

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

MEETING DATE:	August 25, 2021	
LOCATION:	Coastal Carolina Community College, Business Technology Building, Jacksonville, North Carolina	
ATTENDEES:	Thomas Richard/MCB Camp Lejeune Laura Spung/MCB Camp Lejeune Dave Cleland/Navy Lindsey Mills/Navy (by phone) Randy McElveen/NCDEQ Jennifer Tufts/EPA (by phone) Laura Bader/RAB Co-Chair Michael Curtis/RAB Member	Lori Freshwater/Community Member Thomas Mattison/RAB Member Calvin Shomaker/Jacksonville Daily News Brian Wheat/RAB Member Monica Fulkerson/CH2M Kim Henderson/CH2M Matt Louth/CH2M
FROM:	Kim Henderson/CH2M	
DATE:	September 22, 2021	

- I. Welcome and Introductions
- Mr. Richard began the meeting.
- II. Basewide Accomplishments

Objective: The purpose of this agenda item was to outline the 2020-2021 accomplishments to update the RAB since our last in-person meeting in February 2020. The team's goals for 2022 were also reviewed.

Overview: A presentation was reviewed by Mr. Louth. The following 2020-2021 accomplishments were reviewed as follows:

- Investigation activities included installation of over 200 monitoring wells, collection of over 1,200 samples (soil groundwater, drinking water, porewater, surface water, sediment, indoor air, outdoor air, exhaust air, sewer vapor, soil gas), munitions surface clearance over 24 acres, and identification and removal of 150 munitions items.
- Remediation implementation and studies included inspection and management of over 4,200 acres of land use controls (LUCs), operation and maintenance of 4 vapor intrusion mitigation systems, treatment of ~10 million gallons of water per month at the Site 82 treatment plant, operation of the Site 35 air sparging system for over 5,000 hours, injection of over 1,000 gallons of emulsified vegetable oil (EVO) at Site 73, treatment of over 1 million gallons of water in the Site 82 subgrade geochemical bioreactor (SBGR), injection of EVO and permanganate at Site 88, and installation of a second SBGR at Site 93. The EVO used was LactOil, a commercial substrate of vegetable oil with lactose.

- Documentation included the finalization of over 50 documents, including the Five-Year Review, Community Involvement Plan Update, Site 110 Expanded Site Investigation which achieved no further action, and the Basewide per- and polyfluoroalkyl substances (PFAS) Site Investigation Work Plan.
- Sustainability included elimination of over 3,000 gallons of aqueous waste through passive sampling, treatment of over 52,000 gallons of groundwater using exclusively solar power with an estimated savings ranging from 20-75 kilowatts per hour (kW/hr), recycling of over 8,800 pounds of metallic debris, reuse of over 70 cubic yards of soil during construction of Site 93 SBGR, and reduction of resource use through electronic document submittals and virtual meetings.
- Meetings and outreach included 1 RAB meeting in February 2020, 3 email updates to RAB members, and posting of 2 success stories on Facebook.
- The Team won the 2021 Secretary of the Navy Award for Environmental Restoration Installation!

The goals for 2022 include the Site 78 Feasibility Study Amendment, Remedy in-Place for Site 88, Site 96 Proposed Plan and Record of Decision, Site 111 PFAS Remedial Investigation, air sparging pilot studies at Sites 49 and 82, Five-Year Review recommendations for groundwater sampling for radiological compounds at Site 82 and volatile organic compounds (VOCs) at Site 9, and Remedial Investigations/Feasibility Studies for Sites UXO-28, 29, and 30.

II. Site 88 Remedial Action Update

Objective: The purpose of this agenda item was to present site background, provide an update on the remedial action, and present the schedule.

