. Walden explained that this next part of the presentation will cover quarterly groundwater  
8 monitoring that is performed at HPS. The presentation will also cover remediation and  
9 treatability studies that have been conducted at HPS, as well as some of the plans the Navy has  
10 for the near future. He introduced Ed Kilduff with CE2 Corporation, the contractor performing  
11 quarterly groundwater monitoring at HPS.

12 Mr. Kilduff explained that this presentation will provide an overview of the type of monitoring  
13 performed quarterly to show the scope of that work and how it is performed. It will review field  
14 techniques, the volume of data collected, and how the community and Young Community  
15 Developers (YCD) are involved in the HPS monitoring program.

16 Mr. Kilduff explained that HPS covers 420 acres and groundwater levels are measured in  
17 approximately 433 wells covering that area. Groundwater levels are measured to provide data on  
18 how groundwater flows from high to low levels. Samples are collected regularly in 238 wells  
19 and that provides data on the types of contaminants present in groundwater. The groundwater  
20 reports are submitted to the regulators every three months. Wells are still accessed for  
21 monitoring even when there is a lot of activity at some of the sites.

22 Mr. Kilduff indicated that the monitoring wells look very different then what someone would  
23 picture from old time wells. The outside of the well consists of a well pad with a locking well  
24 vault with a bolt that secures the vault. When that vault is opened there is a pipe running into the  
25 ground. When installing a well, a hole is dug to insert that pipe into the groundwater. Wells are  
26 scattered throughout HPS both outside and in buildings. The well itself consists of a pipe that  
27 has openings at the bottom so groundwater can run into the pipe. Groundwater flows into the  
28 pipe through those slots, and measurements and samples are collected by accessing the pipe from  
29 the surface.

30 Mr. Kilduff said that the goal for sampling a well is to collect a fresh groundwater sample that is  
31 representative of the water in the ground, not a sample of groundwater that has sat in the well for  
32 a period of time. In order to get that fresh sample, the well is purged. That involves pumping  
33 water out of the well to get fresh water flowing in that is representative of the actual  
34 groundwater. When personnel are sure the water from the well represents surrounding  
35 groundwater, sample bottles are filled and sent to an U.S. Environmental Protection Agency  
36 (EPA) certified laboratory. Then the well is secured with a locking cap and the bolt on the vault.  
37 Any equipment used for sampling is decontaminated between wells.

38 Mr. Kilduff reviewed the process for measuring groundwater levels. He presented a water level  
39 meter that consists of a tape measure with a sensor on the tip. The tip of the meter is inserted  
40 down the well and when it hits water the electrical sensor beeps. Then the measurement on the  
41 tape measure indicates how deep groundwater is. He placed the sensor in a glass of water to  
42 show how the sensor worked.

43 Mr. Kilduff stated that a lot of data is collected for groundwater monitoring. Water level  
44 measurements are collected from over 400 wells and samples are collected for chemical analysis

1 from over 200 wells. That results in 40,000 pieces of data collected and reported to the  
2 regulators every quarter. He reviewed how information flows. Samples are collected at HPS  
3 and sent to a laboratory. After sample data comes in from the laboratory, it goes to a third party  
4 data checker to check that all information was analyzed correctly. After the data checker  
5 confirms the data is accurate it goes to the contractor and is used to write the groundwater reports  
6 that go to the regulators. Groundwater maps showing the levels and flow of groundwater are  
7 generated and go into the reports.

8 Mr. Kilduff explained that the community is a really important part of field work for  
9 groundwater monitoring. YCD staff have been part of the field crew for the groundwater  
10 monitoring program and they do a very good job.

11 Mr. Forman provided an overview of groundwater remediation performed at HPS. He noted that  
12 groundwater is not monitored in areas where there are no contaminants. Groundwater wells tend  
13 to be placed around areas where groundwater contamination has been identified. Groundwater  
14 monitoring is performed for a number of reasons, including monitoring to see if contaminants are  
15 moving and that movement is called migration. Groundwater is also monitored to check  
16 contaminant concentrations.

