

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

Minutes of Meeting #27

**Wednesday, October 14th, 2020
Virtual via MS Teams**

Attending: Scott Calkin – Wood E&IS – Scott.Clakin@woodplc.com
Rod Rustad – Wood E&IS – Rod.Rustad@woodplc.com
Darrell Moore (Chair) – USACE - Darrell.A.Moore@usace.army.mil
Robin Mongeon – NHDES – Robin.Mongeon@des.nh.gov
Roelof Versteeg Community Member - Roelof.versteeg@gmail.com
Kristine McDevitt – Community Member – Kristinemcd@hotmail.com
Terry Harwood – Cold regions Research and Engineering Lab (CRREL)
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Chief Martin McMillan – Hanover Fire Dept. Martin.McMillan@hanovernh.org
Jack Besse – Wood E&IS -Jack.Besse@woodplc.com
Bree Carlson - Dartmouth College
Stephanie Monet – NHDES- Stephanie - Monet@DES.nh.gov

Observing: Amy Rosenstein – USACE- Amy.B.Rosenstein@USACE.army.mil
Amy Quintin -Wood E&IS, Inc. Aimy.Quintin@woodplc.danielcom
Dan Adam – Wood E&IS, Inc. Daniel.Adam2@woodplc.com
Steven Lamb – GZA – Steven.Lamb@gza.com
Jeff Pickett – Wood E&IS – Jeffrey.Pickett@woodplc.com

Agenda:

Subject Matter

- ▶ Soil Vapor Extraction Pilot Test
- ▶ Supplemental Remedial Investigation Report
- ▶ Feasibility Study Update
- ▶ PFAS Site Investigation Report
- ▶ Richmond Middle School Sampling

Question and Answer

Adjourn

Items, comments, and notes:

Introduction and comments by Darrell Moore. Darrell welcomes the group and thanks Wood for setting up the meeting.

Review of the Jan 2020 meeting minutes. Review and acceptance of meeting minutes.
Introductions: Stephanie Monet and will be taking over for Robin as POC for NH DES.

No changes needed to the meeting minutes and motion to accept January 2020 meeting minutes; motion is seconded and meeting minutes from January 2020 are accepted.

Updates on the Enhanced Permeability Pilot Status. Major issue was air flow from the shallow soils. Sand lenses were added at 5-foot intervals to increase the permeability of the soils and increase air flow from 10 feet down to 50 feet.

Wood also installed 3 additional shallow vapor extraction wells at AOC2 and AOC9. The location of the enhancements and additional shallow vapor extraction wells is shown to the RAB via a figure.

The idea of the enhancement was to increase air flow from shallow soils and increase potential for recovery of more TCE from the shallow soils. Since June, approximately 62kg of TCE has been removed from AOC 2 and 20kg of TCE from AOC 9. Or about 14.8 gallons total TCE from AOC 9 and AOC 2. Most of this TCE has been removed from the shallow soils from ground surface to 50 feet below ground surface (BGS).

Wood personnel show a slide that portrays the amount and concentration of TCE that has been removed by each new and existing well at AOC2 and AOC9, since the restart of the SVE pilot systems.

Wood and the Army will continue to monitor AOC 2 and AOC 9. Some rebound was observed at AOC 2 during the shutdown but very little rebound during the period of shutdown at AOC 9.

Since the enhancement, the SVE systems are likely drawing 10x more air out of the shallow soils than before the permeability enhancements to the shallow soil zone.

There is a question about vapor extraction well 5 and the increasing trends in this well. Wood and Army are continuing to monitor this. It is not unexpected to see fluctuations in soil vapor concentrations.

COE also mention that there are barometric effects on the soil vapor and it is not unusual to see increases and decrease in soil vapor concentrations.

Other questions about the SVE pilot?

Feasibility Study for AOC 2 and 9 is now nearing completion.

FS status update is presented. There has been some enhancement to the FS from a Risk assessment perspective. Wood and the Army have added some additional ARARs to the FS at the request of NHDES via their comments on the FS.

The FS for the CRREL site is robust and has looked at many different approaches and process to clean up the sites and groundwater.

