

MINUTES
NAVAL WEAPONS STATION (NAVWPNSTA) SEAL BEACH
RESTORATION ADVISORY BOARD (RAB)
AND COMMUNITY MEETING
SITE TOUR
June 12, 2007

Participants:

Bill, Charley / Community Member
Kestunbaum, Katherine / Clean Harbors Environmental Services, Inc.
Jordan, Jack / RAB Community Co-chair
Lee, Larry / Community Member
Martindale, Scott / O.C. Register
Olivera, Jerry / City of Seal Beach
Salazar, Cindy / CH2M HILL
Smith, Gregg / NAVWPSNTA Seal Beach Public Affairs Officer (PAO)
Stephens, Lee / Commander, Executive Officer, NAVWPNSTA Seal Beach
Tamashiro, Pei-Fen / NAVWPNSTA Seal Beach. RAB Navy Co-chair
Wong, Bryant / CH2M HILL

WELCOME

At 6:00 p.m., P. Tamashiro, Installation Restoration (IR) Program coordinator and Navy Co-chair, began the site tour by welcoming the participants. She introduced G. Smith, NAVWPSNTA Seal Beach PAO, NAVWPNSTA Seal Beach Executive Officer, Commander L. Stephens, B. Wong, Navy contractor with CH2M HILL and site tour leader, and J. Jordan, RAB Community Co-chair. She indicated that participants should bring along a jacket or sweater for warmth, as it tends to get chilly by the end of the two-hour tour.

Attendees were asked to introduce themselves. Following the introductions, P. Tamashiro announced that B. Wong would be serving as the primary guide for the RAB site tour, having supported the Navy on the NAVWPNSTA Seal Beach IR Program since 1990. She indicated that there were 70 active sites in the late 1980s/early 1990s and by 2007 there are 6 remaining active sites to be closed. This reduction in active sites is a demonstration of the success of the IR Program at NAVWPNSTA Seal Beach.

B. Wong distributed a site map, printed from the NAVWPNSTA Seal Beach website that shows the locations of the sites that would be visited and/or discussed during the tour. He encouraged participants to ask questions during the site tour. B. Wong indicated that a total of four sites would be visited during the 2007 IR Program Site Tour, beginning with Site 70 and then to the southern most site (Site 7), and then moving west to Site 74 and 40:

Site 70 - Research, Testing, and Evaluation Area
Site 7 - Former Station Landfill
Site 74 - Old Skeet Range
Site 40 - Concrete Pit/ Gravel Area

B. Wong reminded the site tour participants that the tour would last approximately two hours and end around 8:00 p.m. B. Wong stated that while the participants would not be

exposed to hazardous or toxic materials during the tour, they were requested to stay together for health and safety reasons.

P. Tamashiro requested that attendees turn off their cell phones while on the site tour.

Questions and answers discussed during the site tour are summarized below.

Note: The following contains only questions and answers discussed at formal stops along the tour. Informal discussions were not recorded, including those held while viewing sites from within the vehicle and during travel between sites.

SITE 70

RESEARCH, TESTING, AND EVALUATION

At this site, well installation and well development were taking place at separate locations of Site 70. GeoSyntec Consultants provided a brief overview of the field activities.

Question: How far apart are the wells?

Answer: The wells are approximately 20-22 feet apart in a line to form a bio-barrier.

Response by the Navy: The bio-barrier is oriented perpendicular to the groundwater flow. When the groundwater flows through the barrier, the contaminants in the water gets treated.

Question: What is the depth of the wells?

Answer: Shallower wells are drilled to a depth of 80-100 feet below ground surface (bgs) and deeper wells are drilled to 105-130 feet bgs. Although well screens are designed to be placed at specific depths based on past borings, their specific depths are adjusted during drilling according to the type of aquifer material actually observed in order to more effectively deliver the emulsified oil to the contaminants.

Question: Are there multiple injection wells?

Answer: At each injection well location there is typically one injection zone. In some cases where there is a large clay unit we are screening the well on both sides of the clay to allow injection into both areas (injection into clay is not possible). There is still only one injection well at each location.

Question: How are these core samples laid out?

Answer: They are 20 foot lengths. The first 10 feet is hand-augered and air knifed to minimize the potential for damaging underground utilities.

Question: Where are the injection zones?

Answer: The First Sand injection zone is typically from 60 to 100 feet below ground surface. The Shell Horizon injection zone is from approximately 105 to 130 feet bgs. The Second Sand injection zone is from 135 to 160 feet bgs. The Upper Fines in the Source area are screened from approximately 25 to 55 feet bgs. Some intervals differ slightly due to local lithology.

Question: Will you be injecting molasses?

Answer: Emulsified vegetable oil will be used to treat the contamination. Site 40 will be treated using a thicker material for slower diffusion.