17 Mr. Forman stated that groundwater monitoring is ultimately performed to provide information  
18 on what to do to cleanup or remediate contamination. There are a variety of ways to remediate  
19 contamination depending on where it is located and the contaminant concentrations. A number  
20 of conditions affect how well a remediation technology works including the geology at a site,  
21 how geological formations interact with groundwater, how fast groundwater flows, and the  
22 nature of the rock beneath the ground surface.

23 Mr. Forman explained that treatability studies are performed at HPS to test remediation  
24 technologies at a site. A treatability study involves selecting a technology and working with the  
25 regulators on how best to test that technology's effectiveness on groundwater contaminants. One  
26 type of treatability study involves installing an injection well with monitoring wells around it.  
27 The injection well is used to inject chemicals or other substances that are meant to breakdown a  
28 contaminant. Substances like lactic acid are injected into groundwater and that feeds and  
29 increases the natural bacterial population. Then when the lactic acid food supply is cut off, the  
30 bacteria feed on and breakdown contaminants into less harmful chemicals.

31 Mr. Forman provided a figure showing groundwater remediation using an injection well. At  
32 HPS, the water table, which is the upper limit of groundwater underground, is encountered about  
33 10 feet bgs. The injection well is installed into the water table in the area with contamination. A  
34 substance is then injected, like zero-valent iron (ZVI) that uses small granules of iron mixed with  
35 a liquid or gas to form a slurry. The slurry is injected under pressure so it pushes out into the  
36 areas with contamination. This technology for treating contaminants in place is called in-situ  
37 treatment.

38 Mr. Forman reviewed the different types of groundwater remediation evaluated in treatability  
39 studies at HPS. In 2005 and 2006 there was discussion of ZVI injection to break down  
40 contaminants. At HPS sites there are solvents that have spilled or leaked into groundwater and  
41 those solvents have chlorine atoms. ZVI breaks down those chlorinated-solvents into  
42 compounds that are less toxic by taking electrons off the solvent molecules. ZVI is often used to  
43 treat solvents like TCE, and it also works on certain metals like chromium VI.

44 Mr. Forman stated that another form of remediation is biological or bioremediation that uses a  
45 life source for cleanup. At a contaminated site the hydrogeology is examined to see if there are

1 certain types of bacteria that live there. The bacteria are provided with a food supply to enhance  
2 the living environment so the population grows. Bacteria then eat and digest certain chemicals  
3 and leave other chemicals that are less harmful. This process has been used across the country at  
4 many sites and it works well at some sites and not as well at others. That is why treatability  
5 studies are performed to determine how well a technology will work at a site.

6 Mr. Forman explained that a third form of remediation is to remove material from the  
7 groundwater. There can be a chemical like oil that floats on top of the groundwater, and there  
8 are sites at HPS with that type of contamination. The contaminant is pumped out from the  
9 groundwater. As a contaminant is pumped out, surrounding contamination will often move back  
10 into a well, so pumping continues for many months to effectively remove the contaminant from  
11 the water table.

12 Mr. Forman reviewed the cleanup approaches evaluated at HPS. At Site 10 ZVI was injected in  
13 September 2003 to treat solvent contamination. The solvent level was at 610 ppb in September  
14 2003 and after several rounds of ZVI injection was down to 123 ppb in March 2004. This shows  
15 that the levels of contaminants come way down when chemicals are injected into the  
16 groundwater. It is the Navy's job to monitor the treatability study over time and use the lessons  
17 learned on a larger scale at HPS to do more cleanup.

18 Mr. Forman reviewed the treatability study at Remedial Unit C5 (RU-C5) in Parcel C that  
19 evaluated bioremediation. Lactic acid was injected into groundwater contamination to feed  
20 bacteria that then digested the contaminants. In March 2004 the contaminant level was 32,600  
21 ppb and by March 2007 the level was down to 5,220 ppb. With a lot of these technologies there  
22 is a lot of improvement up front when treatment begins and that tapers off over time. The  
23 contaminant levels continue to be monitored over time to see what level of cleanup is eventually  
24 reached using the technology.

