
NAVAL WEAPONS STATION (NAVWPNSTA), SEAL BEACH
RESTORATION ADVISORY BOARD (RAB)
AND COMMUNITY MEETING
10 October 2001

Participants:

Clarke, Dean / Orange County Health Care Agency
Garrison, Kirsten / CH2M HILL
Hutchinson, Adam / Orange County Water District
Lamond, Robert
Le, Si / Southwest Division, Naval Facilities Engineering Command (SWDIV)
Leibel, Katherine / Department of Toxic Substances Control (DTSC)
Mirick, R.A. / Commanding Officer, NAVWPNSTA Seal Beach
Pilichi, Carmine
Schilling, Bob / Bechtel
Smith, Gregg / NAVWPNSTA Seal Beach Public Affairs Officer (PAO)
Tamashiro, Pei-Fen / NAVWPNSTA Seal Beach and RAB Navy Co-chair
Unrath, John
Vesely, Gene
Voce, Mario
Welz, Ed
Whittenberg, Lee / City of Seal Beach
Willhite, Lindi / RAB Community Co-chair
Wong, Bryant / CH2M HILL

WELCOME

At 7:05 p.m., P. Tamashiro, Navy Co-chair and Base Installation Restoration Program (IRP) Coordinator opened the meeting by welcoming the participants to the meeting and introduced L. Willhite, the Community Co-chair. P. Tamashiro apologized for the cancellation of the September 2001 RAB meeting due to the recent terrorist attacks and thanked attendees for the large turnout. Lee Whittenberg, City of Seal Beach, was thanked for arranging the meeting in the City Council Chambers.

P. Tamashiro announced that the November RAB meeting would be held at the NAVWPNSTA Seal Beach. Due to increased security, procedural guidelines for access to the Station will be provided in the next RAB Newsletter. Station access will require advance notice to P. Tamashiro and/or Rosemary Pettus and they will provide a list of attendees to Front Gate security.

P. Tamashiro also introduced the new Commanding Officer, Captain R.A. Mirick and welcomed him to the meeting. S. Le, the Remedial Project Manager (RPM) was introduced as well.

PROJECT HIGHLIGHTS

S. Le, provided the RAB with an overview of NAVWPNSTA Seal Beach's IRP projects status. The following projects were highlighted:

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- Sites 4, 5, and 6 Removal Site Evaluation
 - Site 5 Engineering Evaluation/Cost Analysis (EE/CA) and Action Memo
 - Site 5 Removal Action
 - Site 7 EE/CA and Action Memo
 - Site 73 EE/CA and Action Memo
 - Focused Site Inspection (FSI) Phase II
 - Site 14 Baseline Survey Investigation
 - Groundwater Monitoring Program for Sites 40 and 70
 - Feasibility Study, Proposed Plan, and Record of Decision (ROD) for Sites 40 and 70
 - Pilot Test for Sites 40 and 70
 - Community Relations Plan (CRP) Update

Copies of the Project Highlights slide presentation were made available as handouts at the meeting. Questions and answers made immediately following the presentation are summarized below:

Question: Is Site 73 the Water Tower?

Answer: Yes.

Question: With respect to groundwater monitoring at Sites 40 and 70, is the intent of reducing Year 2 monitoring from quarterly to annually due to fact that there is not a lot going on at the sites that require that frequency of monitoring?

Answer: Yes. The Year 1 results indicate the plume is stabilized and not moving appreciably. Also, the levels of contamination are not increasing.

Question: With respect to Site 7, although I have not attended recent RAB meetings, I recall the last decision was to leave it alone. Has this changed?

Answer: Yes. The U. S. Environmental Protection Agency's (EPA) presumptive remedy for landfills is capping. In the last 10 years, about 10 studies have been conducted for Site 7 to assess the extent of contamination and level of risk. While the next step may have been another ecological risk study, the Navy is proposing the removal action due to the impracticability and unfeasibility of characterizing all the landfill contamination. A removal action of combining the existing cap with long-term monitoring was determined to be the most feasible.

Question: However, it seems that taking any action at Site 7 may be more disruptive than leaving the contamination in place.

