



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
ENVIRONMENTAL
MANAGEMENT



Los Alamos National Laboratory Legacy Environmental Cleanup



ENVIRONMENTAL MANAGEMENT
SAFETY ♦ PERFORMANCE ♦ CLEANUP ♦ CLOSURE

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Environmental Management Los Alamos Field Office
November 14, 2022



- Continued shipments of legacy waste at LANL
- Continue characterization and control of hexavalent chromium plume while working closely with regulator on a strategy for final remedy
- Completion of Middle DP Road Site cleanup
- Site investigation and cleanup of Aggregate Areas
- Justice40 Initiative implementation
- Stakeholder, pueblo and community engagement





- Fiscal Year 2022 Appropriation
 - \$292M
- Additional FY22 work scope
 - New wells for hexavalent chromium plume characterization
 - Critical well repair and maintenance
 - Aggregate Area investigation and remediation
 - Middle DP Road Site additional waste volumes
 - Ion Beam facility D&D preparation
 - TA-21: characterization of Building 257 and industrial waste lines
- Fiscal Year 2023
 - Currently under Continuing Resolution
 - ~\$332M requested





- In May 2022, the Cerro Pelado wildfire impacted EM-LA/N3B operations for one month
- Conducted daily communications and close coordination with Los Alamos County, LANL/Triad and NNSA Los Alamos Field Office (NA-LA)
- Participated in brief with New Mexico Governor Lujan Grisham
- Visited Great Basin Team 1 firefighter base camp
- Some work paused after fire contained due to Red Flag days

Members of Great Basin Team 1 gather for morning briefing at base camp in Jemez Springs, New Mexico during Cerro Pelado firefighting efforts





- Exceeded FY22 goal for legacy contact-handled transuranic (CH-TRU) waste shipments to Waste Isolation Pilot Plant (WIPP)
- Exceeded FY22 goal for mixed low-level and low-level radioactive waste shipments
- Corrugated metal pipe retrievals at Technical Area 54 (TA-54), Area G began in September
- Drill and Drain operations are underway at TA-54, Area G

After retrieving corrugated metal pipes (CMPs), a hydraulic shear will be used to cut CMPs into sections for characterization



Crews use a mobile-loading unit to place containers of LANL's legacy transuranic waste into casks for transport to WIPP





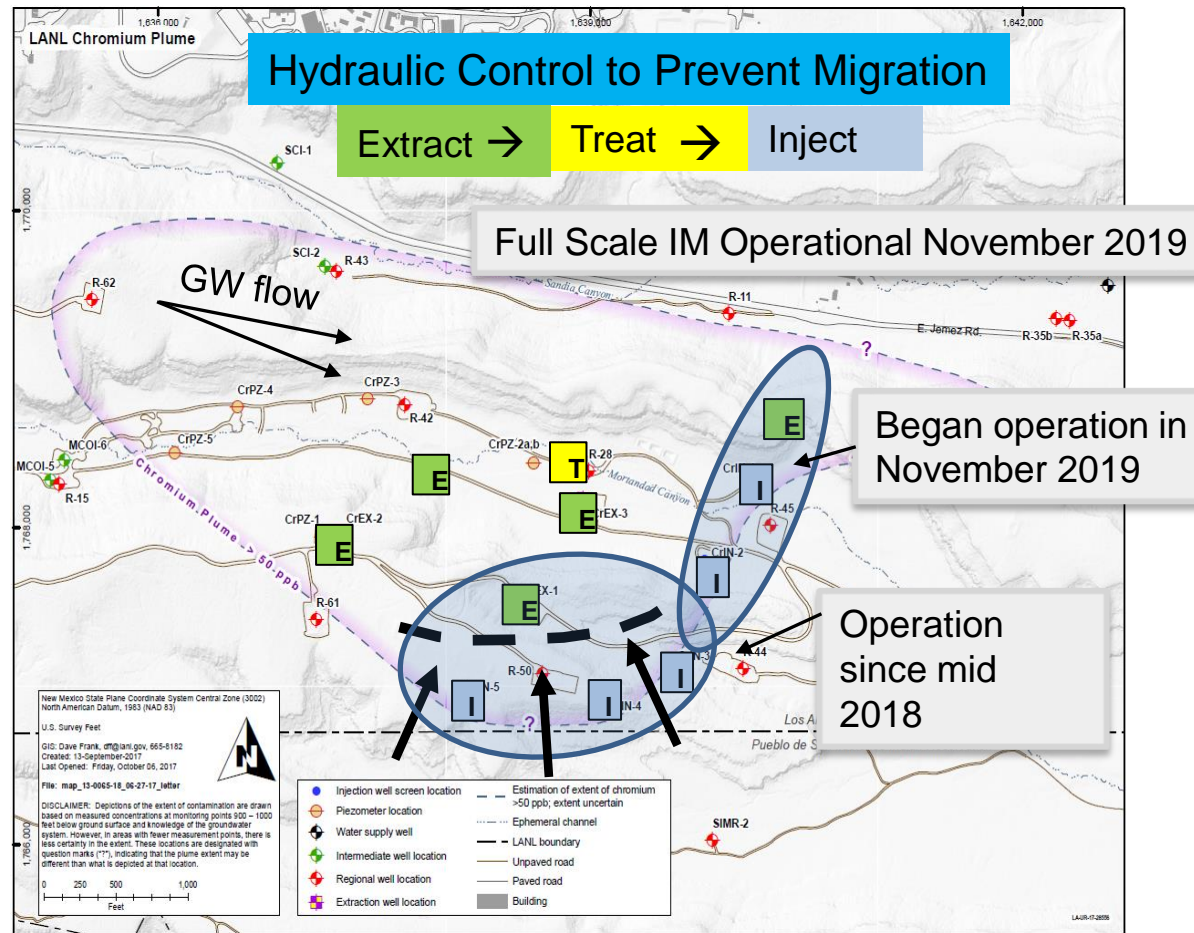
Hexavalent Chromium Plume Control & Characterization