25 Mr. Forman noted that a future field trip for the RAB will be to RU-C1 where a treatability study  
26 to evaluate bioremediation is planned. Lactic acid is going to be injected to feed and grow the  
27 bacteria population. The setup for the study including piping and injection wells is currently  
28 being built. Once the study is underway and there are measurements to show what is actually  
29 happening in the ground that will be a good site to visit. The site visit will probably take place in  
30 late spring or early summer 2007. The RAB will have a chance to visit the site and talk to the  
31 contractor conducting the treatability study.

32 Mr. Forman reviewed the treatability study at RU-C4 that evaluated ZVI. This was one of the  
33 Navy's earliest attempts using ZVI at a site near Building 272. In December 2002 the  
34 contaminant level was 78,000 ppb and by September 2005 the level was down to 5 ppb. This  
35 area had one of the highest levels of contamination at HPS. ZVI was injected in several rounds,  
36 and this study shows how high levels of contamination can be treated to bring it down to a  
37 manageable level.

38 Mr. Forman stated that these treatability studies have been success stories for HPS, but there is  
39 no 100 percent success rate. The Navy hopes to import these successes to other sites at HPS in  
40 the future.

41 Mr. Forman reviewed future treatability studies planned at HPS. At Site 9 in Parcel D there are  
42 chlorinated solvent and chromium (a metal) contamination. ZVI works well on chlorinated  
43 solvents and metals so that will be the technology evaluated at Site 9. ZVI will also be evaluated  
44 at Site 71 that also has chlorinated solvent contamination. The treatability studies for these two  
45 sites are planned for late 2007 or early 2008.

1 Mr. Forman summarized the groundwater program at HPS. Groundwater samples (about 230  
2 samples) are collected every three months. It is a large job for the Navy and the regulators to  
3 evaluate and make sense of all that data each quarter. The staff hired from YCD has become an  
4 integral part of the field team for groundwater monitoring at HPS. Cleanup studies took place on  
5 Parcels B and C and further studies are planned for Parcel D. The Navy will also be looking into  
6 technologies for treatability studies planned for Parcel E. The oily waste ponds at Parcel E that  
7 were discussed earlier will be an interesting project that will be discussed further in 2007 and  
8 2008. There is not currently any one remediation technology that is a clear choice for that site.  
9 That Parcel E treatability study may look at more than one technology and see how each works  
10 at different parts of the 5-acre site. The treatment technologies may also be combined with  
11 excavation to remove some of the oily waste and soil mixture.

12 Mr. Rao asked if the treatability studies are using existing technologies that have been laboratory  
13 tested, or are these technologies being used for the first time. Mr. Forman responded that there  
14 are different ways to learn about available technologies, like attending industry fairs and  
15 conferences. EPA also has a great website that covers technologies, and actually has a study  
16 group for innovative technologies. The Navy looks at the various technologies to determine  
17 what would be a good fit for a particular site. The ZVI and bioremediation using lactic acid  
18 technologies, however, have been in use for 10 to 15 years and have been successful at many  
19 other sites across the country. There really has not been a technology used at HPS where the  
20 shipyard is testing the technology for the first time.

21 Mr. Van Houten asked if there are monitoring wells along the shoreline at HPS that test if  
22 contamination is reaching the Bay. Mr. Forman responded that there is a Record of Decision  
23 (ROD) for Parcel B, so there is a series of sentinel wells in place between the leading edge of  
24 contamination and the Bay in various locations. In other areas of HPS there are either sentinel  
25 wells in place or wells that monitor the leading edge of groundwater contamination.  
26 Investigations were performed to determine where contamination is located and then wells were  
27 strategically placed around the leading edge of the contamination, and that is called bounding.  
28 The most important location to bound a contaminant is downstream in the direction groundwater  
29 flows, which is toward the Bay at HPS. Protecting the Bay is one of the most important  
30 objectives at HPS. Contaminants in groundwater also undergo risk assessments for people who  
31 may one day occupy a building on top of groundwater contamination or the area where  
32 contamination used to exist.

