

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

Minutes of Meeting #16

**Wednesday, October 12, 2016
Richmond Middle School (RMS) Library**

Attending: Darrell Moore, USACE-NAE, Co-Chair
Tony Daigle, SAU 70
Roelof Versteeg, Citizen Volunteer
Tim McNamara, Dartmouth College, Co-Chair
Martin McMillan, Hanover Fire Chief
Ken Richards, NHDES
Scott Calkin, Amec Foster Wheeler
Rod Rustad, Amec Foster Wheeler
Glen Gordon, Amec Foster Wheeler

Observing: Terry Harwood, ERDC
Jeff Pickett, Amec Foster Wheeler
Bryan Armbrust, ERDC-CRREL
Larry Cain, USACE-NAE
Gary Pasternak, ERDC
Larry Danyluk, ERDC-CRREL
Julie Pallozi, Amec Foster Wheeler

Agenda:

Introductions

- 1) Review Meeting Minutes from June 22nd, 2016.
 - 2) Event 13 Indoor Air Results Summary
 - 3) Event 14 Indoor Air Preliminary Summary
 - 4) Soil Vapor Extraction Pilot Update
 - 5) Groundwater Annual Summary
 - 6) Second Floor HAPSITE Indoor Air
 - 7) SCIF HAPSITE Indoor Air
 - 8) Timeline of CRREL TCE Actions
 - 9) Upcoming Work
 - 10) Schedule next meeting.
 - 11) Adjourn.
-
- 1) Introductions and sign in for the RAB members and attendees.
 - 2) Welcome from Darrell Moore co-Chair and with COE NAE
 - 3) Review and acceptance of the meeting minutes of June 22, 2016.
 - 4) Move to accept meeting minutes. Meeting minutes from June 22 were accepted as presented.

- 5) Review overall Agenda for October 12, 2016.

- 6) Rod runs through the Event 13 IA/SS sampling and results at the CRREL facility using slides for the RAB. Rod also indicates that what you will see here tonight is essentially the same slide presentation that was done for the CRREL employees earlier today.
 - a) Rod reviews the efforts during Event 13 and notes that the outside temperature during Event 13 ranged from 8 to 38 degrees F. Also had highly variable barometric pressures during the sampling event.
 - b) Samples collected during Event 13 had TCE detections in indoor air < 8.8 micrograms per cubic meter at the main Lab and other buildings at CRREL. Exception was the FERF where there was a detection of TCE at 9.1 ug/m³.
 - c) There was one ambient air sample (outdoor air) collected just north of the Main lab in the AOC 9 area that detected TCE at 32 ug/m³ and this is shown on the presentation figure as a bright yellow dot.

- 7) Rod moves on in the presentation to show the initial Event 14 IA/SS which were collected during August 2016 and notes that the data are preliminary and the Event 14 report for this event is in process of being drafted by Amec Foster Wheeler. NHDES asks Amec Foster Wheeler to check to see if Event 13 has been posted to the NHDES One Stop site. Amec foster Wheeler will check the site and load up latest approved final documents.

- 9) Amec Foster Wheeler provides an update on the SVE Pilot system results through August 2016.
 - a) AOC 2 system removed approximately 450 gallons of TCE from soil gas. RAB member asks how much was removed from the shallow soils vs deep soils? Best estimate is that 10 to 15% of the removed mass came from shallow soils and 85 to 90% came from the deeper soils.
 - b) Geo C3 System SVE pilot is currently shutdown at AOC2 and the plan is to move the Geo system to the AOC 9 over the next couple of months. Need to install 3 additional SVE wells at AOC9 including 2 shallow extraction wells and one deep well.
 - c) A carbon based treatment system will be mobilized to the AOC 2 area to continue extracting and treating soil gas at AOC 2 once the GEO system is moved to the AOC 9 area.
 - d) Amec Foster Wheeler is currently developing the pilot study work plan for the AOC 9 Area and that will be provided to the RAB and NHDES once it has been reviewed by the COE and Army.

