Overview of Environmental Restoration at CRREL

Hanover, NH

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The U.S. Army Engineer Research and Development Center (ERDC) operates the Cold Regions Research and Engineering Laboratory (CRREL) in Hanover, New Hampshire. The ERDC-CRREL facility is located at 72 Lyme Road, two miles north of the Hanover town center. At the ERDC-CRREL facility, engineers and scientists solve strategically important problems of the U.S. Army Corps of Engineers (USACE), Department of Defense and the nation by advancing and applying science and engineering to complex environments, materials and processes with special emphasis on the Earth's cold regions.

Past Use of TCE at CRREL - Since it was established in 1961, CRREL has conducted large scale studies in controlled refrigerated environments. One of the refrigerants originally used was trichloroethylene, or TCE. TCE is no longer in general use at CRREL. In the 1970s and 1980s, several major spills and leaks of TCE occurred at the CRREL property. In 1990, TCE was detected in three of four extraction wells on the CRREL property, and in several wells in Norwich, Vermont.

Treating Groundwater to Remove TCE - USACE continues a comprehensive environmental investigation and evaluations of restoration approaches at the ERDC-CRREL property to address soil and groundwater contamination at the facility. Since 1993, ERDC-CRREL has been treating groundwater from several on-site cooling water extraction wells to remove TCE. The treated cooling water is discharged after use into the Connecticut River under a US EPA and NH Department of Environmental Services (NHDES) permit. The 2003 NHDES-approved Remedial Action Plan concluded that the on-site groundwater extraction and treatment system is successfully containing and removing TCE from the groundwater under the CRREL property.

TCE Vapor Found in CRREL Buildings - Following Department of Defense guidance published in 2009, ERDC-CRREL took indoor air samples in 2010 in several buildings on the CRREL campus to determine if TCE vapor was migrating into the buildings. TCE was detected in indoor air in several locations but at levels below short-term exposure limits set by industrial hygienists. These levels were above US EPA's Preliminary Remediation Goals for adult worker exposure. Larger and more comprehensive sampling efforts subsequently were conducted, and the results were used to prepare interim action levels based on site-specific human health risk assessment. At this time, sampling efforts continue to support the ongoing remedial investigation and interim response actions.

Interim Response Actions Under Way – Mitigation measures have been implemented at ERDC-CRREL to protect the health and safety of workers and visitors by minimizing TCE exposure. Portable air purification systems are effectively removing TCE in many rooms throughout the Main Lab and Lab Addition basements. A sub-slab depressurization system in the childcare center is effectively reducing the amount of TCE vapor entering the buildings.

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Remedial Investigations and Feasibility Studies (RI/FS) are continuing at ERDC-CRREL under the DoD's Defense Environmental Restoration Program (DERP). Subsurface investigations to pinpoint any residual sources of TCE in the soil or bedrock near the former release points are under way. Soil vapor investigations continue to explore vapor migration pathways and provide knowledge of potential off-site vapor migration. Three comprehensive rounds of indoor air testing (August 2011, March 2012 and October 2012) were conducted throughout the campus. Additional investigations in 2013 and 2014 are testing indoor air and soil vapor at ERDC-CRREL as well as the surrounding area. Testing and evaluation must be conducted over a period of at least one year to understand seasonal variability of test results. These tests follow US EPA and NHDES regulatory guidance. USACE is continuing investigations on neighboring properties to determine if vapors have migrated to buildings nearby. Those investigations include indoor air and sub-slab soil vapor testing.

Additional sub-slab depressurization systems are being evaluated for other buildings at ERDC-CRREL. USACE contractors are also assessing the feasibility of permanent solutions such as excavating soil or treating soil in place where TCE concentrations are highest.

Community Involvement Is Important- USACE is implementing a community outreach initiative to inform the public about environmental activities and seek community input on environmental restoration activities at the CRREL facility. USACE has established a Restoration Advisory Board (RAB) made up of local citizens who have agreed to participate in periodic meetings to share their interests, concerns and information needs to advise the USACE as it proceeds through the CERCLA process. For more information about the Restoration Advisory Board, see the RAB tab on this page.

Additional information about the program is available in the CRREL Public Information Repository in the Howe Library at 13 South Street, Hanover, NH 03755.

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