
MINUTES
NAVAL WEAPONS STATION (NAVWPNSTA) SEAL BEACH
RESTORATION ADVISORY BOARD (RAB)
AND COMMUNITY MEETING
September 18, 2002

Participants:

Bettencourt, Philip
Bradley, John / United States Fish and Wildlife Service
Carmody, Jack
Foreman, Kim / Department of Toxic Substances Control (DTSC)
French, Jim / Bechtel National, Inc.
Garrison, Kirsten / CH2M HILL
Grinyer, Walter / GeoSynetec
Kraft, Rich / GeoSyntec
Le, Si / Southwest Division, Naval Facilities Engineering Command (SWDIV)
Leibel, Katherine / DTSC
Peoples, J.P.
Schilling, Bob / Bechtel National, Inc.
Smith, Gregg / NAVWPSNTA Seal Beach Public Affairs Officer (PAO)
Sorenson, Kent / North Wind Environmental, Inc.
Tamashiro, Pei-Fen / NAVWPNSTA Seal Beach and RAB Navy Co-chair
Vesely, Gene
Welz, Ed
Willhite, Lindi / RAB Community Co-chair

WELCOME

At 7:05 p.m., P. Tamashiro, Navy Co-chair began the meeting by welcoming the participants and introducing G. Smith, the Public Affairs Officer (PAO) for NAVWPNSTA Seal Beach. K. Foreman, the Public Participation Specialist DTSC was also introduced.

Participants were encouraged to direct any questions regarding environmental issues or the Installation Restoration Program (IRP) to P. Tamashiro or G. Smith, who are also accessible via telephone or e-mail.

P. Tamashiro introduced Si Le, the Remedial Project Manager (RPM) for the IRP from SWDIV Engineering Command, who would be presenting a status update on the ongoing IRP.

PROJECT HIGHLIGHTS

S. Le provided the RAB with an overview of the progress at the NAVWPNSTA Seal Beach's IRP sites. The following sites were discussed:

- Site 5- Fill Disposal Area, Removal Action
- Site 7 - Station Landfill, Engineering Evaluation and Cost Analysis (EE/CA) and Action Memorandum (AM)

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- Site 73 - Water Tower Area, EE/CA and AM
 - SWMU 24 - Demilitarization Facility, EE/CA and AM
 - Site 14 - Abandoned Leaking Gasoline Underground Storage Tank (UST), Baseline Groundwater Survey Investigation
 - Site 40 - Concrete/Pit Gravel Area and Site 70 - Research, Testing, and Evaluation (RT&E Area), Groundwater Monitoring Program
 - Site 40 and Site 70, Feasibility Study, Proposed Plan, and Record of Decision (ROD)
 - Site 40 and Site 70, Pilot Testing
 - Site 74 - Skeet Range, Tier II Ecological Risk Assessment
 - Site 4 - Perimeter Road, Site 5 - Clean Fill Disposal Area, Site 6 - Explosives Burning Ground, and Site 7 - Station Landfill, Groundwater Monitoring Program

Copies of the Project Highlights slide presentation were made available as handouts at the meeting. It was also announced that an acronym list was available for the presentations. Participants were encouraged to use the list for the meaning of acronyms used during either presentation.

Questions and answers made immediately following the Project Highlights presentation are summarized below:

Question: With respect to the lead “hot spots” identified along Perimeter Road (Site 4), are some of these hot spots located near or within the Station Landfill (Site 7)?

Answer: There are two isolated areas of potential concern (AOPC) that DTSC has determined the Navy should address. These two areas are located near the Orange County Flood Control Channel along the southern edge of the base. The lead “hot spots” are located just outside the Station Landfill.

The Navy has determined that the contamination at these two AOPCs (1A and 2A) should be excavated and plans to conduct the excavation while conducting the Site 7 removal action. Combining these two removal actions will save costs.

Question: Has testing of the entire Perimeter Road been conducted?

Answer: Yes, a Removal Site Evaluation was conducted at Sites 4, 5, and 6. All 12 miles of Perimeter Road were sampled at regular intervals and DTSC expressed concerns for AOPC 1A and 2A.

