Los Alamos National Laboratory

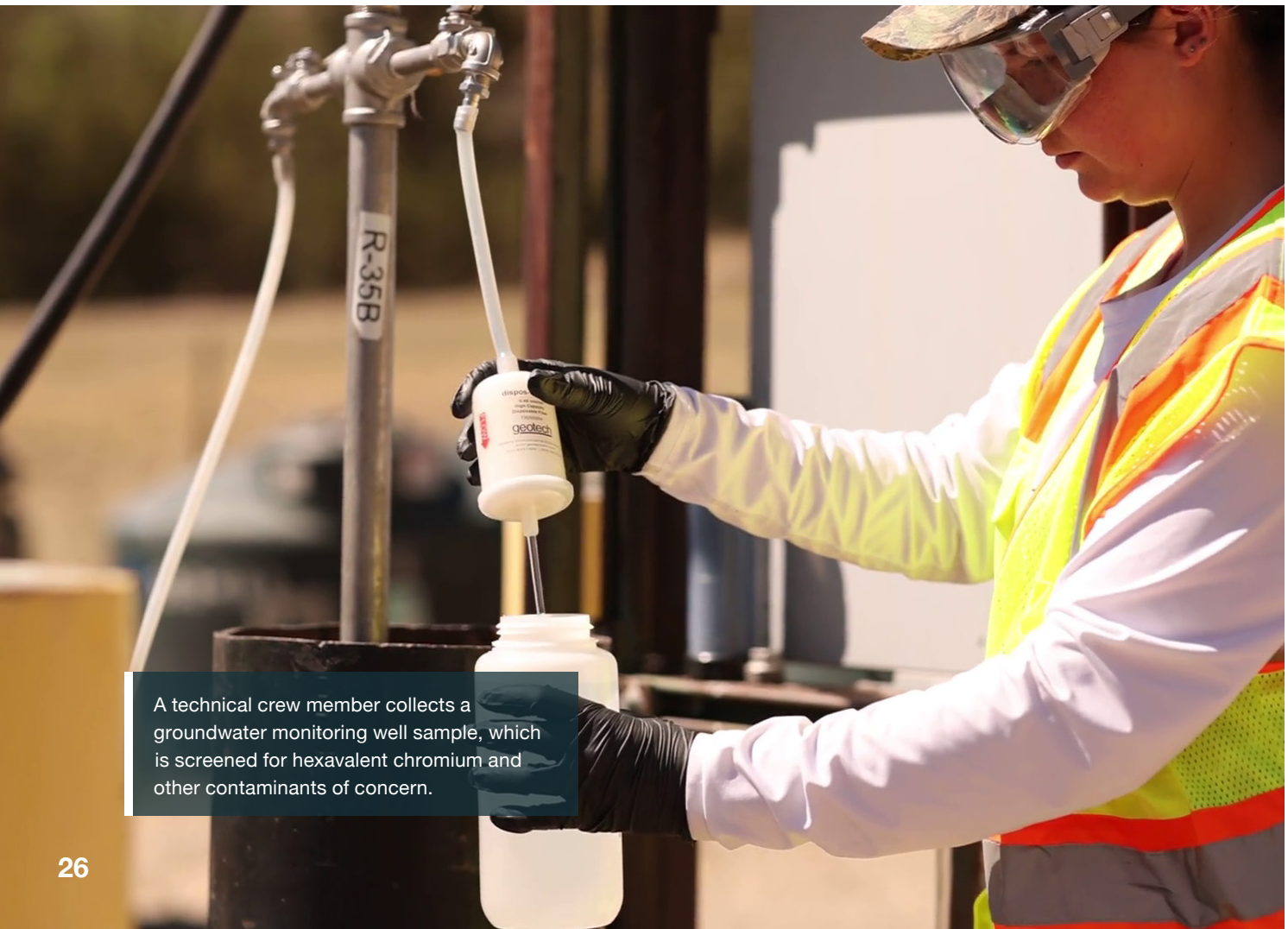
Overview

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 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 Los Alamos Field Office.

Of the more than 2,100 areas of concern of potential contamination originally identified at LANL, 60 percent 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. EM-LA is working to characterize and address two legacy groundwater contamination plumes. 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 contains chemical constituents, including Royal Demolition Explosives (RDX), 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 closed. There are approximately 3,200 cubic meters of legacy TRU waste stored at Technical Area 54 destined for disposal at WIPP. The waste is stored in configurations protective of the environment, workers, and the public.

As part of its ongoing commitment to transparency and maintaining a regular dialog with the Accord Pueblos and other local communities on legacy cleanup, EM-LA frequently participates in discussions on its mission at



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

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 public Environmental Management Cleanup Forums and meets monthly with LANL Legacy Cleanup Technical Working Group stakeholders.

In 2022, EM-LA began implementing efforts for the Justice40 Initiative, which directs certain federal investments to achieve a goal that 40 percent of the overall benefits flow to disadvantaged communities. 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. EM-LA will continue engagement and efforts to support the Justice40 Initiative.

EM-LA has also started the process of developing a long-term strategic vision to enhance the way it approaches legacy cleanup. EM-LA is actively engaging with a diverse group of stakeholders, pueblos, local communities and organizations, advocacy groups, regulators, and the public. The feedback, values, and opinions obtained from listening sessions will be incorporated into the EM-LA Strategic Vision to prioritize work scope for future legacy cleanup projects.

Calendar Year 2022 Accomplishments

- **Completed 64 TRU waste shipments to WIPP - exceeding an EM 2022 priority**
- **Commenced corrugated metal pipe retrievals at Technical Area 54 (TA-54), Area G**
- **Started up TRU waste remediation operations in Dome 231 at TA-54, Area G for treatment of drums not compliant for WIPP**
- **Disposed of 2,887 cubic meters of LLW and MLLW**
- **Installed two new monitoring wells (R-71 and R-72) for hexavalent chromium plume control and characterization**

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 2023–2033

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 commercial disposal site in Texas.

Work is underway to retrieve 158 corrugated metal pipes (CMPs) containing cemented waste from a former LANL radioactive liquid waste treatment facility at TA-54, Area G. Following retrieval, the CMPs will be characterized and resized for shipment to WIPP. In 2024, the CMPs will be ready for shipment to WIPP.

At the Middle DP Road Site—where Manhattan Project contamination was remediated on Los Alamos County land—EM-LA is evaluating additional confirmation samples collected to determine whether there is a need for further excavation. An assessment report with confirmatory sampling results will be submitted to the New Mexico Environment Department (NMED) in 2023.

Site investigations will continue and, where required, contaminated soil will be removed from the site and transported for disposal. In 2023, EM-LA will continue to work with NMED on a strategy to transition from groundwater characterization to a final remedy for the hexavalent chromium plume.

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. The Southern External Boundary and Pajarito Watershed Campaigns will be completed in succession, finishing in 2026, investigating and closing over 200 legacy contamination sites. 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 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 2023–2033

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 establish 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.

Post-2033 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 2033. 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.

With the mobile-loading unit, Newport News Nuclear BWXT-Los Alamos operators secure the TRUPACT lid prior to shipping Los Alamos National Laboratory's legacy transuranic waste to the Waste Isolation Pilot Plant.