Overview: A presentation was reviewed by Ms. Fulkerson. Site 88 is the former dry cleaning facility (Former Building 25) where VOCs remain in groundwater. Investigations and studies have been ongoing since the underground storage tank removal in 1995 to delineate the VOC contamination, treat the source area, and determine the best treatment alternative. The remedy selected in the Record of Decision included the following:

- Zone 1: Enhanced reductive dechlorination (ERD) via vertical injection wells
- Zone 2: In situ chemical oxidation (ISCO) via horizontal injection wells and recirculation
- Zone 3: Biobarrier via vertical injection wells
- Vapor Intrusion: Continued operation of vapor intrusion mitigation systems (VIMS)
- Long-term monitoring (LTM)/monitored natural attenuation (MNA) and LUCs

In Zone 1, the objective was to evaluate if ERD will treat VOCs in source area groundwater by conducting two rounds of substrate injections, 2 years apart. The initial injections were conducted in 2019 and included injection of EVO and microbial culture in 99 injection wells in the surficial and upper Castle Hayne (UCH) aquifers followed by semi-annual performance monitoring to evaluate the progress towards achieving active remediation goals. The results indicated that reducing conditions were observed and microbial populations were growing. The second round of injections was initiated in March 2021 to repeat EVO substrate injections in the surficial and UCH aquifers. The effort is about 60% complete as there have been challenges with daylighting resulting in a slower production rate than anticipated and is expected for completion in October 2021.

In Zone 2, drilling activities included 9 horizontal injection wells and 5 vertical extraction wells installed as of December 2020 to create a closed loop recirculation system. The conveyance trenching and system installation was completed April 2021 and permanganate injections in the upgradient area was

completed May 2021 with recirculation from May through August 2021. The central area injections were initiated in August 2021 and are ongoing, anticipated for completion in March 2022.

In Zone 3, the objective was to evaluate if ERD will treat VOCs and mitigate offsite migration by conducting two rounds of substrate injections, 2 years apart. The approach was to inject EVO substrate in the biobarrier and for groundwater flow to drive treatment through the biobarrier. The initial injections were conducted in 2019 and included injection of EVO and microbial culture in 14 injection wells in the UCH aquifer followed by semi-annual performance monitoring to evaluate the progress towards achieving active remediation goals. The results indicated that reducing conditions were observed and microbial populations were growing. The second round of injections was conducted April through June 2021 to repeat EVO substrate injections.

Operation and maintenance of the VIMS is ongoing at Buildings 37, 43, and HP57. Buildings 3 and 3B also have VIMS but were damaged in Hurricane Florence and the buildings are planned to be demolished. A RAB member asked about new construction plans. The LUCs restrict groundwater use and require that anytime a new building is planned for construction or the use of the building changes, investigation or mitigation for vapor intrusion is required. Groundwater LTM was initiated in November 2019 and will transition to MNA after active treatment is completed. LUCs were implemented in September 2020.

A RAB member asked if one of the buildings with VIMS is a barracks and if any women are living in the barracks. There is a sewer mitigation system in place at Building HP57 which is a barracks (it is not known if women reside in the building) and monitoring is conducted to ensure the vapor intrusion pathway is not complete.

A RAB member asked about the groundwater plume movement. The source area was treated with soil mixing and has not moved beyond the biobarrier which provides treatment as groundwater moves in the direction of the river. Modeling has been conducted to confirm the plume is not expected to move to the New River. Groundwater LTM is conducted to monitor plume concentrations and migration and Five-Year Reviews are conducted to evaluate remedy effectiveness. If the remedy is determined not to be effective, adjustments would be made.

A RAB member asked about Building 67. The plume is not moving in that direction, north of Building HP-57. Groundwater data is reviewed at least every 5 years and if there are exceedances of screening levels within 100 feet of a building, a vapor intrusion investigation is conducted.

A RAB member asked about a representative from ABC Cleaners as the fence is down. It is an EPA-led site and Ms. Tufts will relay the message to the EPA project manager.

V. RAB Business

The next RAB meeting is scheduled for November 17, 2021 and will include a public meeting for the Site 96 Proposed Plan.