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- Answer:** That is exactly the point of the EPA presumptive remedy and proposed removal action. Of the six total areas of contamination within Site 7, contamination from only one area will be excavated because of its proximity to the wetlands. Other areas will be covered and monitored to eliminate further exposure to humans and wildlife.
- Question:** Were there bullets or other munitions found in the landfill?
- Answer:** No bullets or munitions were found in any of the site characterizations. There have never been reports of munitions disposal at Site 7.
- Question:** Does the landfill contain any radiological materials?
- Answer:** No man-made radioactive isotopes have been detected in environmental samples collected from Site 7.
- Question:** The landfill will be capped on the top of the contamination, however what about lining beneath the landfill?
- Answer:** The bottom of the landfill is below groundwater and would be impractical to line.
- Question:** Have there been any groundwater contamination plumes identified at this site?
- Answer:** No groundwater contamination plumes have been identified at Site 7.
- Question:** No hydrocarbons were detected in the groundwater?
- Answer:** Only incidental detections of low concentrations have been found, but not consistently enough to support the characterization of a groundwater contamination plume.
- Question:** Is Site 14 dealing with a leak from an underground fuel tank?
- Answer:** Yes. Site 14 contains the hydrocarbon plume we are currently characterizing.

PRESENTATION - SITE 70 UPDATE (RESEARCH, TESTING, AND EVALUATION AREA)

P. Tamashiro introduced B. Schilling, Bechtel, who gave an update on Site 70, the Research, Testing, and Evaluation Area.

Copies of the slide presentation were made available as a handout at the meeting. The questions and answers posed throughout the presentation are summarized below:

Slide 7

- Question:** How well do we know the extent of the contamination plume at Site 70?
- Answer:** Reasonably well. The latest detailed investigation indicated non-detects beyond the boundary of the plume as I will outline later in this

presentation.

Question: Is the extent of contamination illustrated in Slide 7 current?

Answer: No. This area was determined in earlier studies. A more recent map showing the extent of contamination will be shown later in the presentation.

Question: Is the plume line indicated in Slide 7 a Maximum Contaminant Level (MCL) line, non-detect line, or what?

Answer: The extent of the plume shown here indicates non-detect.

Question: Does the plume contain undissolved trichloroethene (TCE)?

Answer: The highest concentration of TCE within the plume is 839,000 parts per million (ppm). Based on that concentration, the plume contains free product TCE or ganglia of TCE that are attached to soil particles.

Question: There has been no visibility or proof of free product TCE within the plume?

Answer: A pumping test conducted over a six to nine-month period resulted in fairly high concentrations of displaced contamination and an attempt was made to observe free product, however none was observed. The assessment of free product is based on the high concentrations measured in past groundwater samples.

Question: Were deeper groundwaters used for drinking water at one time?

Answer: Yes, groundwater used for drinking water was pumped from around 650 feet below ground surface (bgs) and agricultural wells tapped into the groundwater at the 300 to 400 feet bgs.

Slide 10

Question: Are we still pumping in the same areas as were pumped before?

Answer: No, pumping in this area was done for an aquifer test to understand how the groundwater behaves under certain conditions.

Question: I understood that previous pumping was accomplished to stop the TCE plume from expanding.

Answer: Yes, hydraulic containment was one of the control options and will continue to be an option for future remedial design. We will talk about that later tonight.

Slide 32

Question: Why was use of Navy Well No. 2 discontinued?

Answer: High levels of bacteria were identified in the well and the refurbishment was cost prohibitive. This well is too close to the front of the groundwater

plume. The proximity of Navy Well No. 2 to adjacent agricultural fields and potential refurbishment of that well by farmers for irrigation purposes, prompted the Navy to abandon the well. In addition, the well may potentially become a conduit of groundwater contamination to deeper aquifer.

Question: Did the well water become brackish?

Answer: No, bacteria contamination was the problem.

Question: What type of bacteria? E-coli?

Answer: I do not recall.

Question: Was the well fully grouted down to 650 feet bgs?

Answer: Yes, the State's strict requirements for well abandonment were followed.

Slide 34

Question: Were seasonal variations such as El Nino and La Nina considered during groundwater monitoring activities at Site 70?

Answer: Yes. The effects of El Nino were monitored during the Extended Removal Site Evaluation (ERSE). The results of an El Nino year indicated no tendency to reverse the groundwater direction. The open agricultural lands east of Site 70 serve as recharge areas.

Question: I believe El Nino flood years occurred in 1938 and 1978, and a few years since then. In terms of the groundwater monitoring frequency, in years of high rain or extreme weather conditions, would you consider reversing the frequency from annually to quarterly?

Answer: Yes, groundwater monitoring frequency could be increased if there was reason to believe it would be prudent to do so. This approach will be part of the workplan. In addition, it would take a while to see an effect in the change of groundwater gradient and contaminants swept into another direction.

Site 35

Question: In the use of the word "reduction," do you mean reduction in the concentration or reduction as opposed to oxidation?

