

Marine Corps Base Camp Lejeune Restoration Advisory Board Meeting Minutes

RAB Meeting: February 8, 2007

ATTENDEES: Robert Lowder/Camp Lejeune
Laura Bader/RAB Co-Chair
Charmaine Forbes/Camp Lejeune
Leonard McAdams/RAB Member
Daniel Hood/NAVFAC Mid-Atlantic
Marvin Powers/RAB Member
Dave Cleland/NAVFAC Mid-Atlantic
Norm Bryson/RAB Member
Gena Townsend/USEPA Region 4
Cynthia Rester/RAB Member
Randy McElveen/NCDENR
Jerome Ensminger/RAB Member
Joe Colella/Shaw
Lenny Siegel/Center for Public
Ron Kenyon/Shaw
Environmental Oversight
Matt Louth/CH2M HILL
Christopher Bozzini/CH2M HILL
Donna Laudermilch/CH2M HILL

FROM: Donna Laudermilch/CH2M HILL

DATE: February 20, 2007

LOCATION

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

MINUTES

6:00 PM

I. Welcome and Introductions

II. Camp Geiger Former Dry Cleaners Update

Objective: The purpose of this agenda item was to provide groundwater analytical data in the vicinity of the former Camp Geiger dry cleaners (Building G920, Site 93). This discussion was led by CH2M HILL representative, Mr. Christopher Bozzini, and handouts were provided to the RAB.

Overview: At the last RAB meeting, Ms. Rester indicated there had been a dry cleaners formerly located at Site 93 (where Building G920 is currently located). Based on the location indicated by Ms. Rester, all groundwater data collected in the vicinity was reviewed and compiled into the handout provided to the RAB. According to Mr. Bozzini, tetrachloroethene (PCE) and trichloroethene (TCE) concentrations are relatively low in the

vicinity of Building G920; much lower than the levels present at Site 88, which was a known former dry cleaner. Ms. Rester indicated that the dry cleaner at Site 93 was supposedly larger than the one formerly at Site 88; however, the old building at Site 93 burnt down.

Mr. Ensminger asked whether the groundwater was analyzed for dichloroethene (DCE) and vinyl chloride. According to CH2M HILL representative, Mr. Bozzini, those compounds were analyzed, but the concentrations were low. The concentrations observed in the vicinity of Building G920 are very similar to concentrations observed across Camp Geiger (low concentrations that are difficult to tie to any one source).

NAVFAC representative Mr. Hood suggested that the contamination being remediated at Site 93 could be the remnant of a dry cleaner, since groundwater flow across the site is to the east. Base representative Mr. Lowder indicated that Cleaner, Lubricant, Protectant (CLP) was used to clean guns (greater than 50 caliber, M-60s, etc.) in the area. Mr. Lowder was not sure of the contents of CLP, but indicated it could be a possible contributor to contamination in the Geiger area.

III. Site 93 Remedial Action

Objective: The purpose of this agenda item was to provide an update on the remedial action at Site 93. This discussion was led by Mr. Joe Colella from Shaw.

Overview: The RAB reviewed a figure showing the location of Site 93. The contaminants of concern are chlorinated solvents, which were discovered in 1993 during removal of an underground storage tank (UST). Contamination at the site exists to a depth of 16 feet, groundwater flow is northeast towards Edwards Creek, and groundwater is shallow (1 to 4 feet bgs).

The remedy selection process is as follows:

- Ongoing studies were conducted at Site 93 from 1997 (Initial Remedial Investigation) until 2002 (Additional Plume Characterization).
- Various pilot studies were recently conducted at chlorinated groundwater sites including an in situ chemical oxidation (ISCO) pilot study involving potassium permanganate injection at Site 35 (completed in February 2005).
- A Feasibility Study for Site 93 was completed by CH2M HILL in November 2005.
- Groundwater models showed that North Carolina groundwater quality standards could be met within 7 years in the source area versus 14 years with a no action approach.
- ISCO using potassium permanganate was selected as the appropriate remedy (to decrease the remediation time).

