

MINUTES
NAVAL WEAPONS STATION (NAVWPNSTA) SEAL BEACH
RESTORATION ADVISORY BOARD (RAB)
AND COMMUNITY MEETING
May 9, 2006

Participants:

Eloskof, Abram / Tetra Tech EC, Inc.
Garrison, Kirsten / CH2M HILL
Jordan, Jack
Le, Si / Naval Facilities Engineering Command, Southwest (NFEC SW)
Leibel, Katherine / Department of Toxic Substances Control
Monroe, Bruce
Peoples, J.P. / RAB Community Co-chair
Pilichi, Carmine
Smith, Gregg / NAVWPSNTA Seal Beach Public Affairs Officer (PAO)
Sorenson, Kent / Camp Dresser and McKee, Inc. (CDM)
Stillman, Glenn
Tamashiro, Pei-Fen / NAVWPNSTA Seal Beach and RAB Navy Co-chair
Vesely, Gene
Willhite, Lindi
Wong, Bryant / CH2M HILL
Wymore, Ryan / CDM

WELCOME

At 6:01 p.m., P. Tamashiro, Navy Co-chair began the meeting by welcoming the participants. She introduced S. Le, NFEC SW, Lead Remedial Project Manager (RPM) and G. Smith, NAVWPNSTA Seal Beach Public Affairs Officer (PAO).

Attendees were asked to introduce themselves. Introductions began with J.P. Peoples, RAB Community Co-chair. P. Tamashiro announced that the RAB meeting would proceed with a status update on the ongoing Installation Restoration (IR) Program.

PROJECT HIGHLIGHTS

The RAB meeting continued with a status update on the ongoing IR Program presented by S. Le.

The following sites were discussed:

- Site 42 – Auto Shop Sump/Waste Oil Tank; Sites 44/45 – Former Waste Otto Fuel Drum Storage; and Solid Waste Management Unit (SWMU) 57 – Paint Locker Area; Cleanup
- Site 14 - Abandoned Leaking Gasoline Underground Storage Tank (UST), Additional Groundwater Delineation
- Site 70 - Research, Testing, and Evaluation (RT&E) Area; Groundwater Monitoring Program
- Site 70 Revised Feasibility Study (RFS), Proposed Plan (PP), and Record of Decision (ROD)

- Site 40 - Concrete/Pit Gravel Area, Remedial Action
- Site 74 - Old Skeet Range, Net Environmental Benefit Analysis (NEBA) and Engineering Evaluation and Cost Analysis (EE/CA)
- Site 4 - Perimeter Road; Site 5 - Clean Fill Disposal Area; Site 6 - Explosives Burning Ground; and Site 7 - Station Landfill, Long-term Groundwater Monitoring Program

Hard copies of the slide presentation were available as a handout at the meeting. It was announced that the PowerPoint slide show was not the current version of the presentation and, therefore, did not correspond to the hard copy handout. The meeting attendees were requested to follow the hard copy handout for the discussion of the IR Program Update.

Questions and answers posed after the Project Highlights presentation are summarized below:

General

Question: Site 74 (Old Skeet Range) is a high priority cleanup due to ecological risks, and likely will be costly due to the need to balance the cleanup and the possible disruption to the wetland habitat. What are the anticipated cleanup actions that will be taken at Site 74 in 2008 and the corresponding costs?

Response by the Navy: This will be determined by the Net Environmental Benefit Analysis (NEBA) that will be conducted at Site 74. The NEBA will provide a balanced approach to the cleanup of Site 74 to address potential adverse impacts to habitat as well as cleanup costs.

Additional Response by B. Wong: The Navy has just received the final set of Applicable or Relevant and Appropriate Requirements (ARARs) from the regulatory agencies and is proceeding with the evaluation of technical alternatives (that is, the engineering evaluation and cost analysis [EE/CA]) to remediate the contamination at Site 74. The contamination occurs in both upland and wetland habitat, and involves some sensitive ecological habitats. The Navy is aware of the issues and challenges associated with remediation of sensitive ecological habitat and is committed to a solution "so the cure is not worse than the problem."

The NEBA process is an Environmental Protection Agency (EPA)-approved process to assign relative costs to non-monetary values (such as the value of native habitat). However, it is premature to discuss the details of possible outcomes (such as anticipated cleanup actions and total costs) from this process specific to Site 74.

Question: The lead pellets degrade to lead oxide. Is this a threat to the groundwater or does the contamination remain in the soil surface?

Answer: Testing has shown that inorganic lead is not mobilizing to groundwater at Site 74. Contamination remains within the first two feet of soil and, therefore, would not be expected to leach into the deeper groundwater.