Question: Will all the borings be drilled first?

Answer: All the borings will be drilled first. This will enable us to look at the lithology of the boring and then adjust how deep and where (i.e., what formation) to inject. The next phase will be to inject the emulsified oil. This injection phase will also be broken up into smaller phases so we can learn how to improve as we go along.

Question: Are the well heads tied in together?

Answer: The wells will be injected in groups and in phases. The natural flow of the groundwater will carry the contaminants through a vegetable oil bio-barrier. A few wells will be injected at a time.

Question: How are the cuttings disposed of?

Answer: The cuttings will be handled and disposed of in compliance with existing standards and guidelines.

Question: How are the wells drilled?

Answer: All wells are drilled using a sonic drilling method. A spider rig is used for drilling wells in tight areas.

Question: Why are geoprobes not used?

Answer: Geoprobes are only for shallow, one-time injections. There will be two to three rounds of injections at deeper depths, so sonic drilling was needed.

Question: How many barriers will be created?

Answer: There will be a total of six bio-barriers plus the source area. The source area will be treated similarly. The injection wells are tightly spaced as a grid of wells. The injection of emulsified vegetable oil in the grid of wells will overlay and “blanket” on the source area to treat the contaminants.

Question: How much pressure is applied?

Answer: The injection of the vegetable oil will require approximately 20 psi. About 10 to 15 psi will be used around the perimeter of the plume to create an even, neutral balance and not to create an artificial head.

Question: Will there be any extraction in the “hot zone”?

Answer: There will be some groundwater extraction but it will be used to blend in the vegetable oil prior to re-injection. Groundwater will be pumped out and used to mix with the vegetable oil and then will be re-injected.

Question: Has the treatment or injection into the wells started?

Answer: No. All wells will be installed and developed first, before injection begins.

Question: What is the long-term cost?

Answer: Maintenance is cheaper in the long run. There will be no ongoing capital cost after installation of injection wells.

SITE 7 *Note: In order to stay on schedule, Site 7 was not visited during the site tour.*

SITE 74 **FORMER SKEET RANGE**

Question: Are there paraffins also onsite?

Answer: Paraffins is a kind of wax, not a polycyclic aromatic hydrocarbon (PAH). PAHs are a group of semi-volatile organic compounds such as benzo (a) pyrene.

Question: If you leave the site as is and it becomes a remediation project, does that means you would have to clean up to a permissible quality?

Answer: There are target clean up goals that are based on risk that the Navy would have to meet. This is regulated under CERCLA (Comprehensive Environmental Response, Compensation and Liability Act). At this site, ecological risks are being driven by the protection of two endangered species, the clapper rail and the Belding's savannah sparrow.

Question: But don't you need to follow RCRA (Resource Conservation and Recovery Act)?

Answer: The Navy has signed a Federal Facilities Site Remediation Agreement (FFSRA) with the State that allows the Navy to implement its IR Program, including RCRA corrective actions, following the CERCLA process. If contaminated soil needs to go to a landfill, it would be subject to the RCRA land disposal restrictions.

Question: How far is the contamination?

Answer: The extent of the contamination is approximately 1,700 feet to the west. *Correction: The extent of contamination is approximately 700 feet from the shooting stations.*

Question: Is there lead oxide?

Answer: We did not analyze for lead oxide, but observing some of the lead shots that we found, you can see a whitish coating indicating oxidation. In the sediment, we would expect to see lead sulfide due to the reducing conditions that exist there.

SITE 40 **CONCRETE PIT/GRAVEL AREA**

Question: Was lactose injected?

Answer: Sodium lactate was injected and was the original remediation alternative. Currently, hydrogen-release compounds (HRC) are being injected.

Question: Are all the wells injection points?

Answer: HRC was injected to the groundwater using direct push technology.

- Question:** What is the depth of these injections?
- Answer:** The injections were to approximately 24-26 feet bgs deep. The deeper zone and perimeter areas were earlier treated.
- Question:** When will this site be closed?
- Answer:** We are hoping the active treatment will be completed at the end of this year. But the site will be monitored for an additional five years.
- Question:** How long would remediation of this site take without the use of bioremediation?
- Answer:** Using the old pump-and-treat method, this site could take in the order of 50 years or longer to treat.

SITE 5 / SITE 14 *A brief discussion of the site was held. No formal questions or answers were posed in association with this site.*

P. Tamashiro concluded the tour by pointing out that there is one underground storage tank (UST) by Site 14 that may have potential contamination. Further investigation of this site will start in Fiscal Year 2008.

P. Tamashiro encouraged the site tour attendees to contact her via telephone or e-mail with any additional questions regarding the IR Program. She also requested that individuals interested in becoming RAB members contact her for an application form.

ADJOURNMENT

P. Tamashiro adjourned the meeting at approximately 7:46 p.m.

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