The RAB reviewed a figure of the treatment area, which includes:

- 200 injection points, spaced 10 feet apart.
- Injection points installed 16 feet deep with 10 feet of screen.
- Monitoring wells installed outside of the treatment area to a depth of 20 feet.

A total of 92,000 pounds of potassium permanganate will be diluted to 2.8% in solution, for an estimated total of 397,000 gallons of solution injected into the treatment area.

The project chronology is as follows:

- 10/2/06 - Begin installation of the injection well field
- 10/3/06 - Install 5 monitoring wells and continue well field installation
- 10/24/06 - Install batch mixing plant
- 10/25/06 - Complete test injections using potable water
- 10/30/06 - Begin injecting potassium permanganate solution

The RAB reviewed photos of the injection system.

The current status of the remedial action is as follows:

- Injection has been very slow due to the high groundwater table
- The injection field work has run 90 days with only 25% of the material injected
- There was a release to an unnamed tributary to Edwards Creek
 - Reagent by-passed the monitoring system and was released
 - On 12/6/06 the incident was reported to NCDENR
 - Shaw cleaned up the reagent in the stream, performed an analysis of the stream, and performed toxicity testing.
 - The data indicated no harm to the stream. The data report was submitted to MCB Camp Lejeune EMD and to NCDENR.
 - Shaw has a tank and a pump in-place to collect the reagent should a similar event occur.
 - Shaw installed peat moss check dams.

According to Base representative Mr. Lowder, the reportable quantity for permanganate is 100 pounds or more dry weight. The quantity released was much less than the reportable quantity, however, the Base decided to report it anyhow. Should a similar event happen in the future, the reagent will be pumped out of the creek rather than neutralized, because the neutralizing agent may have an affect on toxicity. NCDENR representative Mr. McElveen stated that the release was to just a tributary to the creek; the release never traveled to the creek. During this discussion, Mr. Ensminger indicated that peat check dams were probably not operating properly after the 6 to 8 inch rainfall event that occurred in December. Shaw representative Mr. Colella indicated the peat dams were blown out after the December rainfall event; and the dams have been replaced several times since then.

Next Steps:

- Wet weather has raised the water table to between 0 and 1 foot below ground surface. As a result, permanganate injections are continually daylighting within the treatment area. Shaw has requested the project be shut down temporarily until drier weather.
- Demobilize equipment from the site until May
- Perform a sampling and analysis of the monitoring wells to determine the current status of groundwater.
- Perform a pump test to define hydrogeologic flow characteristic.

- Evaluate alternate delivery methods.

According to Mr. Ensminger, by about the second week in April the site should be dried out.

IV. Site 73 Pilot Study Update

Objective: The purpose of this agenda item was to provide an update on activities at Site 73. This discussion was led by CH2M HILL representative, Mr. Bozzini.

Overview: Site 73 is located at Courthouse Bay. A horizontal well was previously installed (to a depth of 80 feet) as part of a pilot study, which was unsuccessful; so the Partnering Team decided to try another approach using the horizontal well. The plan for the pilot study is to attach the existing air sparge equipment from Site 86 to the horizontal well at Site 73. An air sparging study will use all existing equipment, so there will be no major capital elements.

During this discussion, Mr. Ensminger asked: (1) what concentrations are present at the Site and (2) when air is blown into the ground, where is it going to go, and (3) what about vapor intrusion. According to CH2M HILL representative Mr. Bozzini, there is one monitoring well with concentrations on the order of 500 to 1000 parts per billion (ppb). There are a lot of monitoring wells at the Site which should provide enough opportunities for the air to escape. The wells have been retrofit with "breather" caps to allow the system to vent. In addition, vapor wells have been installed around the building, and pressure measurements have been taken inside the building.