33 Dr. Tompkins stated that in the technical subcommittee meeting, the Navy discussed a process  
34 from Australia that is being tested at HPS. Isn't that the first time the technology to treat  
35 polychlorinated biphenyls (PCBs) is being tested in the United States? Mr. Forman responded  
36 that a process called mechano-chemical destruction was discussed in the subcommittee meeting,  
37 but that technology is for soil. The Navy is working with a New Zealand company on a  
38 technology that has been successful in New Zealand but has not been used here in the United  
39 States. That technology is being evaluated in a bench scale test where small samples of PCB-  
40 contaminated soil have been treated to determine the effectiveness of that technology. That is an  
41 example of a cutting-edge technology, but there is still a long way to go before that technology  
42 could be used throughout the shipyard.

43 Mr. Powell asked regarding bioremediation is there bacteria going into the wells and if there was  
44 also iron going into the wells. Mr. Forman clarified that the bacteria is naturally occurring in the  
45 soil and lactic acid that the bacteria likes to eat are added through the injection wells. The  
46 bacteria population grows and when the supply of lactic acid is cut off the bacteria then eats the  
47 contaminants. After bacteria have finished digesting the contaminants the colony dies. When

1 ZVI is injected chemical reactions take place that strip chlorine atoms from the contaminants,  
2 which results in a new chemical or compound. That process continues to transition the  
3 chemicals until there is a harmless chemical called ethane, along with some oxygen and water.  
4 The iron stays in the ground after the process is complete.

#### 5 TAG Update

6 Dr. Tompkins stated that unfortunately a few RAB members have left, which is a prime reason to  
7 have these business and committee reports at the beginning of the meeting. The chair of the  
8 Technical Review Subcommittee and the Community Co-Chair are now absent from the  
9 meeting.

10 Dr. Tompkins explained that the TAG is moving along and three of his colleagues are now part  
11 of the TAG team. There is a new member of the team, Dr. Lisa White, an African-American  
12 geologist. She is the former department chair of geology and is currently the associate dean of  
13 graduate studies at San Francisco State University. An article covering the TAG is also planned  
14 to run in the Bayview newspaper sometime in the next month. Once the TAG team has  
15 completed the first test reviewing technical material, the local Asian newspaper may be  
16 approached to run an article as well. That would be culturally sensitive and help everyone  
17 understand what the TAG team is doing to review Navy documents and provide opinions on  
18 what are the best technologies available.

19 Dr. Tompkins said that he is pleased to have a scholar retained on the TAG team as well as  
20 another colleague on the RAB to provide different perspectives on the issues. No one knows it  
21 all and having more people working on the HPS program can only result in a better product. He  
22 noted that his objective is not to run a popularity contest. It is to ensure that the best science is  
23 practiced and the best job possible done for the Bayview community. His interest is in  
24 environmental justice for this community, and the City and County of San Francisco.

25 Dr. Tompkins stated that for the TAG, he would like to have the information needed readily  
26 available. First, he would like to have the information on the Amendment to the Parcel B ROD  
27 provided on compact disk for Dr. Palmer and the team to review. He would also like to get hard  
28 copy data on dust control, specifically for the sites where air monitoring took place to look at  
29 dust remediation.

30 Dr. Tompkins noted that in March 2007 Community First Coalition (CFC) will hold a  
31 community outreach event with Arc Ecology, but a date has not yet been set. Additionally, Arc  
32 Ecology will be holding a meeting on March 10, 2007 regarding dust control for the Former  
33 Parcel A. The TAG team will be attending that meeting, but will not be paid because the grant  
34 only covers activities related to the Navy's property and the HPS program. The TAG team,  
35 however, is willing to devote their own personal time to issues affecting the community.

36 Gregory Grist, TAG representative, said that in the January 2007 meeting minutes he was  
37 referred to as a doctor, and he does not have a PhD. He has a bachelor degree in physics and a  
38 masters degree in environmental engineering, and he teaches physics. He also reported that he  
39 and Dr. Palmer, with Mr. Forman's assistance, have had two site visits to HPS to look at a  
40 variety of the sites for background when reviewing Navy documents and producing TAG  
41 documents. Getting started with the TAG has been a slow process, but the team is getting up to  
42 speed, is hitting milestones, and getting the necessary assistance.

