

**Approved Meeting Minutes
USACE CRREL Restoration Advisory Board
June 18, 2014**

Attendee	Phone #	Affiliation
Darrell Moore	978-318-8152	COE-NAE
Jeff Pickett	207-828-3661	AMEC
Ken Richards	603-271-4060	NHDES
Jonathan Brush	603-643-3810	SAD 71
Kristine McDevitt	603-643-1542	Citizen
Steve Gaughan	603-646-4307	Citizen, CRREL employee
Larry Danyluk	603-646-4475	COE-NAE
Dr. Robert Davis	603-677-1188	CRREL Director
Dr. Roelof Versteeg	603-443-2202	Citizen
Rod Rustad	207-828-3613	AMEC
Julia Griffin	603-643-0701	Town Manager, Hanover, NH
Dr. Richard Berg	603-298-5698	Citizen (meeting only after site walk)

Site Visit at CRREL started at 3 pm.

1. Dr. Davis introduction and discussion in conference room
 - Presentation about work at CRREL, overview and background.
 - Property is owned by USACE COE.
 - Review of mission: Cold Sciences and Cold Engineering, Cold Research.
 - Snapshot of the installation:
 - 203 Federal employees
 - 38 PhDs
 - 39 Masters
 - 20 Bachelors
 - \$19.4M payroll
 - Review of infrastructure and facilities:
 - White roofs on aerial photos indicate refrigeration areas
 - 1980 Frost Effect Research Facility (FERF) area purchased from Dartmouth
 - In 2011, USACE purchased rest of facility from Dartmouth
 - Review of the technical portfolio and major historical activities
 - CRREL developed drilling technology to drill ice and extract cores on Greenland ice sheet.
 - Originally drilling was to put on-ice facility on pilings.
 - Ice cores revealed bright and dark layers like tree rings. Bright = summer and dark = winter.
 - Bubbles trapped in ice provide data on ancient atmosphere.

- Trans Alaska Pipeline was designed to keep permafrost frozen.
 - CRREL assists National Sciences Foundation, helping them with logistics to save money getting experiments to the Antarctic and Arctic.
 - CRREL developed autonomous ice base drift buoys to track Arctic sea ice changes. Can track buoys online.
 - TCE issues at the facility have CRREL leadership involvement. Dr. Davis provides annual updates on TCE actions and status to employees at CRREL. He showed slides of:
 - TCE soil vapor hot spot figure showed maximum ground vapor concentrations.
 - Interior concentrations timeline for each sampling events 1 through 9.
 - Discussion of the final cleanup goal for indoor air concentrations. Will it go less than 8.8 or as low as 2 $\mu\text{g}/\text{m}^3$? Do not want to have clean up goal be less than background.
 - NHDES asked if some of the information could be published in the future. This questions was followed by various discussions on this topic.
 - Facility Investigation includes:
 - Auditorium
 - TIAC Basement
 - Main Lab Basement
 - Main Lab Cold Room complex
 - Ice Engineering
2. Site walk, began with visit to the Main Lab cafeteria, where a Hapsite was in use. The group also visited:
- a. AOC 2
 - b. AOC 9 Ice Well
 - c. Multi-purpose Room, with review of systems in place
3. Return to Frances Richmond Middle School for formal public RAB meeting
- a. Motion made to accept meeting minutes of May RAB meeting with no changes; minutes accepted by RAB.
 - b. Comments on site visit:
Jonathan Brush thought the site visit was very helpful. Roelof Versteeg would like to get more information and updates on activities going on at CRREL at future RAB meetings.
 - c. Fall Open House:
Suggested topics for the fall open house included FAQs about the Hapsite vs. summa canisters. Ken Richards suggested that there be a station for the RAB. Another suggestion that RAB members be at each station.
- Suggestion for a station with a simple overview presentation of the geology with a

discussion of progress to date and the Site Conceptual Model:

- Water Phase
- Geology Phase

This should also include a discussion of indoor air, subslab and soil gas results and reasons why we stopped sampling where we did.

Also, a station should discuss on-going testing, when investigations will be complete, and schedule for reporting.

Other possible topics:

- Discussion of the treatment systems to remove TCE from groundwater by the CRREL treatment plant. Approximately 2 lbs per day of TCE are being removed.
 - Review of the actions and #'s of samples taken to date.
 - Health monitoring of the facility and the questions that were asked in CRREL presentations.
 - Discussions of epidemiology studies.
4. Next RAB meeting will be Wednesday, September 10, then approximately 2 weeks later have the open house meeting. Need to hear back from the RAB on a future RAB meeting schedule and times.