United States Army Corps of Engineers – New England District
Cold Regions Research and Engineering Laboratory (CRREL)
Restoration Advisory Board

Minutes of Meeting #19

Wednesday, September 13th, 2017
Richmond Middle School (RMS) Library
Hanover, New Hampshire

Attending: Jeff Pickett - Amec Foster Wheeler – Jeffrey.Pickett@amecfw.com
Rod Rustad - Amec Foster Wheeler – Rod.Rustad@amecfw.com
Darrell Moore (Chair) – USACE - Darrell.A.Moore@usace.army.mil
Ken Richards – NHDES – Kenneth.Richards@des.nh.gov
Kristine McDevitt – Community Member – Kristinemcd@hotmail.com
Glen Gordon - Amec Foster Wheeler – Glen.Gordon@amecfw.com
Chief Martin McMillan – Hanover Fire Dept. Martin.McMillan@hanovernh.org
(Came in at approximate 4:15)

Observing: Jack Besse - Amec Foster Wheeler – Jack.Besse@amecfw.com
Bryan Ambrust– USACR-ERDC – Bryan.R.ambrust.civ@mail.mil
Terry Harwood – CRREL– bartlett.harwood@usace.army.mil
Gary Pasternak – CRREL

Agenda:

- Review/Accept May 17th Meeting Minutes
- Remedial Investigation Report Update
- 30-Day Aquifer Pilot Test Update
- Rivercrest Soil Gas Sampling
- Feasibility Study
- Upcoming Work
- Schedule Next Meeting
- Adjourn

Items comments and notes:

The May 17th Meeting Minutes were quickly reviewed and accepted as noted.

Accepted Meeting minutes

The September RAB meeting was initiated with a review of the above agenda from the ppt slide package.

NHDES indicates that comments on the RI are eminent. There may be some discussion around the Risk assessment triggers and US EPA vs NHDES review.

There was a discussion about timing of public comments plus NHDES comments informal comments will be forth coming during the public review period.

AFW reviewed and communicated the purpose of the constant head test. The objectives and location of the new extraction wells was reviewed and discussed.

AFW indicated that the new extraction wells were pumped at 25 and 30 gallons per minute (GPM) with the intent of trying to optimize the capture of the onsite TCE plume.

Additional analytical samples were collected during the constant discharge test to collect data to assess the impact of the new extraction wells ability to reduce the amount of TCE reaching the extraction well is the sand and gravel esker.

There was a discussion and review of the drawdown with in each well and possible extent of capture and radius of influence with the pumping wells.

NHDES asks if this work is this part of the remedy or is it an optimization effort. AMFW indicates that the constant rate test is an effort to evaluate the potential for more effectively capturing the TCE plume east of the esker.

AFW reviews the soils gas sampling and analysis at Rivercrest. The number and location of the new soil gas sample probe installations is reviewed and discuss the four new locations are in the northern portion of the Rivercrest property. This event also allowed us to review the historical soil gas data with June data collected in 2017. Sampling was conducted under stable barometric conditions. The additional installations were completed at the request of Dartmouth College in support of a potential property transfer at some point in the future.

NHDES inquiries about the plan for submitting the Rivercrest data to NHDES? The Army indicates that additional data was collected for Dartmouth College as part of a potential property transfer and not as a result of additional RI activities at CRREL. NHDES expresses some concern that CRREL is or has collected the additional soil gas to the north as a result of not being comfortable with the soil gas extent delineation to the north of CRREL.

Army again reiterates the soil gas data was collected in support of Dartmouth College and at their request as a component of a potential property transfer.

RAB member questions if we and the Army should we be looking farther to the south in the Dartmouth housing areas. There was discussion of previous data located to the south and how this data had shown minimal positive detects of TCE in soil gas to the south of CRREL.

NHDES wants to get all the environmental data including soil gas within 45 days. Not sure if GW data NHDES rules applies to soil gas data. NHDES wants a data report it does not have to be a complete report.

GW samples collected during constant rate test were analyzed with the hapsite unit and not an offsite lab. NHDES indicated they would like to get all data earlier rather than later.

Additional discussion with NHDES about giving NHDES data especially from off site locations.

The additional soil gas data collected from the northern portion of the Rivercrest property was collected and was completed specifically for a potential future land transfer from Dartmouth not as part of or an expansion of the CRREL RI.

AFW moves forward with an overview of the Pilot testing at AOC 2 and AOC 9.

AFW engineer reviews the extraction amounts from AOC 2 There was approximately 500 gallons TCE collected to date from AOC 2 and about 100 gallons at AOC 9. As of the end of August 2017 AOC was shut down and we are completing a rebound test at AOC 9. AOC 2 continue to operate and collect vapors on carbon.

NHDES asks when we will we be shutting down the pilot systems down entirely? We are currently working on an EE/CA to justify keeping the systems running and to evaluate and justify expansion of the SVE system. NHDES expresses some concerns about one system pulling contamination from one area over to another area.