Next step in the process after the Final FS will be to complete a proposed plan which will require a public meeting and will be open to comments from the general public when the draft final

proposed plan is completed. Many sites take decades to complete just a remedial investigation. COE expects that the Proposed Plan for CRREL may be available mid to late 2021.

Next, there was a presentation and overview discussion of the status of the Supplemental Remedial Investigation being completed for the CT River. The Supplemental Remedial Investigation focuses on the 1970 spill that went into the CT River and a number of Residences in VT that were connected to public water lines in 1993 and 1994 after TCE had been detected in one residence's private well water.

Wood personnel indicate that currently the Supplemental RI is not indicating any significant human health or ecological risks associated with RI findings in the river system.

Supplement RI will likely be ready for RAB review in early 2021.

Wood and The COE are in contact with VTDEC and will work closely with VTDEC relative to groundwater reclassification on the VT side of the CT River. VTDEC has had an unofficial process for doing the reclassification, however it more recently has become a formal process.

PFAS Sampling and Analysis update

Early 2017 facility received request from NHDES for CRREL to sample wells for PFAS family of compounds. That sampling and analysis has been completed and an SI report is being finalized to formally provide the data from the PFAS sampling and analysis.

There was 1960s fire at CRREL. Fire was in the main lab. The fire likely predates the use of PFAS compounds that historically been found in Aqueous Film Forming Foams (AFFF) which were used primarily by the US Air Force to fight fuel and aircraft fires. Very unlikely AFFF was used to combat the 1960s fire at the CRREL Main Lab.

Review of the infamous July 1970 release of TCE from ab above ground storage tank (AST). The AST was located behind, west of the, main lab in an area known as AOC 9. The tank deflagrated when a workman was welding on some piping attached to the AST. It has been reported that the deflagration of the AST cause about 6000 gallons of TCE to be release to the ground surface and the Hanover fire Dept. helped with the general cleanup by washing residual TCE into the CRREL stormwater system which discharged to the CT River.

Wood personnel reviews the result of the PFAS sampling via Chem box figure

Wood personnel provide a general review the geology and SCM and discusses the types of the soils at CRREL.

PFAS sampling and analysis results are shown to the RAB via a the chem box figure that is in the current Draft of the SI. PFAS compounds are in the groundwater at the CRREL site but are all below the Federal health action level as well as the NHDES state standards. Wood also points out that there are some locations and wells where no PFAS was detected in groundwater.

Chief Martin asks if PFAS is coming onto the property via the river. Wood indicates that there many potential sources of PFAS in the environment including air deposition and transport.

Richmond Middle School (RMS) indoor air sampling discussion and results.

RMS non detect for TCE including sub slab samples (SS) and indoor air samples (IA)

There was one RMS detection of TCE and was in an outdoor air sample. Detected concentration was 0.6 ug/m³ in area of the ballfield. For comparison, "action level" at CRREL is 8.8 ug/m³.

No sample was obtain in the outdoor air sampler located to the east of the school as the flow controller malfunctioned during sampling and Wood personnel were unable to extract a sample from the bottle vac used to sample this location.

All is good at the school and COE and Wood anticipated resampling the RMS again in August 2021.

Wood hands off the presentation to the COE to update what future work will be happening at CRREL.

Daily monitoring at the Main lab and the FERF and LMO will continue into the foreseeable future as there have been some low level detection of TCE typically in the 2 to 3 ug/m³ vs standard of 8.8 ug/m³ which is "action level" at CRREL.

Continue to sample the CRREL Main Lab sub slab removal and treatment system.

FS should be wrapping up soon after responding to COE CX and NHDES comments.

Pushing hard to get a Draft Proposed Plan in mid to late 2021.

Will do another synoptic round includes all soil gas point including Dartmouth properties.

Questions for this evening?

Schedule another RAB meeting in Jan 2021 Likely focus on the Supplemental RI Results and finding some of which have been shared previously with the RAB.

Copy of the slides to all on the RAB via email later today.

Meeting adjourned at approximately 1700 hours