Question: Are there any time-critical effects to be considered at Site 74? Isn't time a significant factor for cleanup considerations?

Answer: There are no immediate human health concerns at Site 74. However, ecological risks are present, so the NEBA will be beneficial to determining the proper cleanup actions. It will be approximately one year before the results of the NEBA are available.

For clarification, there is no impact to groundwater at Site 74. Groundwater contamination is not an issue at this site.

Question: What are Sites 5, 6, and 7?

Answer: Site 5 is the Clean Fill Disposal Area, Site 6 is the Explosives Burning Ground, and Site 7 is the Station Landfill.

Question: Does the Navy have an estimate for the cost per cubic yard for the remediation strategy proposed at Site 70 (Research, Testing, and Evaluation Area)?

Response by the Navy: It is difficult to estimate the costs for cleanup at Site 70, as it is very difficult to accurately measure the total mass of contamination due to factors such as dense non-aqueous phase liquid (DNAPL). The only cost estimate available is based on the quantity of contamination in the dissolved phase (groundwater).

Also, only demonstration projects and pilot tests have been conducted for the remediation strategy proposed at Site 70. One must be cautious about extrapolating costs from pilot test estimates (conducted at a scale of 100 to 150 square feet as opposed to the full scale project at 4,000 by 2,000 feet) because of variations in site conditions and unknowns. Until Site 70 is considered at full scale, development of a meaningful cost estimate is not possible.

P. Tamashiro continued the RAB meeting by indicating that a technical presentation on IR Program Sites 42, 44/45, and Solid Waste Management Unit (SWMU) 57 would be presented by Abram Eloskof, Tetra Tech EC, Inc.

PRESENTATION - NON-TIME CRITICAL REMOVAL ACTION AT INSTALLATION RESTORATION SITES 42, 44/45, AND SOLID WASTE MANAGEMENT UNIT 57

A. Eloskof proceeded with the presentation. Copies of the slide presentation were made available as a handout at the meeting. The following questions were asked after the presentation:

Question: Why is the excavated soil being analyzed for metal concentrations under both the Toxicity Characteristic Leaching Procedure (TCLP) and Soluble Threshold Limit Concentrations (STLC)?

Answer: The total metals concentrations can be used in lieu of TCLP if they are less than 20 times the TCLP value, and in lieu of STLC if they are less than 10 times the STLC value. However, if the total metals concentrations are equal to or exceed 20 times TCLP, then a separate test must be conducted to determine the TCLP for waste classification purposes. Likewise, if the total metals concentrations are equal to or exceed 10 times STLC, then a separate test must be conducted to determine the STLC for waste classification purposes.

Question: Does the waste classification process reduce disposal costs? For example, disposal of non-hazardous waste is less expensive than California hazardous waste, which in turn is less expensive than Resource Conservation and Recovery Act (RCRA) hazardous waste. If waste classification can determine that the waste is less hazardous, then disposal costs can be lessened.

Response by the Navy: The waste classification is used to ensure that the waste is managed and disposed of properly. It also may result in cost savings depending on the results of the waste classification.

The waste classification process is quite complicated. If there are additional questions, the Navy would be happy to respond after the RAB meeting has concluded.

Comment: My experience with commercial removal actions has been that TCLP is typically the procedure used to determine waste classification.

Response: Analyzing for TCLP would be necessary if the total metals concentrations are equal to or exceed 20 times their respective TCLP values. Otherwise, the total metals concentrations would be sufficient to determine it is not a leachable waste for purposes of waste classification.

Question: Is there an estimate for the total number of truck trips associated with the removal action?

Answer: It is estimated that approximately 60-70 trucks will be required for a period of about a week. This would average approximately ten trucks per day.

Question: Will the sites be revegetated after the removal action is complete?

Response by the Navy: Prior to completing the removal action, the Navy will coordinate with the United States Fish and Wildlife Service (USFWS) for native species identification and selection for revegetation.

BREAK

The RAB took a 10-minute break prior to beginning the second presentation.

PRESENTATION – A LOW-COST, PASSIVE APPROACH FOR BACTERIAL GROWTH AND DISTRIBUTION FOR LARGE SCALE IMPLEMENTATION OF BIOAUGMENTATION

P. Tamashiro explained that the second technical presentation would be a technology demonstration of actions to be implemented in the field later in the summer. She introduced Ryan Wymore, CDM, and outlined his credentials and experience.

R. Wymore explained that the technology demonstration would be a precursor to site remediation for groundwater contamination at Site 70. He indicated that the technology demonstration was funded by the Environmental Security Technical Certification Program.