Mr. Ensminger questioned why ozone was not being used. Mr. Bozzini explained that ozone will be used (the entire system from Site 86 will be moved). Mr. Ensminger suggested that since there wasn't really an opportunity to use ozone at Site 86, try ozone by itself first, then if it doesn't work use air. Mr. Bozzini indicated that the air compressor was needed to get the ozone to depth (80 feet bgs), so both air and ozone will need to run simultaneously.

Tasks completed to date include:

- Moved equipment from Site 86 to Site 73
- Restored Site 86 (mowed grass, seeded, removed sign, capped well)
- Set up system from Site 86 at Site 73, retrofitted existing wellhead, and installed four soil vapor wells

Upcoming tasks include:

- Install sub-slab probes inside Building A47 to monitor pressure (pressure measurements will help evaluate if air is entering or exiting the building.
- Start-up system and operate for one year

Pilot study monitoring will include:

- Groundwater (15 wells) and soil vapor (4 wells) monitoring
- Collect baseline samples and then sample 1, 3, 6, 9, 12 months after start-up
- Analyze for VOCs

- Evaluate water levels, DO, and ORP

The plan is to start the system up next week (the week of February 12th), operate the system until January 2008, and periodically monitor the system performance.

Mr. Ensminger asked how often indoor air would be tested inside the building. Mr. Bozzini indicated that testing would be done at the same interval as the groundwater monitoring. Pressure will be tested inside the building using the sub-slab probes, and the soil vapor wells located just outside the building will be tested. The challenge is that the building is a vehicle maintenance shop. As a result, indoor air sampling results could be attributable to maintenance activities rather than the pilot study. The purpose of the probes is to monitor any pressure buildup under the slab. If pressure rises, there is a chance for it to push upwards. The NAVFAC representative, Mr. Hood indicated that there are numerous monitoring wells screened at the same interval as the horizontal well, as well as at numerous intervals above the horizontal well. Those wells combined with the pressure probes should be a good indicator of what is happening in the subsurface. If pressures/concentrations start to increase, the system will be shut down. Mr. Ensminger also asked about product forming on the underside of the "breather" caps. Mr. Bozzini stated that the groundwater concentrations are not near levels indicative of "product". Moisture due to high humidity air may form on the underside of the caps, but it is definitely not product.

During this discussion, Mr. Ensminger asked how often the progression of the deep aquifer plume at Site 88 is being checked. Mr. Bozzini indicated that additional sampling would be completed this month or next month. The plume has been delineated horizontally, and is not at the river yet. The plume has not yet been delineated vertically (have contamination to a depth of 100 feet). Mr. Ensminger indicated the plume was past the theater and past the pool. Mr. Bozzini agreed, but indicated that an end point has been defined; clearly showing the plume is not at the river. Further, the investigations have determined how fast groundwater is moving at Site 88.

V. Next RAB Meeting

Mr. Lowder informed that RAB that he wants to schedule an open house in April, which will include all departments, not just the Environmental Management Division. Currently the open house is scheduled for April 27, 2007, near the PX and Commissary.

The Next RAB Meeting will be **Thursday, May 17, 2007 6:00 PM - 8:00 PM**. Mr. Bob Lowder will secure a location for the meeting and send the information to the RAB members. Agenda topics for the May RAB meeting will include: an update on Site 88, an update on Site 89 treatability studies, data from Sites 82 and 73 pilot studies, and a timeline of activities to be completed at Site 69.

During development of the agenda for the next RAB meeting, Mr. Hood informed the RAB that the results of the investigation for the dipping vat sites indicated that two of the three sites are clean; the third will need to be investigated further due to the presence of arsenic.

Mr. Lowder also informed the RAB that the membership sent Mr. Humphries a card and fruit basket. When Mr. Lowder talked with Mr. Mattison about three weeks ago, he indicated that Mr. Humphries isn't doing better or worse.

