

Final MEETING SUMMARY

Marine Corps Base Camp Lejeune Restoration Advisory Board Meeting Minutes:

RAB Meeting: December 14, 2004

ATTENDEES:

Robert Lowder/MCB Camp Lejeune
Scott Williams/MCB Camp Lejeune
Gena Townsend/USEPA Region IV
Tiki Whitfield/USEPA Region IV
Randy McElveen/NC DENR
Kirk Stevens/NAVFAC Atlantic
Matt Louth/CH2M HILL
Donna Laudermilch/CH2M HILL

Ron Kenyon/Shaw
Laura Bader/RAB Co-Chair
Marvin Powers/RAB Member
Chuck Kassube/RAB Member
Thomas R. Matlison/RAB Member
J. M. Ensminger/RAB Member
Susan Jones/New River Foundation

FROM: Donna Laudermilch/CH2M HILL
DATE: January 21, 2005

LOCATION

Coastal Community College, Building CE, Room 203 in Jacksonville, North Carolina

MINUTES

6:00 PM

- I. **Introductions**
- II. **Site 88 Non-Time Critical Removal Action Update**

Objective: The purpose of this discussion was to update the status of activities at the site and present the preliminary findings of the treatability study underway at Colorado State University, which is evaluating the use of a zero valent iron (ZVI)/clay mixture to treat a PCE plume. The anticipated schedule of events to prepare the site for full-scale implementation of the soil mixing was also presented. Matt Louth presented this information in PowerPoint format.

Overview: In September 2004, soil samples were collected in a grid pattern from within the treatment area at depths of 14 to 22 feet below ground surface. The samples were sealed and sent to Colorado

State University for a treatability study designed to:

1. Optimize the concentration of ZVI in the ZVI/clay mixture;
2. Evaluate the potential of hot air flushing as a complementary or stand alone technology;
3. Generate data supporting a design of slurry and/or grout mixtures; and
4. Provide a basis for estimating volume expansion due to the treatment.

In October 2004, CH2M HILL visited CSU to document the progress of the treatability study. Matt presented photos from this visit. At the time of the site visit, the preliminary study results indicated:

- PCE has a half-life of 14 to 28 days;
- There is a low detection of intermediates (DCE and VC), which may be because the daughter-product reactions are occurring very rapidly;
- The hot air test did not work, indicating hot air flushing is not a viable technology for the site;
- The optimum concentration of ZVI is 2% (approximately 20 tons required for the treatment area); and
- Extrapolation of the lab results indicates three orders of magnitude reduction may be anticipated one year after soil mixing is performed.

CSU also performed a mixing test to determine whether the ZVI/clay mixture could be delivered in-situ and what number of auger passes would be needed to achieve adequate delivery. A video was shown demonstrating the lab-scale mixing process. The initial findings suggested a minimum of two passes will be required in the field, and that the expected increase in fluff is approximately 15%.

For full-scale implementation, the ZVI/clay mixture will be delivered through an 8-foot diameter auger and mixed with the soil capturing the plume, and creating a buffer that is impermeable to groundwater. The iron will then break down the captured chlorinated plume. After the soil mixing is complete, additional monitoring wells (10-12) will be installed downgradient of the treatment area. Some considerations discussed by the RAB regarding full-scale implementation of the soil mixing included:

Noise levels: Numerous buildings are located near the treatment area, and the soil mixing process will generate significant noise. Calculations were performed indicating that the noise level 20 feet from the drill rig will be approximately 90 decibels, so the sound level in the surrounding buildings should be acceptable.

Scott Williams and Matt Louth passed out fact sheets to residents near the construction area, and were available to address questions and concerns. Many of the building occupants have been temporarily transferred to other locations for the duration of the construction, but the barracks residents will remain. The trailer has been situated between the soil-mixing area and the barracks to provide a barrier for the noise. If numerous complaints are received, the use of a sound barrier will be considered.

Potential vapors: Fugitive emissions are a possibility during the soil mixing process, so the auger will be equipped with a hood that will collect vapors as the soil is mixed. In addition, air monitoring will be conducted for the duration of the soil mixing process.

Site Completion: Once the soil mixing is finished, the site will be completed as an asphalt parking lot. It is anticipated that the asphalt will be laid in March 2005, giving the ZVI/clay mixture time to settle.

The schedule of events for full-scale implementation is as follows:

- Draft Implementation Plan – October 20, 2004
- Abandon remaining wells – November 1, 2004
- Treatability Study results – November 5, 2004
- Electric reroute – November 8, 2004
- Water line reroute – November 15, 2004
- Demolition – November 15, 2004
- Soil mixing mobilization – November 22, 2004
- Soil Mixing – December 6, 2004

CH2M HILL will provide an update of the full-scale soil mixing, including photographs at the next RAB Meeting.

III. Site 86 Horizontal Well Pilot Study Update

Objective: The purpose of this discussion was to summarize horizontal well installation activities and provide an update on the status of the remaining pilot study activities. Matt Louth presented the information in PowerPoint format.

