U.S. DEPARTMENT of ENERGY

Hexavalent Chromium Campaign

Newport News Nuclear BWXT-Los Alamos, LLC (N3B), the legacy cleanup contractor for the Department of Energy Office of Environmental Management Los Alamos Field Office (EM-LA), remains dedicated to remediating the hexavalent chromium plume at Los Alamos National Laboratory (LANL). EM-LA and N3B continue to assess, monitor, and work with the New Mexico Environment Department (NMED), the New Mexico Office of the State Engineer, Pueblo de San Ildefonso and Los Alamos County.

The Hexavalent Chromium Campaign consists of installing wells, operating the Interim Measures (IM), obtaining data necessary to evaluate corrective measure alternatives for remediation and implementing the remedy selected by NMED.

Background

- **Source:** Hexavalent chromium is highly toxic and carcinogenic. It was widely used worldwide as a corrosive inhibitor. It has not been used at LANL since the 1970s.
- **Discovery:** The first detection above the New Mexico groundwater standard of 50 micrograms per liter of water occurred in 2004 in a regional aquifer monitoring well. Hexavalent chromium has not been observed above regulatory limits in drinking water wells.
- **Location:** Water containing hexavalent chromium seeped into soil and rock beneath Sandia and Mortandad Canyons. Some migrated to the regional aquifer, which is about 1,000 feet below these canyons.
- **Size:** The plume is currently estimated to be approximately one-mile-long by one-half mile-wide.

Key Takeaways

- Hexavalent chromium is a known carcinogen.
- There is a hexavalent chromium plume confined to the uppermost regional aquifier beneath LANL.
- There is no immediate threat to human health or the environment.

Drilling the R-80 groundwater monitoring well

Cleanup Measures at a Glance

- Soil remediation and a wetland in Sandia Canyon has reduced hexavalent chromium near its surface source to decrease long-term contributions to the regional aquifer.
- The IM consists of several wells to extract water from the plume, treat the water to remove hexavalent chromium and inject the treated water back into the regional aquifer. Contaminated groundwater is pumped from up to five extraction wells to a facility in Mortandad Canyon, where it is treated with ion exchange technology. The treated water is subsequently injected into the aquifer along the southern and southeastern perimeter of the plume.
- Injection establishes a “hydraulic barrier” in the area of injection, helping to control and reduce the plume size.

Ion exchange treatment system in Mortandad Canyon