Answer: We mean reducing TCE to its daughter products; that is, chemical reduction of the contamination.

Slide 36

Question: Were detectable levels of contamination found at the leading edge of the plume?

Answer: Yes, detectable concentrations were found in the upper two depths of the groundwater aquifer down to approximately 130 feet bgs. Results were

also obtained at approximately 150 feet bgs.

Question: Is the leading edge of the plume starting to go underneath the Port of Long Beach mitigation pond?

Answer: Yes, but there is a surficial clay layer between the mitigation pond and the groundwater. The groundwater flow direction is downward in this area. The clay layer separates the pond from the groundwater.

Question: Are there plans to install more monitoring wells further southwest until non-detect levels are reached?

Answer: Yes.

Slide 39

Question: Doesn't the fact that TCE is increasing in a straight line on the graph in Slide 39 and the y-axis, representing concentration, uses a logarithmic scale concern you?

Answer: Yes, this supports the decision to install more monitoring wells.

Slide 41

Question: Have monitoring wells been installed below the fine-grain layer, 170 to 190 feet bgs to prove that TCE hasn't reached those depths?

Answer: Some hydro-punches have been conducted on the outer edge of the plume, however we didn't want to put holes into the clay layer until hydraulic control was achieved.

Question: However, when attempting hydraulic control it is imperative to know what you are controlling.

Answer: Yes, there is definitely some additional delineation left to do.

Question: You mentioned a clay layer beneath the contamination plume?

Answer: Yes, interbedded clay layers exist below the plume, however none of these are continuous and there are a lot of discontinuities. Clearly, there are sufficient clay layers to prevent the groundwater plume from traveling further down.

Question: Is the groundwater pumped fresh or salty?

Answer: Within the plume, the groundwater pumped is fresh water, but downgradient, it is brackish.

Question: Is the saltwater level increasing in these samples?

Answer: We have not observed that.

Question: Does TCE biodegrade as it continues down toward the south?

Answer: There is no evidence of an increase in biodegradation at the leading edge of the plume. Biodegradation is more evident at the center of the plume.

of the plume. Biodegradation is more evident at the center of the plume toward the source of the TCE. At the edge of the plume, dilution occurs and it is more difficult to determine biodegradation levels.

Slide 44

Question: What are the proprietary agents of the Geo-Cleanse® Process?

Answer: It is a combination of sulfuric acid, phosphoric acid, and calcium phosphate.

Slide 47

Question: In the in-situ chemical oxidation process, is iron added or does the process depend on iron in the soil?

Answer: Iron is added in low concentrations during the process.

Slide 50

Question: Is there any intention to measure off-gases to prove that the chemical oxidation treatment is working?

Answer: Yes. The Geo-Cleanse process monitors off-gases as a way to control the process.

Slide 52

Question: What is the strength of the hydrogen peroxide injected into the contaminated groundwater?

Answer: 50% hydrogen peroxide.

While it was originally identified that 50% hydrogen peroxide was used during the pilot test, after discussion with the pilot test site manager, it was determined that the peroxide in the tanker is at 50% concentration and the peroxide is diluted upon injection. The Geo-Cleanse Process mixes hydrogen peroxide with catalyst in the injector and the actual concentration injected into the groundwater during the Geo-Cleanse Process never exceeds 25%, and is normally around 18% at Site 70.

This process will also be discussed in the Draft Pilot Test Report, scheduled to be issued for review in early March 2002.

Site 60

Question: What is the white residue surrounding the boreholes pictured on Slide 58?

Answer: The white residue is dried residue from the Geo-Cleanse chemical oxidation process.

Question: During the off-gassing from previous boreholes, did contaminated groundwater bubble out as well?

Answer: Liquids did bubble up from the ground and was collected and managed as waste. The collected liquids were tested and later determined not to be hazardous.

Slide 64

Question: Did they measure and determine the gas to be carbon dioxide?

Answer: Yes, it was carbon dioxide.

Question: How deep were the injections?

Answer: Shallow injections were 22 to 25 feet bgs and deep injections were 33 to 37 feet bgs.

Slide 68

Question: How much material was actually injected?

Answer: I don't remember exactly but it was under 4,000 gallons total. It was probably more like 2,000 gallons of hydrogen peroxide.

Slide 73

Question: Will the Draft Pilot Test Report deal with possible rebound of contamination levels back in the area?

Answer: Yes. The results presented here are preliminary and the Draft Pilot Test Report will deal with additional data collected and results.

Slide 81

Question: Is groundwater pumping occurring along the leading edge of the TCE plume?