Overview: The horizontal well installation field activities were summarized and photographs of the equipment and installation process were presented. Overall, the horizontal well installation went smoothly. Numerous fiber optic cables were encountered beneath the site prior to drilling, so one full day was spent locating these cables. Once this was complete, drilling commenced and no further issues were encountered. The final well statistics were as follows:

- Well Length – 950 feet
- Screen length – 350 feet
- Depth of screen – 60 feet ± one-quarter foot
- Polyurethane seals were installed at 200 feet along the entry and exit points
- Bentonite seals were installed at 40 feet along the entry and exit points

The vertical monitoring wells were installed in early October 2004 at the locations identified in the final Work Plan. The baseline sampling event was completed the week of October 18–22, 2004. The projected schedule for the remaining activities is as follows:

- Installation of compressor – November 15, 2004
- Compressor Startup – November 29, 2004
- Groundwater Monitoring – December 27, 2004
- Installation of Ozone Equipment – December 27, 2004
- Ozone Startup – January 4, 2005
- Groundwater Monitoring – February, May, and August 2005

Air will be injected into the horizontal well for approximately one month in order to purge groundwater from the horizontal well and to create preferential pathways for the ozone. The ozone will then be injected into the well. It is anticipated that the ozone will be injected for a period of 3 to 6 months.

CH2M HILL will provide an update on the ozone injection and present groundwater data at the next RAB meeting.

IV. Two New IR Sites

Objective: The purpose of this discussion was to introduce two recently identified sites that will be

added into the IR program. The sites were formally cow-dipping and goat-dipping vats. This discussion was led by Matt Louth.

Overview: The Cow-Dipping Vat, which is a concrete structure, and the Goat-Dipping Vat, which is a masonry structure, are located on historically significant land and were originally identified under RCRA. During a preliminary investigation, two soil samples were collected from each of the sites. Arsenic, mercury, and pesticides (4,4'-DDD, 4,4'-DDE, and 4'4-DDT) were found at the cow-dipping vat site; and arsenic, chromium, and mercury were found at the goat-dipping vat site. Based on the type of contaminants found and the age of the contamination, the sites will be transferred into the IR program for further investigation.

According to Bob Lowder, the archaeologist recently found a third dipping vat, which will be addressed in the near future.

Path Forward: The cow- and goat-dipping vat sites will be transferred into the IR program. A preliminary investigation will be completed for the third dipping vat site to determine the path forward.

V. RAB Charter Signing

Objective: The purpose of this item was to give the RAB members an opportunity to review the RAB Charter updates completed by Bob Lowder and to have a signing ceremony for the new Board to sign the updated Charter.

Overview: Bob outlined the key revisions to the RAB Charter including:

- All RAB members must make all RAB meetings.
- The Community Co-Chair will be nominated and elected by the community RAB members. The Community Co-Chair's term will be one year, but may be extended if no one else is nominated for the position.
- RAB meetings will be held on a quarterly basis at an off-Base location, and will not last longer than 2 hours. The meeting time will be 6:00pm to 8:00pm.
- A copy of the RAB meeting minutes will be made available to all RAB members, via electronic posting on the internet.
- The official Camp Lejeune Information Repository is maintained by NAVFAC Atlantic. A hard copy of the Information Repository is located on Base in the EMD building, and can be viewed by any member of the public by appointment only.
- The Administrative Record can be accessed electronically via a dedicated computer located in the Onslow County Public Library. The Library staff is knowledgeable about accessing the Administrative Record, and fliers are posted in the vicinity of the computer to aid users in accessing the Record.
- The RAB Charter may be amended at any time by a majority vote.

Action: Bob will provide copies of the signed RAB Charter to the RAB members.

VI. Additional Items of Discussion

Objective: The purpose of this agenda item was to allow RAB members the opportunity to voice any additional questions or concerns about the current agenda topics and identify any future RAB meeting agenda items.

Overview: During the question/answer session, a concern was raised regarding remedial efforts at Site 69 due to the high VOC levels discovered during the original investigation in 1987, the lack of a clay barrier, and the close proximity of the site to a body of water. Following a 1998 investigation, the interim ROD was put into place, which calls for long-term monitoring with land use controls, including a fence to restrict access to the site.

Matt Louth presented long-term monitoring data trends from 1999 to 2003, including surface water and sediment data. Low concentrations of metals were identified in the surface water, but no VOCs were detected. The RAB requested a groundwater plume map to visualize site contamination from the long-term monitoring data. Due to the remote location of the site and the generally low levels of contamination, the site is not considered to pose an immediate threat to human health, so long-term monitoring with land use controls is adequate in the interim. Current remedial action efforts at Camp Lejeune focus on sites that pose an immediate threat to human health.

Action: Matt Louth will generate a Site 69 groundwater plume map from the long-term monitoring data and distribute it to the RAB members.

VII. Next RAB Meeting

The Next RAB Meeting will be February 8, 2005 at 6:00 PM. Bob Lowder will secure a location for the meeting and send the information to the RAB members.

Agenda items for the next RAB meeting will include:

- Updates on Sites 82 and 6
- Updates on the dipping-vat sites
- Present data from groundwater sampling at Sites 88, 86, and 35