Comment by P. Bettencourt: With respect to the RT&E Area (Site 70), I question why tax payers are paying for investigation and cleanup at this site when there is clear evidence that a government contractor was involved in activities which probably caused the existing groundwater contamination.

I would like the meeting minutes to reflect my continued personal concern

that a proactive effort should be undertaken to identify the source of the groundwater contamination at Site 70 and reimburse the Nation's tax payers.

Response by S. Le In response to a request by the Navy's legal counsel, within the last year SWDIV has begun to track the costs of the investigative and groundwater monitoring efforts conducted at Site 70 paid for by IRP funds. The intent is to quantify the monies that would be recovered from government contractors and third parties responsible for the contamination left behind. The process is slow, but progress is definitely being made.

Response by P. Tamashiro As we have done in the past, your statements regarding this issue have been noted in the official RAB meeting minutes and will be forwarded to the Navy's legal counsel to convey continuing concerns with respect to this issue. The Navy is carefully building a case with respect to this matter, collecting information on how to proceed with collecting funds, before going public.

Question: Are there any other sites on the NAVWPNSTA that third party activities are responsible for site contamination?

Answer: Investigations of contaminated soil and groundwater at Oil Island (Site 22) have been transferred to the tenant. They will provide funds for investigation and potential future remediation that may be required.

Comment by E. Welz Regarding the concern over remediation cost recovery at Site 70, there is precedent for seeking cleanup funds from responsible parties. DTSC has been an advocate for doing this.

Response by P. Tamashiro Yes, the Navy is actively building a case, however it takes time to build a case of this scope.

PRESENTATION - IR SITE 40 PILOT TEST PROGRAM

P. Tamashiro introduced B. Schilling, the Contract Task Order (CTO) Leader for the Concrete Pit/Gravel Area (Site 40), and J. French, Project Engineer, from Bechtel National, Inc. who would present the Pilot Test Program at Site 40. K. Sorenson, a guest speaker from North Wind Environmental, Inc. in Idaho, was also introduced to speak about proposed biological remediation activities for Site 40.

Copies of the slide presentation were made available as a handout at the meeting. An additional separate handout was also made available, which provided a map of the Site 40 Pilot Test Area that showed the locations of groundwater monitoring wells.

The questions and answers posed during and after the *In Situ Lactate Enhanced Bioremediation* portion of the presentation are summarized below:

Slides 14 to 23

Question: In lactate enhanced bioremediation, lactate is used as an electron donor, however there is no mention of the addition of bacteria? Are they

however there is no mention of the addition of bacteria? Are they present to begin with?

Answer: Yes. The preference is to stimulate the native bacteria population first. The belief is that this would enhance the potential for success with the bacterial dechlorination process.

Question: How would extreme heat or pressure affect the *Dehalococcoides ethenogenes* bacteria's ability to biodegrade chlorinated solvents?

Answer: It depends on the exact pressure and temperature. In terms of pressure, while not a lot of work has been done at depths of 1,000 feet, studies done at the bottom of the ocean have shown that the *Dehalococcoides ethenogenes* bacteria are able to survive.

In terms of heat, once you exceed 35 to 40 degrees Celsius, only certain bacteria are active.

For the process we're describing, we wouldn't want extremes of either temperature or pressure. Methane producers are active at high temperatures (> 35 degrees Celsius) and they would likely out-compete the bacteria that effectively biodegrade the chlorinated solvents.

Question: Does lactate enhanced bioremediation give off any type of odor?

Answer: Some sulfides may be produced but it precipitates out with iron. This has occurred here at Seal Beach.

Question: Is this process considered experimental or are there a number of success stories?

Answer: There are a number of success stories associated with this process; a few well-documented at a larger scale and some ongoing and not as well-documented at a smaller scale.

Question: Is this a proprietary process?

Answer: No, not in general. There are many situations where an electron donor has been added to stimulate the dechlorination process.

The questions and answers posed during and after the Field Activities portion of the presentation are summarized below:

Slide 31

Question: Regarding the 20:1 ratio you discussed for the sodium lactate injection process, does this represent the ratio between water and the 60 percent sodium lactate?

