

Marine Corps Base Camp Lejeune (MCB Camp Lejeune) Restoration Advisory Board (RAB) Meeting Minutes

MEETING DATE: February 10, 2016

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

ATTENDEES:

Charity Delaney/MCB Camp Lejeune	Bryn Pearson/Community Member
Thomas Richard/MCB Camp Lejeune	Karen Sota/RAB Member
Bryan Beck/NAVFAC Mid-Atlantic	Steven Thompson/RAB Member
Dave Cleland/NAVFAC Mid-Atlantic	Nicole Triplett/Community Member
Anna Cornelious/EPA	Brian Wheat/RAB Member
Jennifer Tufts/EPA	Dylan Elks/Meadows
Beth Hartzell/NCDEQ	Shaun Whitworth/Meadows
Randy McElveen/NCDEQ	Kim Henderson/CH2M
Laura Bader/RAB Member	Matt Louth/CH2M
Michael Curtis/RAB Co-Chair	

FROM: Kim Henderson/CH2M

DATE: February 10, 2016

I. Welcome and Introductions

Ms. Delaney began the meeting and reviewed the agenda.

II. 2015 Accomplishments & 2016 Goals

Objective: The purpose of this agenda item was to review the key 2015 accomplishments, present current Installation Restoration Program (IRP) and Military Munitions Response Program (MMRP) site status, and plan for 2016 goals.

Overview: A presentation was reviewed by Mr. Louth.

The 2015 IRP accomplishments were reviewed as follows:

- Achieved remedy in-place (RIP) at Sites 49, 69, 86, and 89.
- Achieved response complete (RC) at Site 1 and removed land use controls (LUCs).
- Initiated an optimization evaluation at Site 78 that consisted of a Treatability Study and a refined conceptual site model. As a result, target treatment zones and potential alternatives were identified.
- Initiated field activities including a Remedial Investigation (RI) at Site 96 and a Supplemental RI at Sites 6 and 82.
- Completed the Five-Year Review.
- Updated the Community Involvement Plan.

A RAB member asked if any sites were planned for transferring out of CERCLA to another regulatory program (e.g., RCRA) to be addressed and they are not, the sites will remain under the CERCLA program.

The 2016 MMRP accomplishments were reviewed as follows:

- Finalized RI for UXO-06.
- Finalized Proposed Plan (PP) and Record of Decision (ROD) for UXO-19.
- Achieved no further action at UXO-27.
- Completed battery test-pitting at UXO-22.
- Completed drum and mound sampling at UXO-23.
- Initiated Phase II non-time critical removal action (NTCRA) at UXO-23.

There are currently 31 active IRP sites and seven active MMRP sites in various phases of the CERCLA process.

The 2016 IRP goals are as follows:

- Complete Expanded Site Investigation and determine path forward for Site 37/UXO-24.
- Draft the RI/ Feasibility Study (FS) for Site 96.
- Complete the Treatability Studies at Site 88 and long-term monitoring (LTM) Sites 3, 36, and 93.
- Continue optimization evaluation at Site 78 to fill data gaps for refining alternatives in support of a FS Amendment.
- Initiate a similar optimization evaluation at Sites 6 and 82.
- Implement Five-Year Review recommendations.

The 2016 MMRP goals are as follows:

- Complete Phase III NTCRA and groundwater sampling at UXO-23.
- Complete Preliminary Assessment/Site Investigation (PA/SI) field activities at UXO-29.
- Initiate RI field activities at UXO-28.
- Complete the FS, PP, and ROD for UXO-06.
- Implement LUC for munitions at UXO-22.
- Achieve RIP at UXO-19.

III. Pilot Studies at Long-Term Monitoring (LTM) Sites

Objective: The purpose of this agenda item was to review the site background and pilot studies being conducted at three LTM sites, review study implementation activities and current data, and provide a summary and path forward.

Overview: A presentation was reviewed by Mr. Louth.

Site 3 is the Old Creosote Plant with semi-volatile organic compounds (SVOCs) in soil and groundwater and VOCs in groundwater. A ROD is in-place and the Selected Remedy was soil removal, groundwater LTM, and LUCs. Volatile organic compounds (VOCs) was removed from LTM after four rounds of groundwater samples were below clean-up levels. Biennial LTM for SVOCs is ongoing. After the soil removal in 2000, concentrations in groundwater declined, then stabilized. Benzo(a)anthracene is the remaining chemical of concern and degrades under aerobic conditions; however, anaerobic conditions exist in the subsurface, indicated by low dissolved oxygen. Therefore, a Pilot Study was initiated to try to treat the benzo(a)anthracene and reduce the duration of LTM. In June 2015, Oxygen Release Compound (ORC) was injected to stimulate aerobic degradation. Follow-up monitoring was conducted in October 2015 and January 2016 (results pending). In the surficial aquifer, injections appear to have reached the target radius of influence, dissolved oxygen (DO) increased from 1 to 37 milligrams per liter (mg/L), the pH increased from 7.2 to 11.8, and no SVOCs were detected above cleanup levels. In the upper Castle Hayne aquifer in one of the monitored wells, conditions are affected by ORC, DO increased from <0.5 to 44 mg/L, pH increased from 9.4 to 12.5 and no SVOCs were detected above cleanup levels. In the other monitored upper Castle Hayne aquifer well, ORC has yet to reach it, there have been no measurable increases in DO or pH, and SVOCs continue to be detected above cleanup levels. In summary, ORC injections achieved the desired radius of influence and the ORC sock has limited radius of influence but is still releasing oxygen.

