**Cold Regions Research and Engineering Laboratory Restoration Advisory Board Meeting Minutes**

**February 22, 2023, 1600 HRS**

Held Virtually, via Microsoft Teams

**Attending:**

Samantha Russo (USACE)

Scott Calkin (WSP)

Jack Besse (WSP)

Jennifer Apell (USACE)

Jacob Holloway (AEC)

Richard Spiese (VT DEC)

Wolfgang Calicchio (WSP)

Amy Rosenstein (USACE)

Stephanie Monette (NHDES)

Martin McMillan (Hanover Fire/Rescue)

Terry Harwood (CRREL)

Amy Quintin (WSP)

Bree Carlson (Dartmouth)

Steven Lamb (GZA)

Roelof Versteeg (Community Member)

Mathew Bergen (GZA)

Mateo Rivera (WSP)

Ms. Samantha Russo of the United States Army Corps of Engineers (USACE) called the meeting to order at 1604 hours on February 22nd, 2023. She noted that a new Cold Regions Research and Engineering Laboratory (CRREL) Project Manager will be starting in March 2023, although she will remain involved in the project. She reviewed the agenda for the meeting and provided introductions to the project team and members of the Restoration Advisory Board (RAB) and regulatory agencies. She welcomed everyone to the meeting.

Ms. Russo motioned to approve the September 2022 RAB meeting minutes, the motion approved unanimously.

Ms. Russo handed off the presentation to Mr. Calkin. Mr. Calkin provided an update on the status of current Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) documents. The New Hampshire Department of Environmental Services (NHDES) is providing comments on the on-site Feasibility Study (FS) regarding Applicable Relevant and Appropriate Requirements (ARARs). The Proposed Plan (PP)and Record of Decision (ROD) documents will follow and are anticipated to be completed by the end of the year.

Mr. Calkin provided an update on the Draft Final Connecticut River Remedial Investigation (RI) Report. The project is waiting for comments from the NHDES and Vermont Department of Environmental Conservation (VT DEC). Following comment response, the RI will be finalized and then will proceed to an FS which is already drafted for USACE review.

Mr. Calkin provided an update to the groundwater management zone, which approximately matches the property boundary of CRREL. He detailed that the groundwater wells within the zone are sampled quarterly per an agreement with NHDES. He discussed the recent exceedances of the NH Ambient Groundwater Quality Standards (AGQS) at boundary wells MW-14-103B and CECRL-07. Due to the exceedances of trichloroethene (TCE) at boundary wells, additional work includes targeted sampling at CECRL-07 to determine if the contamination is following the conceptual site model (CSM) with higher TCE concentrations in shallow groundwater, or if the contamination is deeper, indicating a potential offsite source. If the latter is true, it is likely necessary to add wells beyond current boundary wells to identify the source. Mr. Calkin handed the presentation to Mr. Besse.

Mr. Besse provided an update on the groundwater treatment system including installation of pilot extraction wells. The well design has been separated from the groundwater treatment plant design and is proceeding, with a draft design/work plan under USACE review. He updated the group on the status of the various remedial and mitigation systems at CRREL, stating that the Soil Vapor Extraction (SVE) Pilot systems have been off since Fall 2021, and rebound sampling is continuing to monitor SV concentrations in the Area of Concern (AOC) 2 and AOC 9 source areas. Healthmate air purifiers and plenum space air purifying units continue to operate. He stated that HAPSITE® work will continue at the site daily, including periodic Sub-Slab Depressurization Systems (SSDS) and SVE rebound monitoring, and that boundary groundwater wells will continue to be monitored. The on-site FS/PP/ROD will continue to be developed, with the Draft PP due following receipt of ARAR comments from NHDES on the FS. The Connecticut River RI/FS will continue toward finalization.

Mr. Lamb from GZA asked when the next soil vapor round will be.

WSP answers that when ice melts that there may be some sampling near Dartmouth Rivercrest/AOC 2 to monitor SVE Pilot rebound. Work to date has put a big dent in the SVE plume and the groundwater plume concentration. The project will most likely wait until implementation of the full scale remediation to do a full baseline of soil gas concentration. As such, it may be two years before we would consider a larger synoptic sampling round for soil vapor.

Roelof Versteeg asked about the pilot well extraction design. Since the full groundwater treatment plant design is on hold, which is the pilot part?

WSP answers the treatment plant is fully on hold. The extraction part of the design is moving forward, as a solo item as a pilot test to characterize how the aquifer outside of the esker will behave under pumping stresses and gather certain chemical parameters other than TCE. Looking at a longer-term option to optimize the treatment plant. Pilot test data will help with optimization of the treatment plant.

Mr. Versteeg asked if the production wells (current extraction wells) are decommissioned.

WSP answers – they are still pumping and will continue to, there is overlap while those eventually are turned down and the new ones are turned up, as new wells will be further upgradient. The CSM indicated we need to pump for a year or two before the other wells can be shut down, so this is in line with the groundwater modeling.

Mr. Versteeg asked if the pilot well is a new well, is this about chemistry/contamination?

WSP answers - we did a 30-day pumping test but didn’t see full stabilization. Need regular pumping to work out the chemistry.

Mr. Versteeg asked if the groundwater model is steady state low-flow model then it doesn’t account for source/sink term. It just has boundaries. He would like to see the model updated to better represent the scenario.

WSP answers – In terms of soil gas inputs, the groundwater plume has decreased a lot due to the SVE system, so it is approaching steady state, but recognize that it is still early to assume steady state. By pumping, we’d expect to either validate the model or inform additional inputs needed to refine the model.

Mr. Versteeg comments that updating models will help improve performance.

WSP answers – The extraction wells are also about validating the model, so we know if it will work with full implementation down the road. Due to the slow-down of the groundwater treatment plant design, this allows us to still be pro-active about removing mass and we could continue to move forward.

Ms. Apell of the USACE clarifies regarding the model, that wells were put into the model and that’s how the well location was decided upon.

Ms. Russo concluded the meeting by asking meeting attendees to confirm whether they had any further thoughts or comments before the meeting is adjourned.

Ms. Russo adjourned the meeting at 1636.