

# Marine Corps Base Camp Lejeune Restoration Advisory Board Meeting Minutes April 21, 2009

ATTENDEES:     Bob Lowder/Camp Lejeune                     Chris Bozzini/CH2M HILL  
                  Andrew Smith/Camp Lejeune                 Matt Louth/CH2M HILL  
                  Robert Campbell/Camp Lejeune             Kim Henderson/CH2M HILL  
                  Bryan Beck/NAVFAC Mid-Atlantic         Laura Bader/RAB Co-Chair  
                  Gena Townsend/EPA Region 4             Brian Wheat/RAB Member  
                  David Williams/EPA Region 4            Bobbie Newman/Court Reporter  
                  Randy McElveen/NCDENR                 Carmela Gonzalez/Edwards AFB

FROM:           Kim Henderson/CH2M HILL

DATE:           May 19, 2009

## LOCATION

Coastal Carolina Community College, Business Technology Building, Room 105 in  
Jacksonville, North Carolina

## MINUTES

### I.       Welcome and Introductions

### II.      Public Meeting for Proposed Remedial Action Plans (PRAPs) for Sites 35 and 73

6:00 PM

The PRAPs for Sites 35 and 73 were presented by CH2M HILL representative, Mr. Matt Louth. A North Carolina Court Reporter, Bobbie Newman, recorded minutes on the public meeting that are submitted separately. One question was received on the Site 35 PRAP. Mr. Wheeler questioned whether the proposed air injection would force contamination to Brinson Creek? Mr. Louth responded that it is not likely based on the location of the screened interval beneath the contamination and that treatment occurs upward, the well's exit point is far enough away from creek, and the gradient is flat. Mr. Lowder added that monitoring will also be conducted to confirm a preferential pathway to the Creek is not created and the system can be adjusted as needed. No questions or comments were received on the Site 73 PRAP.

### III.     Installation Restoration (IR) Site 6 Assessment Activities Update

**Objective:** The purpose of this agenda item was to provide an update on the supplemental investigation, chlorobenzene sampling, and anomaly investigation being conducted at Site 6. This discussion was led by CH2M HILL representative, Mr. Chris Bozzini.

**Overview:** Mr. Bozzini reviewed the history of Site 6 which is approximately 177 acres, and the area was historically used for disposal and storage of wastes and supplies, including transformers containing polychlorinated biphenyls (PCBs), solvents, electrolytes, and waste oil. The site is currently used for defense reutilization and marketing office (DRMO) activities and the Base vehicle scales. A figure of the site location was shown.

A summary of the investigation history was reviewed. The Remedial Investigation (RI)/Feasibility Study (FS) was completed in 1993 when various organic and inorganic compounds were identified as risk drivers in soil, groundwater, surface water, and sediment. Some munitions debris was also identified and removed. A Record of Decision (ROD) for OU 2, Site 6 and Site 82, was signed in 1993 and the selected remedy included a removal action, long-term monitoring (LTM), and land use controls (LUCs). The removal action was conducted in 1994 and 2,655 cubic yards of drums, communication wire, batteries, petroleum oil lubricant (POL) containers, and 105 millimeter (mm) cartridges were excavated and disposed of off-site. LTM has been ongoing since 1996 and elevated levels of chlorobenzene have been detected in one monitoring well GW16 since 2002. The concentrations have fluctuated over time and a supplemental investigation was planned to determine if a chlorobenzene source is present and delineate the extent of chlorobenzene in groundwater. The planned investigation activities were to sample existing monitoring wells, conduct a geophysical survey targeting burial trenches, investigate geophysical anomalies by excavating test pits, and install new monitoring wells to delineate chlorobenzene.

During vegetation clearance for the geophysical survey, munitions debris was found. The items were certified and verified as containing no explosives. An Explosives Safety Submission (ESS) was submitted for removal and the debris was subsequently shipped off-site for witnessed smelting. Photos of the munitions debris and the area excavated by Base Explosives Ordnance Division (EOD) were shown.

Mr. Lowder explained the purpose of an ESS which is to outline the protocol and safety procedures for Base personnel and contractors working on sites with potential munitions. ESSs are submitted for Department of Defense review and approval to ensure procedures and safety aspects are implemented appropriately (i.e., explosive arcs are implemented based on items that may be encountered, appropriate contact information and hospital locations are provided).

The path forward is to amend the ESS for OU 2 to outline the approach for supplemental investigation activities planned at Site 6 and Site 82 and enable response and disposal of any munitions items discovered during those investigations. The supplemental investigation to delineate the extent of chlorobenzene-impacted groundwater at Site 6 will then be conducted upon approval of the amended ESS.

