

# *NAS North Island*

## *Restoration Advisory Board*

### *Introduction*

The sixty-first Restoration Advisory Board (RAB) meeting for Naval Air Station (NAS) North Island/Naval Amphibious Base (NAB) Coronado was held on Wednesday, December 1, 1999, at the Coronado Public Library from 6:30 p.m. to 8:10 p.m. Mr. Collins called the meeting to order at 6:30 p.m., and welcomed RAB members and the public.

### *RAB Attendance*

Bill Collins, Bob Geilenfeldt, John Locke, Richard Mach, Foster Marshall, Larry McCauley

### *Public/Navy Attendance*

Mark Bonsavage, Neal Clements, Marilyn Field, Nancy Lee, Bob Logan, Tracy Mogg, Debbie Wankier, Nancy Welch, Rich Wong

### *Postponement of October 21, 1999 Meeting Minutes*

The RAB members agreed to delay the approval of the October 21, 1999 meeting minutes.

### *Meeting Topics*

The December 1, 1999 meeting topics were Draft Screening Level Ecological Risk Assessment for Shoreline Sediments at NAB Coronado, Site 9 Soil Vapor Extraction with Steam Injection and Free Product Recovery Update, Site 5 Time Critical Removal Action/Chemical Oxidation Technology, Coronado Health Survey, and The NAS North Island and NAB Coronado Installation Restoration (IR) Site Tour.

### *Presentations*

*Draft Screening Level Ecological Risk Assessment for Shoreline Sediments at NAB Coronado—* Mark Bonsavage, SWDIV, Remedial Project Manager (RPM)

The Environmental Protection Agency's (EPA's) definition of ecological risk assessment is an evaluation of the likelihood that adverse ecological effects are occurring or may occur as a result of exposure to one or more stressors—chemicals. Mr. Bonsavage stated that within the next month, a meeting would be called with the regulators and the public. The participants will discuss choices and decisions in assessing the risk, or possible risk, that the sediment surrounding NAB Coronado may be presenting to aquatic life in the bay.

The process involves eight steps, which were provided in a flow chart handout. Mr. Bonsavage explained that the Navy has completed steps one and two and part of three. These first three steps were presented in more detail: *One—*Problem Formulation, and Toxicity Evaluation; *Two—*Screening Level, Exposure Estimate and Risk Calculation; and *Three—*Toxicity Evaluation and Assessment Endpoints. Consideration must be given to the exposure pathways, assessment endpoints, conceptual model, and the hypotheses for the various studies. These concepts must be agreed upon by the Navy, regulators, natural resource managers, and the public. The public has the right to be involved in the decision-making process, and to be informed of activities in the community that affect their lives, their property, and things they value.

Mr. Bonsavage stressed the fundamental question is, "*What are the receptors that are to be protected and is there an unacceptable risk?*" He stated many items must be considered in answering this, such as, where the dumping may have occurred in the past, where it may have migrated to, how it may have moved around over a given period of time, and the measurement endpoints. Records have indicated that during the time between the 1940s and 1970s waste was

discharged into the bay, dumped in storm-drains, or dumped on the ground at the sites. The records indicate that there were two areas where this took place, Site 3, and Sites 2/4.

After the background information on the site was collected and evaluated, a conceptual model was built. The model plots how the contaminants might get to the receptors (birds, fish, etc.). Bioaccumulation is one possibility where there could be an adverse effect to the receptors. Creatures (amphipods) in the sediment could accumulate metals, and then birds or fish could eat those creatures. Through this process, it could bioaccumulate up the chain, and eventually, more visible species, like the birds, seals, and fish could be impacted. The second possibility, is direct exposure to anything that comes in contact with sediment that has high levels of chemicals such as metal, volatile organic compounds, or polyaromatic hydrocarbons (PAHs), where the receptors can't survive with that high concentration of chemicals.

One potential receptor in the San Diego Bay identified as a valuable resource is the eel grass community. A second receptor is reproductive potential marine mammals (harbor seals) and the third ecological receptor identified in this study are the fish-eating birds.

#### Site 9 Soil Vapor Extraction with Steam Injection and Free Product Recovery Update—Richard Mach, *SWDIV RPM*

Site 9 on North Island is one of the worst contaminated sites. A soil vapor extraction (SVE) system is currently being used to remove the contaminants by sucking them out of the ground. It is located in the soil above the groundwater level. This system has been operating for a couple of years, and it was determined that the trends were not coming down. Some additional investigations were done, and a floating product was found (petroleum in nature) located on top of the water table. The contractor proposed some enhanced remediation technologies—the most favorable of which was injecting steam into this product layer to heat the site. Two benefits were derived. The first was the heat helped to volatilize portions of the product, so it could be removed easier by the SVE system. The second, the heat made the product more mobile so it could be pumped out of extraction wells in liquid form.

Approximately three months ago a pilot test started—injecting steam into two steam injection wells. It was found that the steam is only propagating the heating front to 25 feet instead of the 45-foot radius that was originally hoped for. The pilot test work plan has been modified to install some additional extraction wells at about the 25-foot parameter. A positive note is that 1,000 gallons of product has been removed during this short pilot test. In addition, as calculated, using the percentages of trichloroethylene (TCE), which is one of the major volatile organic compounds of concern, about 2,500 pounds of TCE has been removed.

*Q:* Dr. Marshall asked, "What's the chance of this, since you're taking it out, collapsing?"

*A:* Mr. Collins replied, "Very little."

*Q:* Mr. Geilenfeldt asked, "What impact does this activity of pressurizing and steam, SVE activity have on seepage into the bay?"

*A:* Mr. Mach answered, "We are so far from the bay that it's not going to have any impact on discharge to the bay."

*Q:* Ms Field asked, "What is done with the stuff you've skimmed off?"