1 **Subcommittee Reports**

2 **Economic Subcommittee**

3 Jesse Mason, RAB member, stated that his subcommittee report for February 2007 is available  
4 this evening. There was an excellent crowd with quite a few truckers for the February 15, 2007  
5 meeting. It looks like the community will get involved with more of the HPS projects coming up  
6 soon. ITSI is back doing work at HPS and Miguel Galarza, Yerba Buena Environmental, is  
7 going to be working with the community. At Tetra Tech EC, Bill Dougherty is also going to be  
8 working with the community. The test is how community members are now going to react in  
9 doing a good job at HPS.

10 Mr. Mason noted that there were some comments that Navy contractors need to start looking at  
11 sponsoring people in the community for technical jobs. Tetra Tech is already doing that through  
12 YCD.

13 Mr. Mason explained that there were some issues about dust control. He asked that anyone that  
14 can make the March 10, 2007 Arc Ecology workshop on dust control for the Former Parcel A,  
15 please do so. Lunch will be provided. He stated that he attended a workshop covering pollution  
16 of the park lands and there was no one from the Navy or some of the other organizations at that  
17 workshop.

18 Mr. Mason indicated that the next Economic Subcommittee meeting will be held on March 15,  
19 2007 at 6:00pm. That meeting may cover topics other than trucking, so please bring any other  
20 concerns to the meeting.

21 Mr. Mason noted that his report from the September 2006 meeting is available this evening for  
22 those who thought he was not sending in his reports.

23 **Technical Review Subcommittee**

24 Ms. Bushnell had to leave the RAB meeting early, so no report was provided.

25 **Community Comment Period**

26 Dr. Tompkins said that he has an issue he would like to address with the Technical Review  
27 Subcommittee. He noted that he passed a document out to the RAB members listing upcoming  
28 documents. This is the list the Navy provided while he was hiring a representative for the TAG.  
29 He stated that he has an issue with the presentations in the agenda for the Technical Review  
30 Subcommittee and RAB meetings. The HPS RAB has a responsibility to make public  
31 recommendations on issues like the Amendment to the Parcel B ROD. When he was acting as  
32 the Technical Review Subcommittee chair during Ms. Bushnell's illness there was a public  
33 comment period. Public comments have not been addressed in any in-depth analysis in either the  
34 Technical Review Subcommittee or the RAB meetings. In addition, he would like to have closer  
35 coordination with the documents scheduled for review and would like the Navy to provide  
36 updates to the list for upcoming documents in 2007. That way the RAB has time to present  
37 opinions and views during the comment period.

38 Dr. Tompkins explained that past practices for the Technical Review Subcommittee with the  
39 former chairs was to provide written comments with recommendations to the RAB and the RAB  
40 voted on those comments. That has not occurred recently. He stated that he would like better  
41 coordination of document reviews so the RAB can be on record in terms of the community's  
42 opinion on particular issues. He has seen comments from Chein Kao, former RAB member with  
43 Arc Ecology, on HPS documents but no comments have come from the RAB.

1 Dr. Tompkins said that for presentations for example, the Technical Review Subcommittee has  
2 seen two presentations on the PCBs and two on a Feasibility Study, but has not addressed the  
3 Amendment to the Parcel B ROD. In addition, there has not been enough time in the meetings to  
4 discuss dust control issues. He said he is glad he attended the Economic Subcommittee meeting  
5 because there is a contract coming up for moving tons of soil. He asked how much soil is going  
6 to be excavated during that six month period. Mr. Pearce responded that about 25,000 cubic  
7 yards of soil will be excavated. Dr. Tompkins explained that there will be a lot of dust generated  
8 by that operation and that issue would not have been discussed if he had not attended the  
9 Economic Subcommittee meeting.

10 Dr. Tompkins stated that when he and Dr. Palmer performed air studies back in 1989, 55 percent  
11 of the first graders at Carver Elementary school were asthmatic and that is now up to 85 percent.  
12 With stricter and stronger dust control standards, the children do not have to suffer. After the  
13 1989 earthquake, the trucks that used the marina were not filthy, they were washed and clean.  
14 He wants the same standards here in the Bayview/HPS community. He does not want to see dust  
15 when he drives on the shipyard or see a bus that is followed by a cloud of dust. There are  
16 companies that can be hired to clean the trucks at HPS.