Mr. Williams questioned how the destroyed monitoring well GW45 noted on a figure would be addressed. Mr. Bozzini indicated that the bollards and well were destroyed during DRMO activities and would be abandoned and replaced during the supplemental investigation.

#### IV. IR Site 88 Treatability Study Brief

**Objective:** The purpose of this agenda item was to review the planned treatability study at Site 88 for injection of in-situ chemical oxidation (ISCO) with permanganate, injection of enhanced reductive dechlorination (ERD) with bioaugmentation, and installation of an ERD barrier wall with bioaugmentation. This discussion was led by CH2M HILL representative, Mr. Chris Bozzini.

**Overview:** Mr. Bozzini reviewed the site history. Site 88 (OU 15) was a dry cleaning facility from the 1940's through 2004 when the building was demolished. The main chemicals of concern are perchloroethene (PCE) and its daughter products in groundwater. The extent of groundwater impacts was delineated during the RI. The plume length is approximately 2,300 feet (ft) and it is located approximately 1,250 ft upgradient from the river. PCE is present at various depths with the highest concentrations at 75 to 100 ft below ground surface (bgs) in the PMO parking lot area. There is a clay confining unit present at 180 ft bgs and natural attenuation is occurring. A conceptual site model and figures of the plume were shown.

Soil mixing with zero-valent iron (ZVI) was conducted in the source area in 2004 and the PCE concentration in groundwater was reduced by 99%. Remedial alternatives were developed for the remaining plume as part of a FS. The plume was divided into three distinctive zones for treatment based on the concentrations and depth; Zone 1 is the Shallow/Intermediate Source Area, Zone 2 is the Intermediate/Deep Area Near the Source, and Zone 3 is the Low Concentration Dissolved Plume. Figures of the three zones were reviewed. The remedial action objectives in the FS are to reduce concentrations to allow natural attenuation to North Carolina Groundwater Quality Standards (NCGWQS) within a reasonable period of time and prevent human ingestion of groundwater.

Because the nature and extent of PCE and its daughter products at the site may present a challenge for treatment and the costs are high (\$10 to 20 million), field treatability studies are planned. This will allow for better evaluation of the effectiveness of the potential remedial alternatives in the FS and for quicker action to address the plume. The treatability studies will focus on key zones of the plume including the high concentration and downgradient areas. Chemical oxidation, ERD injections, and an ERD barrier wall are planned. Laboratory bench-scale testing will be conducted to evaluate treatment effectiveness, including injection of various chemical oxidants, microcosm studies, injection of various ERD substrates, and bioaugmentation. Aquifer computer modeling will be conducted to evaluate groundwater flow, injection and pumping of substrate, and subsurface distribution of substrate. Field study implementation will then be based on the results of the laboratory tests and computer modeling. The schedule is as follows:

- Field study planning: 2<sup>nd</sup> quarter of 2009
- Field study bench-scale studies and modeling: 2<sup>nd</sup> - 3<sup>rd</sup> quarter of 2009
- Field study implementation: 4<sup>th</sup> quarter of 2009 - 1<sup>st</sup> quarter of 2010
- Field study monitoring: 1<sup>st</sup> quarter of 2010 - 1<sup>st</sup> quarter of 2011
- Final FS: 2<sup>nd</sup> quarter of 2011
- PRAP: 3<sup>rd</sup> quarter of 2011
- Record of Decision: 4<sup>th</sup> quarter of 2011

Mr. Wheat asked how many tons of soil has been removed at the site. Mr. Bozzini responded that soil has not been removed at Site 88; the soil mixing was conducted in situ.

#### **V. RAB Business**

Mr. Lowder proposed dates for the next RAB meeting and **Tuesday, July 28, 2009 at 6:00 PM** was scheduled. Mr. Lowder will secure a location for the meeting and send the information to the RAB members.

Mr. Lowder discussed recent efforts to solicit public participation in RAB meetings. Notices were published in local newspapers to encourage new RAB membership. Five applications were submitted for RAB membership. The RAB members reviewed each application and the applicants were considered acceptable and will be invited to the next meeting. Mr. Lowder noted that several RAB members have not been attending meetings on a regular basis and per the RAB charter, he requested that if attendees do not attend two or more consecutive meetings that they be removed from the RAB membership mailing list. The RAB agreed.

Mr. Lowder presented a letter of appreciation and recognition to Ms. Laura Bader for 13 years of service on the MCB Camp Lejeune RAB. RAB members Mr. Richard Mullins, Mr. Thomas Mattison, and Mr. Marvin Powers will also be presented awards for their 13 years of service. Mr. Lowder noted that at the next meeting, the RAB will vote on the community co-chair position.