Los Alamos National Laboratory

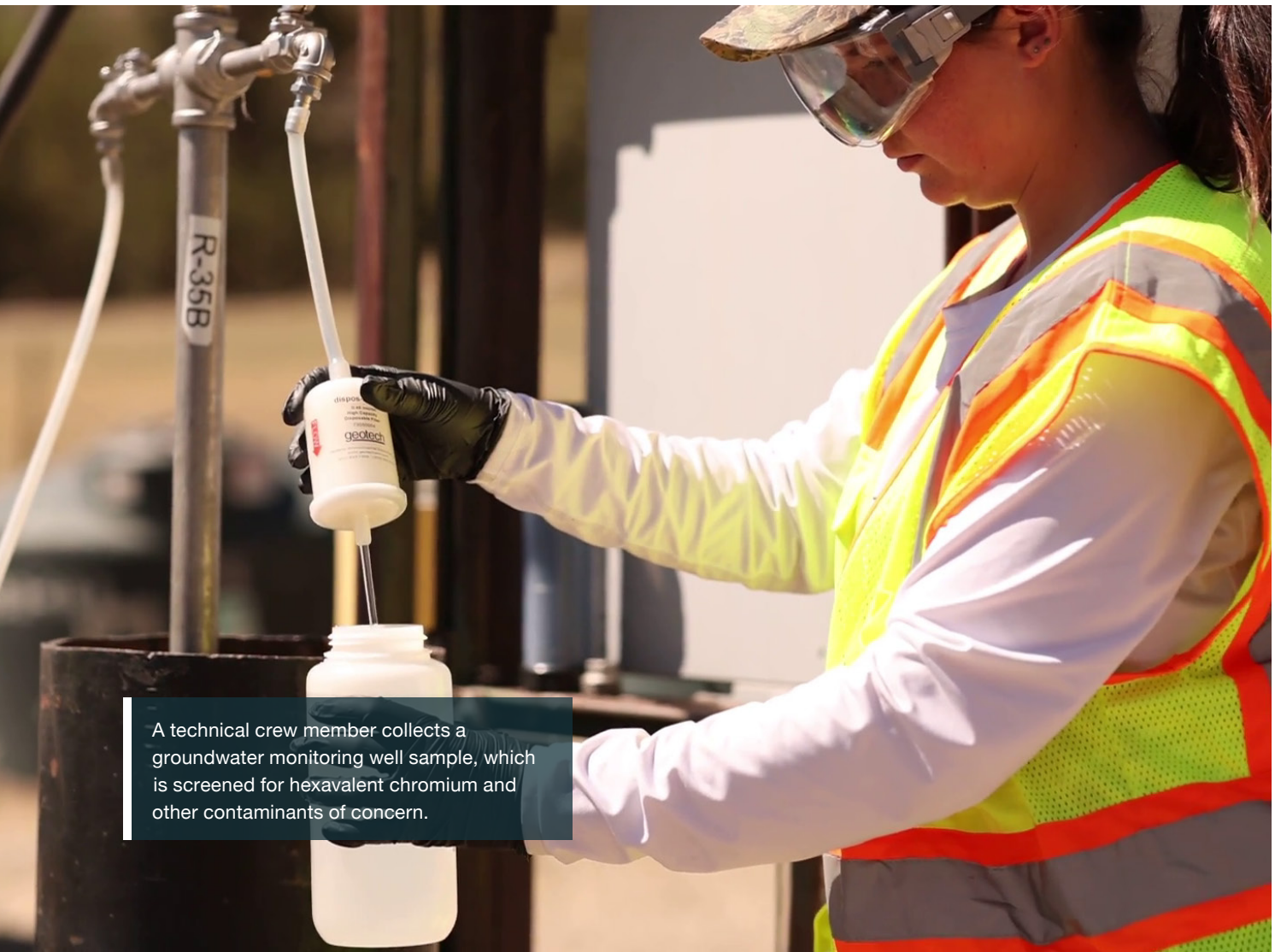
Overview

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 the deactivation and decommissioning of excess buildings and facilities. Waste generated after 1999 is the responsibility of the National Nuclear Security Administration (NNSA) Los Alamos Field Office.

Of the more than 2,100 areas of potential contamination originally identified at LANL, more than 650 sites have been investigated and remediated. These areas range from small spill sites with a few cubic feet of contaminated soil to large landfills encompassing several acres.

EM-LA is working to characterize and address two groundwater plumes. One plume contains hexavalent chromium and is being hydraulically controlled by a pump-and-treat and injection system on an interim basis while alternatives for remediating the plume are evaluated and implemented. The second plume contains chemical constituents, including explosives constituent Royal Demolition Explosives, which were used widely in World War II and the Cold War.