17 Ms. Pendergrass stated that she commends the passion being exhibited here because the intention  
18 is to do the best job possible ensuring our governmental agencies and regulators do their job  
19 cleaning up HPS. That way future generations can live in a safe place. That is why everyone  
20 has been attending these RAB meetings over the years. On that point and to maintain civility,  
21 the RAB meetings are held once a month for two hours and RAB business is conducted through  
22 presentations on the actual activities and findings at HPS to the larger community. The rest of  
23 the month, the subcommittee structure is in place to discuss, review, better understand, and make  
24 recommendations on issues brought up to the full RAB membership. The two-hour RAB  
25 meeting is not the place for long discussions or fact-finding. With that, Dr. Tompkins' motion to  
26 have the subcommittee reports earlier in the meeting takes up time needed to focus on the reports  
27 from the Navy on actual activities at HPS. The RAB members need time to digest information,  
28 take it back to the community, and make recommendations in advance on what the RAB would  
29 like to see from the Navy. Making motions at the RAB meeting takes up valuable time and there  
30 needs to be respect for the people who take the time to attend these two-hour meeting and  
31 provide input.

32 For the TAG, the RAB does need some time to digest and decipher all the technical information  
33 and everyone is doing a great job with that. The RAB is looking forward to the TAG reports  
34 summarizing the technical documents. Providing those in writing in plain English makes the  
35 world better for the community, and the newspaper articles help as well.

36 Dr. Tompkins clarified that his main issue is to have presentations at the RAB and Technical  
37 Review Subcommittee meetings that coincide with RAB responsibilities in reviewing  
38 documents. That needs to be coordinated in a timely manner. Ms. Pendergrass stated that those  
39 issues need to be worked on outside the RAB meeting with the RAB Co-Chairs and the  
40 Technical Review Subcommittee chair. That is not business that needs to be addressed by the  
41 full RAB.

42 Carolyn Hunter, Tetra Tech EMI, reminded the RAB that the next MBCO and Technical Review  
43 Subcommittee meeting is on March 8, 2007. In addition, the meeting minutes from the January  
44 and February 2007 MBCO and Technical Review Subcommittee meetings are available on the  
45 information table this evening.

46 Ms. Pendergrass adjourned the meeting at 8:07 p.m.

1   Reminder: The next RAB meeting will be held from 6:00 p.m. to 8:00 p.m., Thursday,  
2   March 22, 2007, at the Southeast Community Commission Facility, Alex Pitcher Jr. Room, 1800  
3   Oakdale Avenue, San Francisco, California 94124.

**ATTACHMENT A**  
**22 February 2007- RAB MEETING**  
**LIST OF ATTENDEES**

Name	Association
1. Tessa Bemis	Tetra Tech EMI
2. Patricia Brown	RAB member, Shipyard Artist
3. Aleta Bryant	Cam Kal Ind. Transport LLD
4. Barbara Bushnell	RAB member, Resident of the Southeast Sector (ROSES)
5. Ronald Camese	Camese Transportation
6. Charles Dacus	RAB member, Bayview/Hunters Point Resident
7. Gustavo De Leon	18 Trucking
8. Michael Dennis	MCD Trucking
9. Bill Dougherty	Tetra Tech ECI
10. Keith Forman	Navy RAB Co-chair
11. Larry Frias	RAB member, Waste Solutions Group
12. Miguel Galarza	Yerba Buena Engineering & Construction
13. Gregory Grist	Tech Physics
14. Steve Hall	Tetra Tech EMI
15. Earl Hampton	Resident
16. Carolyn Hunter	Tetra Tech EMI
17. Ed Kilduff	CE2
18. Melanie Kito	Navy RPM
19. Sara Koppell	Navy RPM
20. Jaqueline Ann Lane	U.S. EPA Region IX
21. Tom Lanphar	Department of Toxic Substances Control
22. Kevin Lawson	Construction Service
23. Steve Martini	18 Trucking
24. Jesse Mason	RAB member, resident
25. Mike McGowen	Arc Ecology
26. James Morrison	RAB member, ROSES
27. Christine M. Niccoli	Niccoli Reporting, court reporter
28. Ralph Pearce	Navy RPM
29. Marsha Pendergrass	Pendergrass & Associates
30. Harrell Powell	Resident
31. Sudeep Rao	Literacy for Environmental Justice (LEJ)
32. Wayne K. Scott	Resident
33. Peter Stroganoff	Navy, Resident Officer in Charge of Construction (ROICC) Office
34. Jerrald Taylor	Bayview Rock
35. Keith Tisdell	RAB member, Resident
36. Raymond Tompkins	RAB member, Bayview-Hunters Point Health and the Environment
37. Robert Van Houten	RAB member, Morgan Heights Resident
38. Eli Vedagiri	Barajas & Associates
39. Mark Walden	Navy RPM
40. Angela Williams	Barajas & Associates
41. Michael Work	U.S. EPA Region IX

