



# Naval Air Station South Weymouth, MA Restoration Advisory Board (RAB) Meeting Minutes February 10, 2011

## 1. INTRODUCTIONS/ APPROVAL OF PRIOR MEETING MINUTES

John Goodrich, RAB facilitator, opened the meeting at approximately 7:00 PM. He requested that all attendees, including RAB members, regulators, and audience members, introduce themselves. He noted that the meeting agenda, handouts, and the sign-in sheet were available on the table outside the door. The sign-in sheet for the meeting is provided as Attachment A. J. Goodrich asked if everyone had time to read the minutes from the December 2010 RAB meeting and if there were any comments. M. Parsons asked if the Navy certified labs. D. Barney responded that there is a certification process that is required by the Navy for analytical laboratories.

J. Goodrich reviewed the guidelines for the meeting and reminded everyone that the focus of the meeting is cleanup issues. Any issues and/or comments not related to base cleanup will be noted and referred to the appropriate agency or organization. He reminded the participants when asking questions to wait to speak until they are acknowledged, to state their names and affiliations, and to speak clearly or into the microphone when they have questions.

He then reviewed the agenda for the meeting. The meeting agenda and the action item tracking list are provided as Attachment B. In accordance with the agenda, the presentation and discussion would be followed by the updates and action items portion of the meeting. The minutes, agenda and action items for the meeting are posted on the BRAC PMO website: <http://www.bracpmo.navy.mil/>.

## 2. PRESENTATION

D. Barney introduced Kayleen Jalkut, Tetra Tech, to give the presentation on Building 81. Building 81 has been discussed at previous RAB meetings and the first Technical Advisor Grant (late 90's) provided a review of this site for the community and the RAB. Building 81 was first investigated under the MCP and was subsequently moved to the CERCLA program. Navy conducted a pilot study, which included a 'field trip' so the community could observe the in-situ chemical oxidation process. Selected slides from the presentation are provided as Attachment C.

K. Jalkut reviewed the objectives of the presentation (Slide 2) and stated that the presentation would focus on the primary contaminant of concern, tetrachloroethene, or PCE. Building 81 is located at the

intersection of Shea Memorial Drive and Redfield Road. The site is approximately 1 acre and is now just a building slab surrounded by paved areas. There is an unpaved soil area where the former waste oil tank was removed.

Building 81 was the base motor pool and was used for vehicle maintenance from the 1950's to early 1990 (Slide 3). The former waste oil tank was removed in August 1991, not because it was suspected of leaking, but because the Base was converting to above ground storage tanks. During the removal, soil contamination was noted and the Building 81 investigation began. The former waste oil tank was identified as the primary source of contamination. Other features, including two floor drains in the building, were also investigated. One was connected to the sanitary sewer (along Shea Memorial Drive) and the other went from the steam pit to the stormwater drainage network (TACAN outfall). These drains were investigated and ruled out as potential source areas of contamination.

The Navy completed a series of investigations and removal actions at Building 81 to evaluate the nature and extent of the contamination in the soil and groundwater (Slide 4). The source of contamination (tank and soils around the tank) was removed during this time. The early investigations focused on the petroleum hydrocarbons and did not include VOCs. Light non-aqueous phase liquid, or LNAPL, was identified in the first well installed in 1994. The LNAPL was identified as mixed fuels and kerosene. PCE was detected in the soil and groundwater for the first time in 1996.

A pilot study was conducted in 2000 to 2001 using in-situ chemical oxidation (ISCO) to reduce the groundwater contaminant concentrations. The ISCO pilot study was not as effective as Navy hoped. The benzene, toluene, ethylbenzene and xylene (BTEX) concentrations were reduced but the ISCO was less effective on the chlorinated VOCs (PCE, TCE, etc). Based on the bedrock characterization it was determined that the ISCO reagent that was injected into the wells could not reach the target areas in the deeper bedrock fractures to decrease the chlorinated VOC concentrations. The background information from the previous investigations and removal actions was used to design the RI field program.

The RI objectives shown on Slide 5 included determining the nature and extent of contamination at the site, identifying the source of contamination, and completing a risk assessment. The first phase of the RI (2005) included checking existing wells to determine their usability, and preliminary slug tests and geophysics. The 2006 work included soil and groundwater investigations. The 2009 to 2010 work included an additional groundwater investigation and a soil vapor investigation. The components of the RI field program are summarized on Slide 6. Only soil, groundwater, and vapor samples were collected since there is no surface water or sediment at the site.

