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RESTORATION ADVISORY BOARD (RAB) MEETING MINUTES 21 AUGUST 2013 MCB CAMP LEJEUNE NC

9/11/2013

CH2M HILL

Marine Corps Installations East-Marine Corps Base Camp Lejeune (MCIEAST-MCB CAMLEJ) Restoration Advisory Board (RAB) Meeting Minutes

MEETING DATE: August 21, 2013

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

ATTENDEES:

Charity Rychak/MCIEAST-MCB CAMLEJ
Patti Vanture/MCIEAST-MCB CAMLEJ
Bryan Beck/NAVFAC Mid-Atlantic
Dave Cleland/NAVFAC Mid-Atlantic
Gena Townsend/EPA
Randy McElveen/NCDENR
Michael Curtis/RAB Co-Chair
Laura Bader/RAB Member
Marvin Powers/RAB Member
Brian Wheat/RAB Member
Leonard McAdams/RAB Member
Richard Mullins/RAB Member
Amy Poe/RAB Member
Dale Weston/RAB Member
Chris Bozzini/CH2M HILL
Kim Henderson/CH2M HILL
Matt Louth/CH2M HILL
Betsy Reid/CH2M HILL
Cathy Weber/Osage
Shaun Whitworth/Osage
Michael Hanna/Osage

FROM: Kim Henderson/CH2M HILL

DATE: September 11, 2013

I. Welcome and Introductions

Ms. Rychak began the meeting and reviewed the agenda.

II. UXO-14 Non-Time Critical Removal Action (NTCRA)

Objective: The purpose of this agenda item was to provide a summary of remedial activities and current conditions.

Overview: A presentation was reviewed by Mr. Whitworth. The site was historically identified as Building RR-53 that was used for pistol and small arms training from 1950 through the 1990s when the building was demolished. An Expanded Site Investigation was completed in 2011 by CH2M HILL that identified potential unacceptable risk associated with lead and antimony in surface soil. An Engineering Evaluation/Cost Analysis was prepared in 2012 by CH2M HILL and *in situ* soil stabilization with excavation and offsite disposal the preferred removal action. The NTCRA was conducted from March through May 2013.

Pre-excavation soil sampling was conducted to laterally refine the boundaries for the NTCRA. Twenty initial and six additional step-out samples were collected until the project action limits (PALs) were met. Antimony concentrations were all below the PAL and 3 samples indicated elevated lead concentrations and step-out samples were collected until the PAL was met. The final extent for the NTCRA was 318 cubic yards.

Eighteen tons of EnviroBlend stabilization agent was applied to stabilize the lead impacted soil with an approximate dose of 5% by weight. EnviroBlend is a mixture of magnesium oxide and calcium phosphate in powder form and the product is mixed into the affected soil using an excavator or tiller and can be mixed into an injectable slurry for deeper applications. The correct dosing or product to soil ratio is determined by conducting a bench scale study and typically varies from 1-10% by weight. Enviroblend stabilizes lead impacted soil by

regulating pH and forming insoluble compounds that will not leach into the environment. Since many metals leach at both high and low pHs, regulating pH is the key to controlling leachability over time.

Post-treatment waste characterization was completed in five-point composites. Once the soil was stabilized, waste characterization samples were collected from each area and analyzed for toxic characteristic leaching procedure (TCLP) metals. Results from the waste sampling confirmed that the soil stabilization was successful and that the material was acceptable for non-hazardous disposal.

Once stabilized and characterized, soil from the two removal areas was excavated and transported offsite for disposal. A total of 324 tons of stabilized soil were transported to the Sampson County Landfill.

Post-excavation sampling was conducted in grids and one five-pt composite was collected from each grid and analyzed for total lead and antimony from the base of the excavation to confirm the vertical extent. One aliquot from each grid was composited and submitted for analysis of total lead and antimony.

A RAB member asked about aliquots. They are a random grab sample. Within each grid, 5 aliqouts or samples are collected and composited into 1 sample for analysis.

The final results indicate all lead concentrations are below the PAL of 443 mg/kg and all antimony concentrations are below the PAL of 31 mg/kg. Site restoration was completed and a closeout report was submitted to EPA and NCDENR for review. A no further action decision document is planned following approval of the closeout report.

III. Skeet Range (UXO-23) NTCRA

Objective: The purpose of this agenda item was to provide a summary of remedial activities and current conditions.

Overview: A presentation was reviewed by Ms. Weber. The site was used for recreational skeet and trap shooting from 1953 to 2011 with 10 firing points with eight skeet houses. The project was conducted for on-coming military construction (MILCON) to address the top 1-2 feet of soil with impacts from lead shot and skeet.

The chemicals of concern identified were lead and five specific polynuclear aromatic hydrocarbons (PAHs) from skeet targets and use of a petroleum-based binding agent and the PALs were reviewed.