Question: The bioaugmentation associated with this technology is being conducted below ground surface. Once implemented at full scale, do you anticipate any risk associated with heat or pressure by chemical reaction?

Answer: Such risks are not expected when working with adding or enhancing bacteria to degrade chlorinated organic compounds in groundwater. Studies have been conducted with the *dehalococcoides* spp. to measure temperature and other effects in the biologically active area. However, groundwater temperature increases may be up to only one degree Celsius (°C).

Question: Does the demonstration project deal with the source area during the simultaneous bioremediation of the larger groundwater contamination plume?

Answer: Yes, the demonstration project will assist and be compatible with the overall remediation of Site 70, which involves emulsified vegetable oil (EVO).

Question: Does the type of contamination or soil substrate affect this technology application?

Answer: This technology applies to cleanup of chlorinated solvents in groundwater. The bioaugmentation has been attempted at sites with petroleum hydrocarbon contamination, but has been unsuccessful due to the ecology of the system.

Question: Is the technology hazardous to humans?

Answer: The *dehalococcoides* bacteria are not hazardous to humans as they are commercially supplied and are screened to eliminate disease-causing bacteria. Also, these bacteria die when exposed to air.

Question: To ensure optimum lateral transfer of the bacteria, is the application better with a faster or slower velocity of water?

Answer: The demonstration project is trying to determine this. Logic would lead you to believe that greater distribution would occur in association with faster groundwater movement. However, previous studies seem to indicate the opposite – greater distribution at ambient groundwater flow rates. It seems that the bacteria have a mechanism to resist movement under conditions with faster groundwater flow.

Question: Are there byproducts produced as a result of this technology?

Answer: Yes, as we have discussed there may be a minimal increase in heat. Byproducts will include chlorides, methane and carbon dioxide gases, and ethene. The methane and ethene will degrade to carbon dioxide and water under aerobic conditions. Biomass will be produced over time as the generations of bacteria reproduce and multiply. However, once the electron donor source goes away, the bacteria will stop reproducing and die. The bacteria will self-perpetuate for a period of time, but ultimately be replaced by native bacteria - methanogens and acetogens.

Question: I have a hypothesis – over a two year period, I believe extraction will yield less water over time.

Answer: There will be no net change in groundwater volume. The mass balance will be constant and the yield will not change.

Question: But the rate of extraction would slow over time.

Answer: Not necessarily. The amount of bacterial growth would not be great enough to change the hydraulic conductivity in an application of this scale (that is, an area of approximately 100 feet) and flow would not change. But at a smaller scale, like that of a single well, there might be sufficient biomass growth to affect the extraction rate of that well.

Question: The temperature variation at Site 70 is low. I would assume other sites where this same technology has been applied have had much greater temperature variation. Would you agree that it is less likely to observe the full effects of this technology at Site 70 in 2 years than in say, 10 years?

Answer: Yes, I would agree with that.

Comment by RAB Member: Without spending any additional money, I would think we can learn more about the effects of this technology. The carbon isotope will provide indicators of life and bacterial changes and deoxyribonucleic acid (DNA) samples can provide information, but will not distinguish between live and dead bacteria.

Response: It is true that live and dead bacteria cells exhibit the same DNA characteristics. Bacterial DNA only exists days to weeks after death, so it cannot be considered an indefinite indicator in groundwater. If the DNA of the *dehalococcoides* bacteria is detected, then it must have been living within the past several weeks.

Question: What does the term “advection” mean?

Answer: “Advection” means groundwater flow.

COMMUNITY FORUM

P. Tamashiro announced that the RAB Site Tour would be held the second Tuesday of July (July 11, 2006). She stated that attendees should meet at the main gate of the Naval Weapons Station at 6:00 p.m. P. Tamashiro added that because the site tour would be held on the installation, RSVPs would be required. She indicated the Navy would distribute a notification regarding the site tour. She asked RAB members to invite interested parties to the site tour to learn more about the IR Program.

P. Tamashiro continued the announcements by indicating that the Navy would be reducing hard copy document production for draft and final IR Program reports. She indicated that, with the increase in electronic accessibility through the internet, the Navy felt electronic document review was acceptable. P. Tamashiro asked the meeting attendees if there were any objections to distribution of documents for RAB review through the NAVWPNSTA Seal Beach website.

Clarification was requested regarding the electronic file format that would be available on the website. P. Tamashiro indicated that documents would be downloadable in portable document format (pdf).

J. P. Peoples commented that electronic document review was a great idea.

No additional comments or objections were raised regarding electronic document review. P. Tamashiro indicated that the RAB would proceed with electronic document review.

ADJOURNMENT

P. Tamashiro adjourned the meeting at approximately 8:02 p.m.

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