The soil investigation included borings, logging soil, field screening, sample collection, and completing some borings as monitoring wells (Slide 7). The groundwater investigation included groundwater profiling

(to help refine permanent monitoring well locations), monitoring well installation, groundwater sampling, hydraulic conductivity testing, geophysics, and water level measurements (Slide 8). Rock coring was conducted to select screened intervals targeting fractures in the bedrock. Geophysics was also performed to help determine the screened interval for bedrock monitoring wells. Four groundwater domains were targeted; shallow overburden, deep overburden, shallow bedrock, and deep bedrock. Groundwater at Building 81 generally flows west/southwest.

The buried utility lines made it very difficult to install the wells given the number of different utilities along Shea Memorial Drive. The utilities can be up to 8 feet deep, which could affect the shallow overburden plume, but the plume does not show preferential flow along the utility lines.

K. Jalkut described the various drilling techniques used throughout the field programs: direct push technology (DPT), hollow stem auger (HSA), drive and wash, and air rotary. Soil sampling was conducted during the 2006 RI but not during the supplemental RI field program in 2009-2010. Numerous rock cores were collected during both phases of investigation and the rock type was very consistent with published literature, namely the Dedham granite. The bedrock is fractured; the geophysics work concluded that the deeper bedrock fractures were not as transmissive as the upper bedrock fractures. Monitoring wells were installed after a review of the borehole geophysical results. All of the newly installed wells were developed and sampled. These investigations generated a lot of investigation derived waste (IDW). The IDW generated during the Building 81 RI was tested before it was transported off site for disposal. All of the IDW was determined to be non-hazardous.

The soil vapor investigation included collection of samples from the gravel layer directly beneath the building slab and the fill below the gravel to check for off-gassing from the groundwater to soil. Slide 9 presents a schematic of the soil vapor setup, which included a leak test to confirm that the air sample being collected was closed off from ambient air.

Slide 10 presents the summary of the analytical program. The soil and groundwater samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, and cyanide. The soil gas samples were analyzed for chlorinated VOCs and BTEX compounds. The data were validated and screened against various screening criteria. The contaminants present at the site are predominantly VOCs, specifically PCE and its degradation products (TCE, 1, 2-DCE, vinyl chloride) and benzene. These VOCs were found in groundwater and soil samples; PCE was found in the soil gas samples. In addition, there is a limited presence of SVOCs (mainly PAHs) in soil and groundwater. SVOCs and pesticides were detected infrequently and at low concentrations in soil and groundwater. PCBs were not detected in groundwater; one PCB was detected at low concentrations in five soil samples. Some metal concentrations exceeded screening criteria in soil (arsenic, iron, manganese, and vanadium) and groundwater (arsenic, iron, and manganese).

Poster-sized figures were used to show the PCE plumes in each of the four groundwater domains (shallow and deep overburden and bedrock). The deep overburden plume has migrated to the west, across Shea Memorial Drive. The PCE plume in the shallow bedrock is more dispersed than in the deep bedrock due to the fact that the fractures in the upper bedrock are more connected. The plume in the deep bedrock is narrower due to the fewer interconnected fractures. The highest concentrations are near the source area and decrease downgradient in every groundwater domain.

D. Galuzzo asked if the maximum plume concentrations will move so the highest concentrations will be seen at Shea Memorial Drive. K. Jalkut responded that the maximum plume concentrations may not reach the road or move in that direction due to the fracture flow, or they could break down into other compounds. They may be isolated in the areas shown on the figures. For now, the further away from the source area you get, the lower the concentrations.

Twelve geologic cross sections were generated for the RI. The cross sections were focused on areas in the direction of groundwater flow and perpendicular to groundwater flow. Each cross-section shows data including the lithology, monitoring well placement, groundwater levels, PCE concentrations, geophysical information, and estimated plume contours.

Based on the RI data, the primary source area is the location of the former waste oil tank and associated contaminated soil, which have been removed. A secondary source area, shallow PAH-contaminated soil near SB-5 and MW-11, was removed in 1998.

The human health risk assessment concluded that there are no current risks at the Building 81 site; the human health risks are all based on future risk scenarios (Slide 11). The risks identified are for future residents (adult and child) if groundwater was used for drinking water and for construction workers due to vapors in a trench. For a future resident using groundwater as drinking water the risks are associated with VOCs (PCE, TCE, vinyl chloride), chlorinated PAHs, and metals (arsenic, cadmium, and manganese). For a future resident the indoor air (inhalation) risks are associated with VOCs (PCE and naphthalene). For the future construction worker in a trench (inhalation) the risks are associated with VOCs (PCE and naphthalene). There is no ecological habitat or receptors at the Building 81 site.

The conclusions of the RI are summarized on Slide 12. A feasibility study is needed to evaluate remedial alternatives. VOCs in groundwater are the biggest issue and there are risks associated with future residents if the groundwater is used for drinking water. The draft final RI report was issued in December 2010 and the draft FS is underway (anticipated fall 2011). The Proposed Plan is anticipated in fall 2011 and the ROD is anticipated in early 2012.