The following NTCRA activities were reviewed: remediated swales, installed erosion and sediment controls, site preparation (clearing, pre-excavation perimeter soil sampling, monitoring well abandonment), soil treatment and waste sampling, identified potential unexploded ordnance (UXO) items, 54,000 tons of non-hazardous soil to landfill, conducted post-excavation soil sampling, and backfilled and restored the site.

EnviroBlend, a powder mixture of magnesium oxide and calcium phosphate, was applied to stabilize lead impacted soil by regulating pH and forming insoluble compounds that will not leach into the environment and render it nonhazardous (<5 mg/L) for disposal. A treatability study was conducted to determine the appropriate dosage and about 1,000 tons was added to the soil for stabilization.

Over 54,000 tons of soil was stabilized and disposed as non-hazardous waste. A geotextile layer and one-foot of backfill was installed to covers 18 grids with residual lead and PAHs to prevent direct contact over approximately 2.6 acres where the PALs were not achieved at depth and will be addressed at a later date.

During the site activities, several UXO items were found including an ammunition can, 81 mm training round, and 105 mm practice shell. Based on these findings, additional assessment is to be conducted as part of a Remedial Investigation.

A time lapse video of the NTCRA over time was reviewed.

A RAB member who used to manage the skeet range asked if the lead was recovered for recycling. It was noted that each shooter uses 25 oz lead per day and previously, lead had accumulated on the ground surface. The Base had Marine Corps Community Services (MCCS) visit the site and based on the small size and clay material that it was not worth the recovery effort.

Ms. Rychak indicated that the Base installed a new skeet range that has been open for about a year. The Marine Corps developed guidance for managing skeet ranges and reclaiming lead is included. Mr. Cleland noted that the Training and Education Command (TECOM) is working on development of a range management plan as well.

IV. IR Site 89 Air Sparging System

Objective: The purpose of this agenda item was to provide an overview of site conditions, construction and installation of horizontal and vertical air sparge wells and system start-up.

Overview: A presentation was reviewed by Mr. Whitworth. Previous investigations identified chlorinated volatile organic compounds (VOCs) in groundwater and surface water. During the remedial investigation, potential unacceptable risks were identified from exposure to VOCs in groundwater.

Air sparging was part of the selected remedy for treatment of source area groundwater. Two horizontal sparge wells were designed to diffuse the larger plume in surficial aquifer and three vertical sparge wells were designed to treat deeper impacts (70 feet) near well MW80DW.

Horizontal construction allows drilling in three dimensions, the drill head can be moved up, down, left, or right. This is accomplished by drilling a pilot bore into the ground at an angle and then leveling off at a specified depth. A combination of thrust and rotation from the drill rig to the drill head cuts the soil and excavates the borehole. They are installed as blind wells without an exit point. The lengths of each well were reviewed. The wells were installed as designed with minor waivers based on subsurface geology and bore path obstructions.

Six existing monitoring wells were permanently abandoned and reinstalled and eight new monitoring wells were installed to supplement the 19 wells that will make up the performance monitoring well network to track the progress of the remedial action. Seven roll-offs and 2,900 gallons of water were generated for off-site disposal.

The 19 performance monitoring wells were sampled for VOCs to establish baseline conditions before startup of the air sparge system and the concentrations were reviewed by aquifer. Deep well MW80DW, screened from 63-68 ft bgs had the highest concentrations.

The RAB discussed why a rotosonic drill was used for installation. Mr. Whitworth indicated there is less waste generated when rotosonic is used. A RAB member asked how long it takes to install one of the longer horizontal wells. My Whitworth indicated that it took 12 days to install both horizontal wells.

The compressed air system was delivered to the site in July 2013 and the system will be started in phases in August and September.

A RAB member asked the system pressure. Mr. Whitworth replied that it is 250 horse power with an air flow of about 300 cubic feet per minute. The idea is sending air under pressure into the sparge wells and putting oxygen and air into the system, allowing for breakdown of contaminants. There is a lot of pressure and it must be controlled. A RAB member asked if additional wells will be installed to track the plume. Mr. Whitworth noted that perimeter wells are in-place to track if air is pushing the plume around.

Reporting in October 2013 will include a Project Closeout Report to document the baseline groundwater sampling event and air sparge system installation and startup and an Operation and Maintenance (O&M) Manual will describe the system process flow, operational procedures, maintenance requirements, and system components.

V. RAB Business

Ms. Rychak proposed the next RAB meeting on Wednesday, November 13, 2013. The RAB was good with meeting on Wednesdays. An update on the Site 89 permeable reactive barrier installation is planned and the Site Management Plan Update will be completed and CDs brought for the next meeting. Suggestions for other meeting topics were requested.

A RAB member asked about fracking under the Castle Hayne aquifer and the RAB discussed the recent news on this subject.