Site 36 is a Former Dump Area with metals in soil and VOCs in groundwater. A ROD is in-place and the Selected Remedy was groundwater and surface water LTM and LUCs. Biennial LTM for VOCs is ongoing. Trichloroethene (TCE) and degradation products were detected above cleanup levels in groundwater and there have not been detections in surface water. Over time, the VOC concentrations are stable and conditions are generally favorable for natural attenuation but the total organic carbon (TOC) is lower than optimal. Therefore, a Pilot Study was initiated in June 2015 to inject bio-augmented emulsified vegetable oil (EVO) to facilitate enhanced reductive dechlorination (ERD). Red yeast rice extract was also injected to assess its potential application as a methane inhibitor at other locations on-Base where VOC degradation may cause an increase in methane that can be a vapor intrusion issue when buildings are located nearby. Follow-up monitoring was conducted in October 2015 and January 2016 (results pending). Conditions are favorable for ERD based on one to two order of magnitude increases in total organic carbon (TOC) and dissolved organic carbon (DOC), negative oxidation reduction potential (ORP), low DO, and parent products decreasing while daughter products are increasing. In summary, ERD appears to be occurring in locations affected by injections and red yeast rice appears effective at inhibiting methane production.

Site 93 is the Former Waste Oil Underground Storage Tank (UST) at Building TC-942. A ROD is in-place and the Selected Remedy was (ISCO) to treat VOCs in groundwater, groundwater LTM, and LUCs. Annual LTM for VOCs is ongoing. Tetrachloroethene (PCE) and degradation products were detected above cleanup levels in groundwater. Over time, the degradation product concentrations are stable or slightly increasing, there is insufficient population of microbes present, conditions are only somewhat favorable for dechlorination, and complete biodegradation not occurring. Therefore, a Pilot Study was initiated in June 2015 to treat VOCs through a bioreactor of EVO mulch and gravel that is recirculated. The solar powered pump operates six to 10 hours per day and 22,600 gallons have been pumped to date. There has been higher than average rainfall that has decreased the amount of water pumped through the bioreactor and increased oxygenated water surrounding the bioreactor. Follow-up monitoring was conducted in October 2015 and January 2016 (results pending). To-date, there has been evidence of ERD based on negative ORP, decreasing TCE and cis-1,2-dichloroethene (DCE) concentrations, and increasing vinyl chloride concentrations. In summary, the bioreactor appears to be effectively enhancing reducing conditions in downgradient groundwater.

Another rounds of follow-up monitoring is planned in April 2016. Conclusions and recommendations based on these studies will be submitted with LTM reports for each site.

IV. Former D-9 Skeet Range, UXO-23 Non-Time Critical Removal Action (NTCRA) Update

Objective: The purpose of this agenda item was to provide site background and an update on the phased NTCRA approach.

Overview: A presentation was reviewed by Mr. Elks. The site was used for recreational skeet and trap shooting from approximately 1953 to 2011 and Military Construction (MILCON) is planned in the area. Environmental investigations were completed from 2007 through 2011 and indicated potentially unacceptable risks from lead and polynuclear aromatic hydrocarbons (PAHs) within the theoretical shot fall zone.

Phase I of the NTCRA was conducted from April through December 2012 and over 54,000 tons of lead and PAH impacted soil were excavated following in situ stabilization of lead with Enviroblend. Enviroblend is a powder mixture of magnesium oxide and calcium phosphate that stabilizes the lead and allows for disposal as non-hazardous waste. Unexploded ordnance (UXO) was discovered during Phase I and further remediation was put on hold. There were 18 grids (2.3 acres) remaining for removal at depth and they were covered with geotextile fabric and the site was backfilled and restored.

Following Phase I, soil borings were conducted within the 18 remaining grids in late 2013/early 2014 to further delineate the vertical extent of lead, PAHs, and stained soil/skeet fragments. Based on the results, the planned depths of excavation were 2.0 to 6.5 feet below ground surface.

Phase II of the NTCRA was conducted from June to September 2015 and over 15,000 tons of lead and PAH impacted soil were excavated. During site activities, it was discovered that additional fill material containing munitions debris from another construction project was inadvertently placed onto the project area before Sepi started work. Based on additional contaminated soil and UXO encountered, only 11 of the 18 planned grids were excavated, two grids were partially excavated, and some of the soil was stockpiled for UXO screening.

Phase III of the NTCRA was conducted from December 2015 through present and the remaining approximately 3,000 tons of lead and PAH impacted soil were excavated. The remaining stockpile from Phase II consisted of over 1,400 tons and waste characterization samples indicated that the soil needs to be disposed as hazardous waste based on lead concentrations. Site restoration is currently in progress and remaining tasks include completion of backfilling, removal of temporary erosion and control structures, and reseeded with grass cover. Following restoration, a site survey and completion report will be conducted.

In summary, the NTCRA soil removal is now complete and 74,157 tons of lead and PAH impacted soil were excavated comprising 72,695 tons of non-hazardous soil and 1,462 tons of hazardous soil.

The RAB members asked about the total cost for the removal action and it will likely be close to \$10MM.

V. RAB Business

Ms. Delaney suggested the next RAB meeting as a site tour for May 21, 2016.

Ms. Delaney indicated that additional advertisement for this RAB was conducted through an email blast on-Base, the MCB Camp Lejeune Facebook page, and Onslow County social media.