- e) Plan to operate these system until we get new interim system designed and installed in 2017. These pilot tests and resulting data are being used to refine the designs for an interim system to extract soil gas from AOC2 and AOC9. The pilot systems should be operational by December 2016 and will continue to operate into 2017.
 - f) There was a quick review of the geological differences between AOC 2 and AOC 9. Primarily there is a thicker sequence of fine grained soils in the AOC 9 area.
 - g) Amec Foster Wheeler provided a quick review of the goals for the AOC 9 system which includes evaluation of the effectiveness of soil gas removal in the AOC 9 area and assessment of whether the system at AOC 9 can reach out and decrease soil gas concentrations beneath the Main Lab addition.
- 10) Amec Foster Wheeler provided a review of the groundwater sampling at CRREL.
- a) Amec Foster Wheeler showed the RAB an ISO concentration plot of the TCE contamination at CRREL based on the latest groundwater sampling event. It was noted that the basic footprint of the plumes at CRREL had not changed significantly since the last sampling event.
- 1) Amec Foster Wheeler provided a review of the latest indoor Air (IA) sampling program at CRREL it was noted that each summer there were typically spikes in IA concentrations on the second floor of the main Lab. Amec Foster Wheeler personnel then reviewed a number of graphs showing the spikes in TCE concentration for various years and noted that spikes and concentrations in excess of the action level (8.8 ug/m³ in 2016 were less in 2016 than previous years. Also noted that some fans had been installed in second floor plenum spaces above second floor ceilings, however the effects of the fans is not clear and more work in this area needs to be completed in future months.
- 2) Amec Foster Wheeler provided the RAB a review of the history of the RI process at CRREL.
- a.) Discussion of the current RI report and the air risk assessment. Noted by several Amec and COE personnel that the RI Report is now with the COE and it is a large and very complex document. The current plan is to have other organizations within the Army including CRREL, Omaha CX, and AEC personnel review the Draft RI over the next 45 days Depending on comments from the internal Army review, it may take up to 90 days to be reviewed before review by NHDES and the RAB.
 - b.) The Human Health risk assessment within the RI is lengthy and complex due to the indoor air issues at CRREL. The Human Health Risk assessment used both the TO-15 Summa sampling data as well as separate risk assessments using Hapsite data. There are several exposure scenarios evaluated in the risk assessment.
 - c.) October 2015 was the end date for the data used in the RI Report.

- d.) There was a discussion about what aspects of work that fall under an OSHA standard vs CERCLA. The COE represented that current TCE issues at CRREL do not fall under the OSHA standard.
 - e.) There was some additional discussion about the draft Feasibility Study (FS) and what the FS document would contain and how the FS document would evaluate various clean up options for TCE at CRREL . A no further action scenario is an alternative evaluated in any FS as well as several other types of remedial alternatives for soil, groundwater, and air.
 - f.) Ultimately the COE in conjunction with Amec Foster Wheeler will develop a proposed plan which would describe a selected clean up approach or plan for the CRREL facility. The proposed plan would need to be vetted by stakeholders including the general public via a 30 day review period. It was noted that the timeframe for public comments can be extended.
 - g.) Ultimately before a final remedy can be implemented there will need to be an Army Decision Document drafted that describe the proposed cleanup plan at CRREL. Given the likely cost of the clean up the Decision Document may need to be signed by the Secretary of the Army and this may take an extended amount of time due to the review process.
 - h.) There was some additional discussion of the existing groundwater treatment system and potential plans to put in a newer system to cut off the groundwater plume closer to the AOC 2 and 9 areas. Additional aquifer testing will be completed before the new groundwater treatment system can be designed.
 - i.) Additional discussion occurred about an Engineering Evaluation /Cost assessment (EE/CA) for The SVE Interim action at AOC 2 and AOC 9 after additional pilot testing is completed at the AOC 9 area.
- 3) There were questions by RAB members about what the thoughts were about the amount of time it would take to clean up the site and the cost for the clean up the CRREL site. This generated discussion but no specific time lines were given or estimated costs
- 4) The RAB agreed that the next RAB meeting would be scheduled for January 2016. January 11, 18, and 25. Consensus was reached by the RAB that January 11, 2016 is the best date.
- 5) RAB meeting was adjourned at approximately 1700 hours.