**ATTACHMENT B  
22 FEBRUARY 2007 – RAB MEETING  
ACTION ITEMS**

<b>Item No.</b>	<b>Action Item</b>	<b>Person Authoring the Action Item</b>	<b>Due Date</b>	<b>Person/Agency Committing to Action Item</b>	<b>Resolution Status</b>
<b>Carry-Over Items</b>					
1.	The Navy will schedule a HPS Environmental 101 class on a Saturday once at least 3 new community members join the RAB.	Keith Forman Navy RAB Co-Chair	N/A	Mr. Forman	This action item will be carried over to March 2007.
2.	Dr. Ray Tompkins, RAB Member, to compose a letter from the HPS RAB to the City of San Francisco requesting that Innes Avenue be cleaned regularly to protect residents from dust. The letter will also be provided to Lennar and the HPS RAB.	Dr. Tompkins RAB Member	November 2006	Dr. Tompkins/ Mr. Tisdell	This action item will be carried over to March 2007.
<b>New Action Items</b>					
1.	Keith Tisdell, Community RAB Co-Chair, to compose a letter from the HPS RAB regarding safety concerns with Police Personnel speeding and running stop signs while on base at HPS and on local community streets outside HPS.	Keith Tisdell Community Co-Chair	March 2007	Keith Tisdell	This action item will be completed during March 2007.
2.	The Navy will provide the RAB with a Community Notification Plan e-mail with the information resulting from investigation into the detonations near the police laboratory.	Keith Tisdell	March 2007	Ralph Pearce Navy	This action item will be completed during March 2007.

April 11, 2007

Diane Silva  
SWDIV Records Manager  
Administrative Record (Code EVR)  
NAVFACENGCOM Southwest  
1220 Pacific Highway  
San Diego, CA 92132

Subject: Hunters Point Shipyard Information Repository/Administrative Record  
Submittals – Contract No. N68711-03-D-5106, CTO-016

Dear Ms. Silva,

Enclosed are three copies of the following documents for submittal to the Hunters Point Shipyard Information Repository/Administrative Record:

- Final September 28, 2006 Restoration Advisory Board Meeting Minutes
- Final September 28, 2006 Restoration Advisory Board Meeting Transcript
- Final October 26, 2006 Restoration Advisory Board Meeting Minutes
- Final October 26, 2006 Restoration Advisory Board Meeting Transcript
- Final December 7, 2006 Restoration Advisory Board Meeting Minutes
- Final December 7, 2006 Restoration Advisory Board Meeting Transcript
- Final January 25, 2007 Restoration Advisory Board Meeting Minutes
- Final January 25, 2007 Restoration Advisory Board Meeting Transcript
- Final February 22, 2007 Restoration Advisory Board Meeting Minutes
- Final February 22, 2007 Restoration Advisory Board Meeting Transcript

Please feel free to contact me or Angela Williams (Community Relations Specialist – [angelawilliams@bai.cc](mailto:angelawilliams@bai.cc)) if you have any questions.

Thank you,



Saravanan (Eli) Vedagiri, P.E.  
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cc : Keith Forman, BEC  
Cynthia Mafara, Contract Specialist