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

**Minutes of Meeting #7 (Approved)**

**Wednesday, November 21, 2014**
**Richmond Middle School (RMS) Library**

Attending: Tim McNamara, Dartmouth College, Community Co-Chair
Darrell Moore, USACE-NAE, Co-Chair
Katherine Connolly, Town of Hanover
Kristine McDevitt, Citizen Volunteer
Steve Gaughan, Citizen Volunteer, CRREL employee
Ken Richards, NHDES
Rod Rustad, Amec
Scott Calkin, Amec
Jeffrey Pickett, Amec
Larry Cain, USACE-NAE
Bryan Armbrust, ERDC-CRREL
Larry Danyluk, ERDC-CRREL

## Agenda:

1. Welcome and introductions
2. Adopt minutes of Meeting #6
3. Comment, observations and questions since last meeting
4. Feedback from Community Open House
5. Update on ongoing investigations, topics to include soil vapor pilot implementation, Hapsite work in the Main Laboratory, soil sampling results from AOC15
6. CRREL news and activities
7. Next meeting: Agenda, Date and Location
8. Comments & Questions from the public
9. Adjourn

## Discussions:

1. Welcome and Introductions

2. Reviewed previous RAB minutes and RAB voted to accept the last meeting notes.

3. Review of the Open House Communications

   Kristine McDevitt noted that she received a couple of emails with additional questions about sampling. She also represented that although the open house was not well attended the folks who did attend stated that it was helpful and that it was good to see the facility outreach.

Darrell reviewed the sampling programs for Soil Vapor at the schools. Soil Vapors: variation impacts would be more via diffusion and not via the barometric effect. USACE will still be monitoring the school and subsurface soil vapors in deeper soils and shallow soils at the school through 2015 as per a memorandum of agreement with SAU 70
The Corps has done over a year of regular sampling at the school. Scheduled to complete 4 Hapsite events and 2 summa Events with TO-15 offsite lab analysis. The school got an email that was incorrect about sampling at school vs. CRREL. In the past year, there have been 2 events at CRREL and 4 events at RMS.

At CRREL, we do Hapsite sampling daily trying to track down vapor intrusion and indoor air issues that have been of concern. The school has not had similar indoor air readings.

USACE has done 6 sampling Summa events of indoor air at the school with only minimal, very low data. No remediation is necessary or planned for school property at this time. The message to parents is that additional sampling will continue at RMS and nothing has really been detected at the RMS.

RAB members noted that neighbors remain concerned to the south and east of the school and CRREL. Explained that the Corps has no plan of extending existing monitoring network.

There is a Soil Vapor Extraction (SVE) Pilot Test underway at CRREL. This is being conducted to see if SVE will reduce soil vapor concentrations on CRREL site, and possibly mitigate concentrations off-site.

USACE is not planning to extend the offsite sampling network but will collect additional sampling from existing points more likely in the spring vs doing in winter due to being able to find the SVE implants.

Question: Were soil samples collected in Fletcher Circle?
No, only soil vapor samples- No detections of indoor air or subslab vapors at Fletcher Circle. USACE notes that there is not too much of concern with soil vapor at Fletcher Circle in the shallow soil, but there may be some deep (>50') issues nearby on the CRREL property.

RiverCrest may have some issues in shallow soils. We may need to do some additional sampling. The USACE is working closely with Dartmouth College to eliminate any future soil vapor pathways on the north side of CRREL. Risk mitigation at RiverCrest should be easy to design and address potential VI issues for new buildings at RiverCrest. USACE and Dartmouth are talking and will work agreements to address VI risk.

Lack of attendance at Open House may be result of public believing that most things are under control. Neighbors are still concerned about effects on houses from CRREL. Keep communications open; neighbors are still concerned and want to stay informed.

4. Ongoing work at CRREL- See Slide One

Scott Calkin of AMEC provided an overview of extraction well locations and monitoring network for the SVE Pilot System. Scott showed a picture of SVE System Layout and

provided provisional data and profile of soil TCE Vapor Concentrations with depth at AOC 2.

Discussion about Pneulog- Scott Calkin stated that the Pneulog data would be presented in greater detail at future meeting.

We reviewed sampling and analysis results from the former greenhouse area. Additional sampling was focused on shallow soils associated with utility trenches. Some samples showed fuel contamination associated with soil in sewer and storm sewer trench at 6-11 feet in depth. Soils data showed GRO/DRO/SVOCs/VOC/s definitively. Fuel impacted area was 40'x10' (Length x Width).

Steve asked if we can quantify the amount of TCE in soils at AOC 2 and how did it migrate to where it is now. Scott Calkin and Rod Rustad explained that the project was in the process of calculating estimates of mass in soil, air, and groundwater as part of the remedial investigation analysis of data. Those data will be presented at a future meeting as the analysis is ongoing.

5. Discussion of Use of Hapsite at CRREL

There are now 2 Hapsites at CRREL. One is used to monitor indoor air and for risk evaluations by NAE. The second unit has been used to support SVE Pilot and looking for other potential sources in the Main Lab and Cold Rooms.

Legacy piping (-73 line) in Main Lab may be contributing to the indoor air issues. TCE has been detected in glycol in the legacy piping. Current thought is to clean one of the major lines, flush it and then hook it up to the Vapor Extraction System.

The Multipurpose Room (MPR) and other extraction sub slab points may be very effective at cutting off Vapor Intrusion from beneath the Main Lab.

Ms. McDevitt asked about the roof drains. Scott Calkin stated that retrofits had been made to selected roof drains and other appurtenances.

Q: Is TCE Flammable? A: No TCE is not flammable and is not what caused the tank to explode in 1972.

Question about how long the carbon filters would last in the Healthmate units. Scott Calkin informed the group that engineers have calculated that on average the carbon could be exhausted after three years of use. The facility is conservative and the filters are changed out approximately every 18 months.

6. Meeting with CRREL Employees

Darrell provided an update on the communications with CRREL employees. It was suggested that we tie monthly RAB meetings to meetings with CRREL staff as we have done today.

7. Peer Review – 3rd Week of January, Tues/Wed/Thurs

   3 Day Peer Review involves meetings with outside experts to review the work that has been done to date. Peer Review was actually done previously with some outside consultants—this next one will be more inclusive as the project has grown.

8. Status of VT activities across River in VT west of the CRREL property owners.

   USACE will be looking to sample deep bedrock wells (not soils) on Vermont side. We still need to get any internal approvals, then land owners permissions. Our plan is to check the wells in VT to see if they are still impacted. We have found very few if any impacts to deep wells on CRREL site. USGS may have done work on wells and in the river in the Hanover area.
   USACE may have NHDES reach out to USGS.

9. Child Development Center (CDC) email

   Has USACE been sampling at the CDC? NAE/AMEC has restarted weekly sampling at CDC for approximately 6 weeks. Will reduce CDC sampling back to monthly sampling events at CDC going forward.

10. Next Meeting Date: February 4, 2015

    Next agenda/action Items:

- Briefing on the Peer Review
- Future work
- Review schedule and what actions may be forth coming