Answer: Yes. This is the ratio we use to reach the 3 percent solution that is injected into the groundwater well.

Slide 33

Question: So the lactate injection process is not forcing the production of any constituents of concern for air quality?

Answer: Wellheads were monitored for health and safety concerns and nothing was produced that wouldn't normally be generated at any landfill.

Question: So whatever gases that were produced were of a poor combustion quality?

Answer: Methane levels exceeded the lower explosive limit (LEL) initially in the wellheads until they were allowed to vent. The concentration of other gases produced at the wellheads was low and not of concern.

BREAK

P. Tamashiro announced that there would be a 10-minute break and indicated that the Site 40 Pilot Test presentation would recommence after the break.

The questions and answers posed during and after the Pilot Test Data Review and Conclusions portion of the Site 40 Pilot Test Program presentation are summarized below:

Slides 35 to 51

Question: Was cis-1,2-DCE or trans-1,2-DCE produced during the reductive dechlorination process?

Answer: Cis-1,2-DCE was produced. Trans-1,2-DCE was only produced at low levels.

This was considered positive because cis-1,2-DCE is considered less toxic than perchloroethene or trichloroethene. Also there are multiple ways to degrade cis-1,2-DCE.

Question: Has anyone specifically looked for the presence of the *Dehalococcoides ethenogenes* bacteria before?

Answer: No. This process is state-of-the-art. The methods developed to determine the presence of these bacteria and their involvement in reductive dechlorination are recent. The technical paper that addressed this process is recent (released Spring 2002), however it has been reviewed and accepted by the scientific community. This approach did not exist when the workplan for Site 40 was being developed.

Question: So this process is not widely accepted or tested? Is it generally accepted by regulatory agencies such as DTSC?

Answer: The Dover Air Force Base (AFB) and Kelly AFB projects are examples of projects accepted by the regulatory agencies. The Interstate Technology Regulatory Commission (ITRC) reviewed and accepted the Kelley AFB

project methods and results. Paul Hadley (DTSC) was on the ITRC team that reviewed the Kelley AFB project.

Question: Looking back at a few of the graphs shown before (Slides 40 to 44), PCE concentrations are reduced almost completely, but then concentrations increase again. What is the explanation for this?

Answer: Yes, I see that this specifically occurred in the graph depicting MW-24. This could be due to the heterogeneity of the site. Once lactate was no longer injected, a small amount of contaminant may have remained in the soil and was detected. Also, because injection of lactate was intermittently suspended, PCE could have migrated back to this zone from the surrounding aquifer.

Question: So the PCE is not converting back after its initial conversion?

Answer: No, this is not a reversible process.

Question: The next step in the dechlorination process is vinyl chloride. Isn't this more toxic than cis-1,2-DCE?

Answer: Yes, and we would be concerned with accumulation of vinyl chloride except this rarely occurs, for two reasons:

- 1) Normally, bacterial cultures that can convert cis-1,2-DCE to vinyl chloride can also convert vinyl chloride to ethene.
- 2) In addition to reductive dechlorination, vinyl chloride can be directly used by some bacteria as food. With three or four different pathways to convert vinyl chloride, it is generally more easily degraded than the other chlorinated ethenes.

Question: However, we always monitor for accumulation of vinyl chloride. Do you plan to further discuss the conclusions from the Data Review stated in Slide 51?

Answer: Yes.

The questions and answers posed during and after the Technology Refinements portion of the Site 40 Pilot Test Program presentation are summarized below:

Question: The arrow in Slide 58 seems to be showing that the process resulted in the production of chlorinated solvents. Is this the end product or is it ethene.

Answer: This graphic is attempting to show the bacteria attacking the chlorinated solvents and degrading them to innocuous by-products (water and carbon dioxide).

Question: Has any successful culturing of *Dehalococcoides ethenogenes* occurred?