Answer: Pumping and groundwater testing is occurring more towards the center of the plume and not along the edge of the plume.

Question: Does groundwater pumping along the leading edge closest to the wetlands draw in brackish water from the ocean?

Answer: This could occur and will be considered as part of the treatment process for Site 70.

Question: The aquifer test would define the parameters of the aquifer but will it characterize the aquifer as well?

Answer: Yes. The aquifer test is a way of characterizing the hydraulic conditions of the aquifer.

Question: There has been no discussion of the pump and treat method at the TCE source.

Answer: No, because through past tests, we have determined that you can pump for six to nine months at 2.5 gallons per minute and not change the plume

concentration.

Question: During this pilot test you are injecting chemical oxidants down 25 to 30 feet bgs to destroy the contaminants. Couldn't you bulldoze down and remove the contaminants more cheaply?

Answer: This approach is not considered a viable alternative and was eliminated during the early stages of Feasibility Study. The area of concern is too large for excavation to be practical. In addition, the Station is an operating base and this type of invasive activity would disrupt ongoing operations.

Question: In terms of the pump-and-treat with granular activated carbon (GAC) versus in-situ chemical oxidation to reduce the TCE contamination, was preliminary work done to compare the cost of these two approaches?

Answer: There is no intent to conduct in-situ chemical oxidation in the dissolved portion of the plume.

Question: Do you know the total amount of free product within the plume?

Answer: No, chemical oxidation was selected for the Pilot Test Program as an aggressive technique which would be analyzed for viability over a larger treatment area.

Question: How much does 4,000 gallons of 50% hydrogen peroxide cost?

Answer: I don't remember.

Question: When will costing information be available?

Answer: The Draft Pilot Test Report will determine operational costs to treat the TCE source area.

Question: An alternative is to use less concentrated hydrogen peroxide and save costs. Thirty percent may be just as effective. (*See answer to question on Slide 52.*)

Answer: We will definitely look at that as part of the Draft Pilot Test Report and decide.

Question: Where will the treated groundwater be discharged?

Answer: This will be determined as part of the remedial design process. Discharge of treated groundwater will be discussed with the regulators and determined. Most likely it will be discharged to a spreading ground and percolate into the ground. A location south of Kitts Highway where rainfall normally accumulates may be a potential area.

Question: The U.S. Army Corps of Engineers has a lot of experience dredging in water bodies. This area is only about 50 feet diameter and 30 feet deep. Why can't the contamination be dealt with in this way?

Answer: The area is larger than 50 feet. The Feasibility Study looked at a multitude of different technologies and eliminated those alternatives that did not

meet the nine evaluation criteria. As a result of this process, the treatment alternatives were reduced to four. All were presented in the Feasibility Study.

At the close of the Site 70 Update, P. Tamashiro announced that a similar update would be presented for Site 40 in approximately five to six months.

COMMUNITY FORUM

P. Tamashiro opened the Community Forum by requesting comments or concerns on reports recently submitted to the RAB for review.

The following comments and questions were posed during the Community Forum. Navy responses are also indicated.

Comment by M. Voce: I would like to suggest that the Seal Beach City Council Chambers is a good alternative meeting location to the NAVWPNSTA Seal Beach.

Comment by L. Whittenberg: The City Council is more than happy to work with RAB in arranging RAB meetings in the Council Chambers, however the RAB may have to alter its meeting schedule (2nd Wednesday of each month from 7 to 9 p.m.) which at times coincides with Community Planning meetings.

Comment by P. Tamashiro: We do plan to move the meeting location back to the NAVWPNSTA Seal Beach for the 14 November 2001 RAB meeting. Again, the procedure to follow will be outlined in the upcoming correspondence and will involve contacting P. Tamashiro or R. Pettus via telephone or e-mail prior to noon on Monday, 12 November 2001. The list of attendees will be submitted to security at the Front Gate. All attendees are encouraged to follow the described protocol to ensure access onto the Station.

Question: Will the RAB meet in December?

Answer: No, the RAB meetings will resume in January 2002. The 14 November RAB meeting will be the last meeting for 2001.

P. Tamashiro concluded the Community Forum by thanking the City of Seal Beach again for use of their facility and Captain R.A. Mirick, Commanding Officer, NAVWPNSTA Seal Beach for attending the RAB meeting.

P. Tamashiro also thanked RAB members and other meeting attendees for their attendance and participation and indicated that their attendance and input is important to planning future environmental projects on the Station.

ADJOURNMENT

P. Tamashiro adjourned the meeting at 9:00 p.m.