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 remediated. There are approximately 3,200 cubic meters of legacy transuranic (TRU) waste stored at



A technical crew member collects a groundwater monitoring well sample, which is screened for hexavalent chromium and other contaminants of concern.

Technical Area (TA) 54 destined for disposal at the Waste Isolation Pilot Plant (WIPP). The waste is stored in configurations protective of the environment, workers, and the public.

As part of an ongoing commitment to transparency and dialogue, 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, and Los Alamos County Council meetings. EM-LA also hosts quarterly public Environmental Management Cleanup Forums and meets monthly with LANL Legacy Cleanup Technical Working Group stakeholders.

EM-LA continues engagement and efforts to support the Justice40 Initiative. Justice40 Initiative engagements have been conducted with stakeholders, pueblos in northern New Mexico, local community organizations, and the public to develop a deeper understanding of how EM-LA could further support disadvantaged communities.

Calendar Year 2023 Accomplishments

- Exceeded the TRU waste shipment goal for planned shipments to WIPP
- Initiated size-reduction activities for 158 buried Corrugated Metal Pipes (CMP) containing cemented TRU waste at Technical Area 54, Area G
- Finished investigation and remediation of contaminated soils at North Ancho Canyon and Threemile Canyon Aggregate Areas
- Awarded a deactivation and decommissioning contract for the Ion Beam Facility and initiated phase one of the project
- Completed field work at the Middle DP Road Site, a project critical to the economic development of Los Alamos County
- Met all fiscal year 2023 milestones under the 2016 Compliance Order on Consent with the New Mexico Environment Department (NMED) early or on time

Environmental crew members conduct excavation to clean up contamination in Lower Water Canyon near one of Los Alamos National Laboratory's Cold War era underground explosives firing chambers.

Planned Cleanup Scope 2024–2034

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 Inc. commercial disposal site in Texas.

Work is underway at TA-54 Area G to retrieve, size-reduce, and characterize 158 CMPs containing cemented waste from a former LANL radioactive liquid waste treatment facility. Following retrieval, size-reduction, and characterization, the CMPs sections will be shipped to WIPP for disposition.

In 2024, site investigations will continue and, where required, contaminated soil will be removed from the site and transported for off-site disposal. EM-LA will continue to work with NMED to operate interim measures to control migration of the hexavalent chromium plume while further characterization is conducted to evaluate the effectiveness and feasibility of implementing a remedy. An Independent Technical Review team is being convened to bring in world-class scientific experts to conduct a review of current chromium interim measures and plume characterization, and provide recommendations to EM-LA and NMED related to continued interim measures activities and path to remedial actions.

As part of the legacy cleanup mission, EM-LA has initiated a project to deactivate, decommission and remove (DD&R) the Ion Beam Facility, an excess NNSA facility built to support post-World War II nuclear research. The facility houses two original Van de Graaff accelerators. The project will be conducted in phases starting with facility characterization, deactivation, and demolition of the administration area in 2024. DD&R includes associated ancillary facilities; slab and foundation removal, and waste disposition.

Deactivation and decommissioning of Building 257, industrial waste lines, and DP West slabs in TA-21 is anticipated in 2026. This will be followed by the investigation and remediation of the DP Site Aggregate Area (TA-21) Solid Waste Management Units and Areas of Concern and closures of MDA A (including the Generals Tanks) and MDA T.

By 2026, investigation and remediation will have been conducted on over 200 legacy contamination sites in the Southern External Boundary and Pajarito Watershed Campaigns. The latter part of the decade will see considerable focus on remediating the 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 TRU 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 2024–2034

The 2016 Compliance Order on Consent (2016 Consent Order) between DOE and NMED establishes an annual process by which both agencies jointly agree to between 10 to 20 enforceable milestones to be completed during the fiscal year. DOE and NMED also mutually established between 10 and 20 targets for each of the next two fiscal years. In addition to enforceable annual milestones, there are a significant number of other deliverables that DOE completes during the fiscal year per the 2016 Consent Order.

With the mobile loading unit, Newport News Nuclear BWXT Los Alamos operators secure the TRUPACT lid prior to shipping transuranic waste at TA-54.

Post-2034 Cleanup Scope

Activities associated with the deactivation and decommissioning of TA 54 structures and subsequent remediation of MDA G and MDA L are expected to extend beyond 2034. This work will require additional facility infrastructure to safely excavate and process waste for shipment to WIPP.

Input received during the EM LA Strategic Vision process will be considered in developing EM LA's remedy proposals for remaining legacy cleanup work. The remedies selected by NMED may change the current estimated completion dates.