Los Alamos National Laboratory

Overview

The EM Los Alamos Field Office (EM-LA) is dedicated to the cleanup of legacy contamination left behind by nuclear weapons production and research during the Manhattan Project and Cold War era at Los Alamos National Laboratory (LANL) in New Mexico. EM-LA's cleanup mission includes legacy waste remediation and disposition, soil and groundwater remediation, and deactivation and decommissioning of excess buildings and facilities. Waste generated after 1999 is the responsibility of the NNSA Field Office (NA-LA).

Of the more than 2,100 areas of concern of potential contamination originally identified at LANL, more than half (approximately 1,100) have been investigated, remediated, and closed. These areas range from small spill sites with a few cubic feet of contaminated soil to large landfills encompassing several acres. There are two legacy groundwater contamination plumes that are being evaluated by EM-LA. One plume contains hexavalent chromium and is being managed by a pump-and-treat system on an interim basis while a final remedy is under development.

The second plume has chemical constituents, including Royal Demolition Explosives (RDX), which were used widely in World War II, and is undergoing characterization to determine potential remediation alternatives.

Approximately 500,000 cubic meters of legacy hazardous and radioactive waste is located at LANL. Most of this waste is buried in 26 material disposal areas (MDAs). Eight of these MDAs have been closed. There are approximately 3,500 cubic meters of legacy transuranic (TRU) waste stored at Technical Area 54, MDA G destined for disposal at the Waste Isolation Pilot Project (WIPP) near Carlsbad, NM. The waste is stored in configurations that are protective of the environment, workers, and the public.

In 2021, legacy debris and soil with very low levels of contamination along DP Road in Los Alamos townsite were investigated and excavated. The contamination was discovered in 2020 in land that DOE had previously conveyed to Los Alamos County. EM-LA remediated the area, known as the Middle DP Road Site, with no impact on the environment or to the community.

Sample crews wear snake gaiters to protect themselves against potential rattlesnake bites as they collect water for analysis at a spring along the Rio Grande.

Confirmatory sampling is being conducted to verify that the site poses no future risk to human health or the environment.

As part of its ongoing commitment to transparency and to maintaining a regular dialog with the Pueblos and other local communities on legacy cleanup, EM-LA frequently participates in discussions on its mission at stakeholder-led events, such as Northern New Mexico Citizens' Advisory Board meetings, Accord Technical Exchange meetings, Los Alamos County Council meetings, and Buckman Direct Diversion Board meetings. EM-LA also hosts public Environmental Management Cleanup Forums and meets monthly with LANL Legacy Cleanup Technical Working Group stakeholders.

Calendar Year 2021 Accomplishments

- **Completed 32 TRU waste shipments to WIPP**
- **Removed 114 pounds of hexavalent chromium from the regional aquifer and moved the boundry of the plume farther from adjacent Tribal lands**
- **Disposed of 1,338 cubic meters of low-level waste and mixed low-level waste**
- **Remediated 210 cubic meters of contaminated soil and debris from Aggregate Areas and transition materials**
- **Completed planned investigation and remediation of low-level radioactive debris and soil at the Middle DP Road Site**

Planned Cleanup Scope 2022–2032

Over the coming decade, DOE will focus on addressing the groundwater contamination plumes, processing TRU waste stored aboveground, and retrieving below-ground TRU waste for disposal. DOE will continue work to complete disposition of LANL TRU waste currently in storage at the Waste Control Specialists (WCS) commercial disposal site in Texas. Development of alternatives is ongoing.

Completion of the Middle DP Road Site is targeted for 2022. An assessment report with confirmatory sampling results will be submitted to the New Mexico Environment Department (NMED).

Site investigations will continue and, where required, contaminated soil will be removed from the site and transported for disposal with sampling to confirm compliant cleanup. EM-LA will begin development of a strategy to transition from groundwater characterization to a final remedy for the hexavalent chromium plume, while the interim measure will continue operation. In 2023, the final remedy for the RDX groundwater plume will be proposed for regulatory approval, and the Southern External Boundary Aggregate Area Campaign will be completed.

Deactivation and decommissioning of Building 257, industrial waste lines, and DP West slabs in Technical Area 21 (TA-21) is anticipated in 2025. This will be followed by the investigation and remediation of the TA-21 Solid Waste Management Units and Areas of Concern (AOC). The Pajarito Watershed and Upper

As part of a new processing line at Los Alamos National Laboratory's Technical Area 54, low-level waste is processed and repackaged in drums for disposal.

Water Watershed Aggregate Area Campaigns will be completed in succession, finishing in 2026, and will involve the removal of a variety of materials. The latter part of the decade will see considerable focus on completing the closure of MDAs.

Over the next decade, work at TA-54 will center on processing and disposal of above-ground waste inventories, and processing of retrievably stored below-grade transuranic waste. Waste treatment processing lines are currently active, but will be modified to address the range of materials requiring treatment. Retrieval processes will be developed for below-ground legacy waste, as necessary, to exhume waste containers of various sizes and content. Some waste items will require size reduction to facilitate packaging for transport.

Key Regulatory Milestones 2022–2032

The 2016 Consent Order between DOE and NMED establishes an annual process by which both agencies jointly determine cleanup activities on a priority basis. Cleanup campaigns in the 2016 Consent Order are organized using a risk-based approach to grouping, prioritizing, and completing corrective action activities. Legacy cleanup at LANL under the Consent Order with NMED is organized into 17 campaigns. Work is ongoing in 11 campaigns, while three campaigns have been completed. DOE and NMED establish approximately 10 to 20 Consent Order milestones annually.

A drilling contractor advances casing during construction of Well R-71.

Post-2032 Cleanup Scope

Activities associated with the deactivation and decommissioning of TA-54 structures and subsequent closure of MDA G and MDA L are expected to extend beyond 2032. This work will require additional facility infrastructure to ensure the waste is safely excavated and processed to enable shipment to WIPP.