NHDES asks to define EE/CA for the RAB members

Army clarifies that an EE/CA is and engineering Evaluation and Cost Analysis.

The Army further indicates that continuing with the two pilot systems is not a given under CERCLA.

Some RAB members ask if there are ways to share the success of the CRREL project with other and others in other communities. Would like to see additional folks get the results from CRREL Lenny Siegel name come up and how Lenny is sharing data via his site.

Army explains that the CRREL site has massive amounts of data and this is shared up through the DoD.

Good example is the use of the hapsite unit by Air force vs Army CRREL use. Also some of the experience and data are being shared via papers about CRREL at conferences like Battelle.

How much soil gas extraction do we need to do before we can stop the extraction sites? Soil gas is an unusual media and this is a very difficult concept to determine how much soils gas is removed and how much we need to remove to no longer impact ground water.

At what point do we stop extracting soil gas? What quantity of removal or removal rate is it still cost efficient to keep removing TCE? There is currently no defined answer to these questions, it would be great if we could remove it all.

The group then moved on to review of the drafts FS and that process going forward. Review of the RI and FS process.

AFW provides a review of the RI Results and what the issues are at CRREL. Risk assessment issues are with construction workers and hypothetical risks associated with drinking the groundwater at the CRREL site.

The feasibility study will address the construction worker risks and vapor impacts to GW. The future VI and future Indoor sources have not been totally quantified. May need some additional testing with in the main lab to quantify future VI risks and potential impacts with TCE contaminated build materials as well as some of the roof and storm drains.

NHDES How close are we to being done with some of the issues internal to the buildings. -73 line Cold rooms some other issues like storm water system. Army indicates that the -73 line will eventually be totally removed. The cold rooms' roof drains and storm sewers are going to take some time to fully address.

NHDES Internal building components are not an issue the NHDES regulates.

AFW describes the results of IA sampling from 2014 through 2017.

AFW reviews the results of the healthmate tests from 2012 and a proposed a future sampling event to show the effects of turning off the air purifying healthmates.

There is a brief review of the sub slab data and vapor trends in the main lab. Generally the data over the last 4 years are showing a downward trend with respect to indoor air issues at CRREL, which is really good thing for CRREL.

AFW moves on to a review of the components of the feasibility or clean up study that will evaluate the best technically and cost effective method of cleanup of the CRREL site. Alternatives for cleanup will be evaluated against 9 different criteria in the FS and AFW provides a slide of the 9 criteria.

Currently 7 alternatives are planned to be evaluated and include the following:

Alt 1. No Action. This is a required alternative to be evaluated.

Alt 2. GW treatment and O&M current method + Institutional Controls

Alt 3. Alt2 +Plus larger more robust SVE to control soil gas to reduce risks to construction workers. GW risks controlled with institutional controls + Pump and treat GW for 30+ years

Alt 4. Alt 3 + Thermal treatment of soils to liberate TCE from soils. Much faster method but expensive + pump and treat for 30+ years

Alt 5. Thermal + enhanced GW treatment AFW describes the difficulty of using chemicals to treat GW and how the variable permeability of the soils would require hundreds of wells and injection point to get materials into the ground to treat water

Alt 6. Thermally enhanced + Bioremediation (enhanced reductive dechlorination)

Alt 7. Thermally enhanced SVE with air sparging which is pretty conventional and may be effective. Still require lots of wells and will be expensive due to the depth of water at CRREL site

NHDES comments that NH does not consider Institutional controls for Groundwater. All groundwater will need to be remediated to the standard.

NHDES also comments that the natural attenuation range for 30+ years is not appropriate Army will need say or define some endpoint for Groundwater cleanup.

There was a fairly lengthy discussion about the general costs of some of the cleanups and some are expected to exceed 100 million dollars. And even if these amounts are spent there is no guarantee of a clean site at the end of the process.

There was additional discussion of the proposed plan phase of the decision process after completion of the FS. The Army indicated that there will be many more meetings and opportunities for others in the community to provide comments and opinions before any clean up decisions are made at CRREL. The Proposed Plan Phase will require a formal public meeting where the public is invited to provide their comments either in writing or verbally at the meeting. The proposed plan phase will also include a 30 or 45 day comment period where anyone can submit comments to the plan and the comments will need to be addressed in a responsiveness summary.

Brief discussion of the work done in the CT River. NHDES made a suggestion that Army may have to also look at doing some cleanup associated with sediments in CT River. Issues in VT may be dealt with by VTDES.

There was additional discussion about the Army's plan to do groundwater sampling in October with sample analysis for PFAS and PFOAs. More to come of this topic after the sampling and analysis is complete. NHDES suggested that PFOA and PFAS sampling and analysis results could change some of the cleanup approaches at CRREL. USEPA only has a health advisory and it is pretty low value. NH has its own values.

After further discussion about public input to the cleanup decisions a motion was made at 6:20 to adjourn and likely meet again in January 2018.