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- Answer:** Yes, *Dehalococcoides ethenogenes* have been cultured successfully.
- Question:** There is no concern that they could be introduced and mutate into some other bacterial form?
- Answer:** No, there is no concern of this occurring. Bioaugmentation with the bacteria was first conducted in 1997 or 1998 at Dover Air Force Base in Delaware where further dechlorination from cis-1,2-DCE was not occurring. Bioaugmentation was also conducted in Texas at a Department of Defense energy facility. In both cases, with the addition of *Dehalococcoides ethenogenes*, complete dechlorination was shown to occur.
- Dehalococcoides ethenogenes* bacteria can be found wherever you have successful dechlorination.
- Question:** *Dehalococcoides ethenogenes* bacteria are not considered pathogens and they are well characterized?
- Answer:** No, they are not considered pathogens and, because of their unique ability to complete reductive dechlorination, they have been well characterized.
- When the process was examined under induced conditions, and no more electron donors were provided, the bacteria stopped performing the dechlorination process.
- In addition, I believe DTSC had a representative involved in the Dover AFB study and they acknowledged the success of the process.
- Question:** Are there any scientific studies currently being conducted on the distribution of the *Dehalococcoides ethenogenes* bacteria and why there are present in some areas and not others?
- Answer:** There are most likely studies being conducted, however I don't know of any study results. From an ecological standpoint, the chances of successful dechlorination once introduced is high because they have an ecological niche. There are many bacteria that can biodegrade oil, but *Dehalococcoides ethenogenes* seems to be the only species that can survive by dechlorination of DCE. The species has no competition and therefore has a good chance of success.

COMMUNITY FORUM

P. Tamashiro opened the Community Forum. It was announced to the RAB for feedback and official inclusion in the meeting minutes that Perimeter Road (Site 4) would be oiled again in the near future to reduce fugitive dust emissions from vehicular travel. The following questions and feedback were provided on the subject:

- Question:** Will the road be properly prepared before the oil is applied to ensure that the substance won't pool in potholes?

that the substance won't pool in potholes?

Answer: Yes, the Project Manager has assured us that the road will be properly prepared so that pools of oil will not occur. I understand that this concern is raised in relation to the last time Perimeter Road was oiled (approximately two years ago) and the road was not properly prepared. We also experienced several days of wet, overcast weather subsequent to the application and oil pooled in potholes for a period of days.

Question: Is the oil application to Perimeter Road done about every two years?

Answer: Yes, however we are trying to improve the technology so that application will be required less often.

Question: Why doesn't the Navy just pave the road to reduce dust emissions?

Answer: The appropriation of funds to undertake a paving project of that magnitude (approximately 12 miles) would take some time.

Question: Is the substance applied to the road similar to tar or asphalt?

Answer: The substance is more similar to tar.

P. Tamashiro concluded the Community Forum by announcing that the next RAB Meeting would be held on October 16, 2002 (the third Wednesday in October). While the RAB meetings are typically held the second Wednesday of the month, the decision was based on the occurrence of this month's meeting on the third Wednesday and the desire to have sufficient time between meetings. It was announced that CH2M HILL would present the proposed biological sampling and analysis strategy to be conducted as part of the Tier II Ecological Risk Assessment at Site 74, Skeet Range. Notices of the meeting will be distributed to the RAB and RSVPs are requested.

G. Smith, NAVWPNSTA Seal Beach PAO, announced that the Station IRP web site was now operational. RAB members were encouraged to visit the site at:
<http://www.sbeach.navy.mil/Environment/IR/IR.htm>.

The site can also be indirectly accessed through the main NAWPNSTA Seal Beach web site (<http://www.sbeach.navy.mil>) and selecting "environmental" from the site menu. G. Smith identified that the site did not contain a large amount of documents to date due to limited server space, however in the future fact sheets, RAB meeting minutes, and other IRP site information would be added to the site. Suggestions and feedback on the web were requested from the RAB. The e-mail address for G. Smith is provided on the IRP web site.

ADJOURNMENT

P. Tamashiro concluded the meeting by thanking everyone for attending and reminding the attendees to please return their badges and sign-in before leaving. The meeting was adjourned at 9:05 p.m.

Note: This is a meeting summary, not an actual transcript.