M. Parsons asked if the source of the plume was found and if that is why the ISCO didn't work. K. Jalkut responded that the former waste oil tank was the source area and the ISCO didn't work well for the chlorinated VOCs, but it did work for the BTEX plume which was degraded. The chlorinated VOCs may not have degraded due to fracture connectivity. M. Parsons asked how fast the plume travels. K. Jalkut responded it is not moving fast, only fractions of a foot per day (0.001ft/day).

D. Galluzzo asked if the plume is moving slowly - could the lower concentration reflect the effect of ISCO. K. Jalkut responded that is possible and continued monitoring will occur. She noted that the 11,000 µg/L concentration at BR-07 increased from 2006 to 2009 but the well was sampled at a different location in the open borehole, so the concentration may in fact have always been that high or may have decreased.

D. Galluzzo asked why there are no ecological receptors. K. Jalkut responded that there is no habitat for any wildlife at the site and there is no surface water.

M. Bromberg asked if there was PCE found at the TACAN. K. Jalkut responded she would have to check, but it would be difficult to trace a PCE hit back to Building 81 even if it was present. D. Barney added that PCE was found at a catch basin near Hangar 2, but he is unsure if PCE was found in the TACAN samples. He thinks the only VOC hit at the TACAN area was associated with the Tile Leach Field up-gradient surface water samples. Samples collected from these locations would have been analyzed for VOCs.

M. Bromberg asked if there were any potential remedies being discussed for the FS. D. Barney responded that Navy will look at potential alternatives, ranging from No Action to treatment. M. Bromberg noted that if groundwater were extracted it would take many years before it was considered acceptable for use. D. Barney added that many options will be considered and these processes can take a long time, but the CERCLA evaluation process needs to be followed. B. Olson stated that he thinks site groundwater is classified as a potential drinking water area, so they would have to cleanup to MCLs. The remediation time, cost, etc., all need to be compared.

A. Malewicz stated that the reuse plan for this area also needs to be factored into the decision making process, especially regarding a potential vapor intrusion issue. This should be considered as part of the development plan, as it may be better to avoid developing this area based on public safety and cost effectiveness.

M. Parsons asked if the building was taken down due to poor air quality. D. Barney responded it was not due to poor air quality, it was to allow access during the ISCO pilot study.

D. Galluzzo stated that he objects to A. Malewicz's suggestion to move the location of future buildings rather than deal with the plume. This is a moving target and could be a future problem if it migrates toward the new buildings. A. Malewicz responded that she was not suggesting to not remediate the area, but just to make things easier by not building on that area until it is remediated. B. Olson added that if there was a concern, there would also be restrictions placed on nearby buildings.

M. Parsons asked how close Building 15 and the Building 82 plume were to the Building 81 site. K. Jalkut responded that the leading edge of the PCE plume is east of the Building 15 plume and PCE was not detected in groundwater in front of Building 15 and Building 82. PCE was not found in the overburden at Building 15. D. Barney stated that Navy considers them to be separate plumes because there are different contaminants.

### **3. UPDATES AND ACTION ITEMS**

Action Items: None.

MassDEP Update: None.

IR/EBS Program Site Update: D. Barney showed some photos of West Gate Landfill and ongoing remedial action work at the Main Gate site. He then referred to the January RAB update. Building 82 is moving forward and the FS is being developed for SRA. A SAP is being finalized for additional soil investigation work at STP in a limited area. The focus is on some previously unknown petroleum contamination near the former STP facility structures. The WGL cap construction activities are on hold due to the weather. Main Gate now has a chain link fence up and snow fence out to Route 18. Shaw is excavating sediment and soil at the site. The drainage channel was bridged to provide access from the Navy side rather than Route 18. Once the Main Gate removal action is completed Shaw will move back to WGL.

M. Parsons asked if work can continue with all the snow. D. Seitz stated that it takes about half a day of work to clear the snow. She asked what is being done for erosion control at WGL. He responded that silt fence and hay bales are in place around WGL and extra precautions are being taken along French Stream. An extra (secondary) silt fence was put in to the south, before you get into the wetlands, so the sandy material on the landfill will not run down into the wetlands during the spring melt.

Conclusion/Next Meeting

J. Goodrich wrapped up the meeting. The next RAB meeting will be the second Thursday in April (April 14, 2011). The meeting will again be held at the New England Wildlife Center, 500 Columbian St.,

Weymouth, MA. The Proposed Plan hearing for AOC 55C should be ready for April 14, 2011 and since the recommendation is No Further Action, the Navy will try to have the hearing portion on the same night as the RAB meeting.

Suggested topics for the next meeting include:

- Main Gate
- Small Landfill LTM
- SRA FS
- RIA 111