*A:* Mr. Mach answered, "It gets hauled off to Texas and is incinerated."

#### Site 5 Time Critical Removal Action/Chemical Oxidation Technology Presentation—Rich Wong, *OHM Remediation Services*

Mr. Mach stated that the objective of this topic was to provide the RAB with a basic understanding of the innovative remediation technology known as in-situ chemical oxidation and its proposed application at Site 5. Mr. Mach briefly explained the history of this technology, and

its use at several other Navy Sites. In-situ chemical oxidation has been successful in the remediation of solvent contaminated groundwater at NAS Pensacola and at King's Bay, Georgia. At these sites, this technology destroyed 90 to 99 percent of the contaminants within a month. Mr. Mach indicated some of the benefits of this technology are that it destroys the contaminants in the subsurface and does not require the transportation or treatment of recovered hazardous waste.

The contractor studying the groundwater contamination at Site 5 (Parsons) recommended source reduction—to knock out most of the contamination in the saturated areas, and then let natural attenuation address the remainder of the plume. One of the up-and-coming technologies able to accomplish this goal is in-situ chemical oxidation. An Action Memorandum and a Work Plan had been submitted to the Department of Toxic Substances Control (DTSC) for review. DTSC has approved the bench test and pilot test aspects of the Work Plan. Pending the successful completion of the bench and pilot tests, OHM will finalize the Work Plan and DTSC will complete their California Environmental Quality Act (CEQA) reporting requirements and approve full-scale remediation. The Navy has concurred with this approach, has finalized the Action Memorandum, and is preparing to begin the pilot testing.

The first part of Mr. Wong's presentation was a primer of in-situ chemical oxidation. This included a definition of chemical oxidation and which types of contaminants are readily destroyed by this technology; an explanation of why in-situ chemical oxidation is an attractive remediation technology; and a summary of the engineering limitations and health and safety concerns associated with this technology.

The second part of Mr. Wong's presentation focused on in-situ chemical oxidation using Fenton's reagent. This technology was adapted from the wastewater industry to treat organic wastes. In-situ chemical oxidation using Fenton's reagent typically involves the injection of acid followed by the injection of dilute solutions of hydrogen peroxide and an iron catalyst. This results in a chemical reaction that produces the hydroxyl radicals in the groundwater. The hydroxyl radical is a very powerful oxidant that transforms the solvents in the groundwater to harmless compounds such as carbon dioxide and water. The advantages of using this technology include that it can treat stubborn contaminants, treatment times are rapid, and this method is cost effective. The disadvantages of this technology includes the temporary acidification of the aquifer, the heat produced during the chemical reaction, and the mobilization of certain metals. Mr. Wong mentioned that the pH (relative acidity) of Coke is more acidic than the aquifer during treatment and that heat produced has been successfully controlled on other sites. OHM is studying the mobilization of metals as part of another in-situ chemical oxidation study planned for NAS North Island. Several methods are used to inject the chemicals into the subsurface. These include pressurized injection using direct push rigs and injection into dedicated wells.

In the final part of the presentation, Mr. Wong described why in-situ chemical oxidation makes sense at Site 5. Relative to other viable remediation technologies considered for this project, these include cost effectiveness, rapid treatment time, minimal site disruption, and no waste transportation. To assist OHM in the treatment of the Site 5 groundwater plume, three vendors are currently being evaluated (ManTech Corporation using their process called Clean OX; GeoCleanse Corporation, and ISOTECH).

Coronado Health Survey—Dr. Foster Marshall, *RAB Member*

Dr. Marshall stated that there is nothing to report at this time with regard to the survey.

North Island and NAB Coronado IR Site Tour—Mr. Bill Collins, *SWDIV*

Mr. Collins explained site visits would begin at North Island in the Nautilus Room, at 9:00 a.m. and finish at 1:00 p.m. There will be slides shown to explain the various locations and provide

information pertinent to each site. The group will board a Navy bus, which will drive the attendees to the site locations. The scheduled date for the tour will be January 22, 2000.

**Site Tour Discussion - Mr. Bill Collins, SWDIV Tour DI:**

Mr. Collins discussed the proposed site tour of the NAS North Island and NAB Coronado IR Sites as a refresher for existing members and as a site introduction for new members. Mr. Collins provided a brief overview of the sites, which would be toured on each of the bases. The tour is expected to last three to four hours starting at the NAS North Island club at Building X. The Navy will provide a discussion of each sites status at the location. Members will then board a bus provided by the Navy and proceed to visit all of the sites on NAS North Island and then those on NAB Coronado. It was agreed that the tour would be held on January 22, 2000. Mr. Collins and Mr. Locke will get announcements out to the public and via the Coronado Eagle announcing this tour. The Navy will make arrangements for access to NAS North Island for those wanting to attend.

***Public Questions and Comments***

**Comments**

Mr. Mach reminded everyone of the status/update sheet of all IR work being done to the Island not mentioned at the RAB meeting.

***Upcoming Agenda Items***

Introduction to Groundwater—Charles Cheng

Site 9 update—Rich Mach

Site Management Plan for NAS North Island

Site 10—Action Memorandum and EE/CA

Comments on Site 5 Administrative Record

***RAB Upcoming Meetings, Year 2000***

January 20<sup>th</sup>; February 17<sup>th</sup>; March 16<sup>th</sup>; April 20<sup>th</sup>; May 18<sup>th</sup>, June 15<sup>th</sup>; No meeting in July; August 17<sup>th</sup>; September 21<sup>st</sup>; October 19<sup>th</sup>; November 16<sup>th</sup>; and, No meeting in December.

***Meeting Adjourned***

Mr. Collins concluded the meeting, and the meeting adjourned at 8:10 p.m