➤ Primary objectives:

1. Prevent migration of plume beyond LANL boundary

While simultaneously:

2. Obtain data necessary to propose final remedy
3. Submit proposed final remedy to regulator, New Mexico Environment Department (NMED)





Hexavalent Chromium Plume Control & Characterization

- Since commencing Interim Measures operation, plume has retreated ~500 feet away from LANL's boundary with Pueblo de San Ildefonso
- More than 400 million gallons of groundwater treated and nearly 700 pounds of hexavalent chromium removed from regional aquifer
- Four wells outside of project baseline were drilled to further characterize plume: R-70, R-71, R-72, R-73
- Well R-73 will be plugged and abandoned and redrilled due to well casing breakage
- New monitoring wells R-76, R-77, R-78, R-79 will help to complete delineation of nature and extent of plume
- Implement a strategy that facilitates transition from groundwater characterization to final remedy





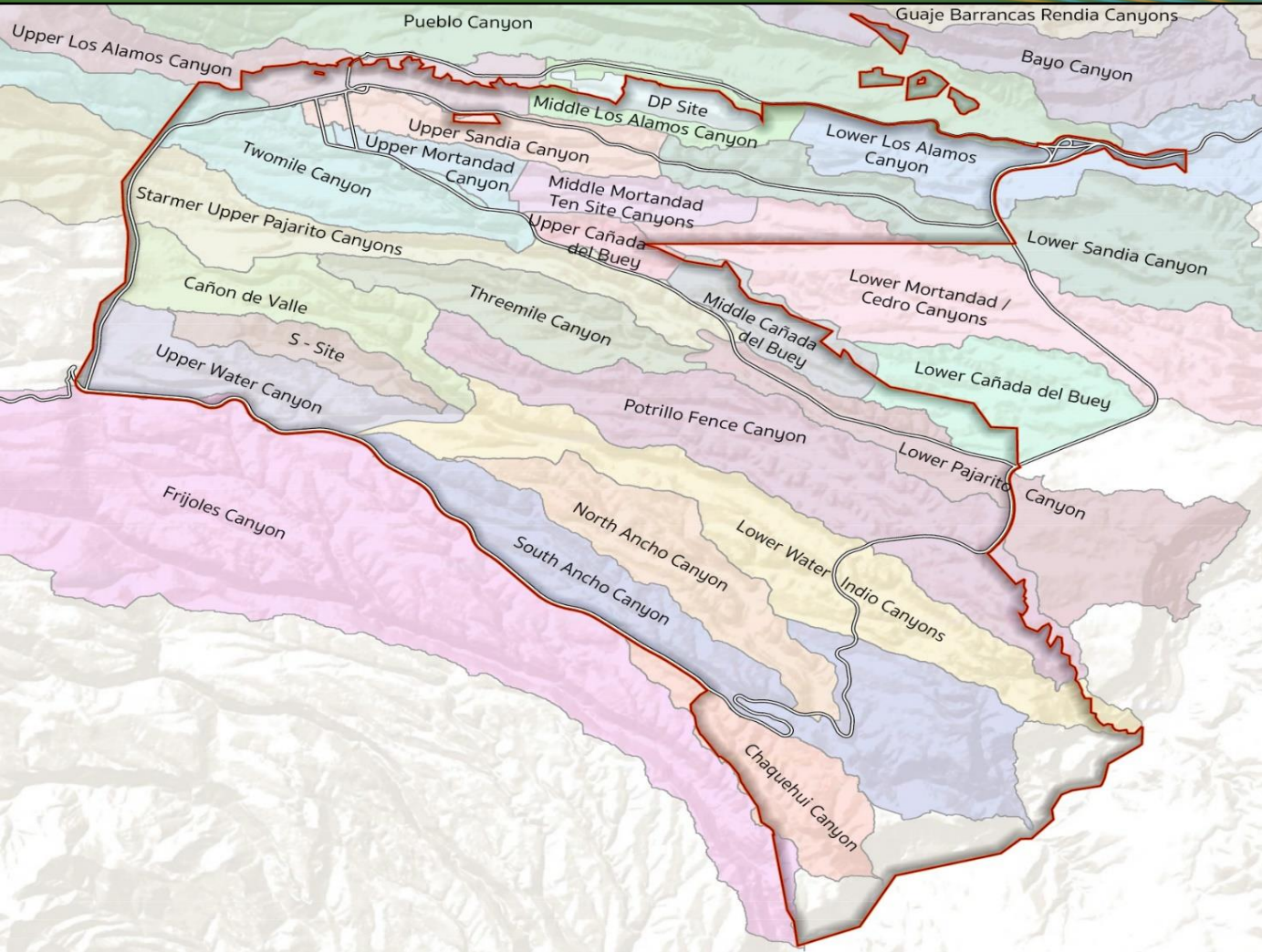
- Important project for Los Alamos County as land will be developed for residential use
- Completed all planned excavation and additional cleanup work based on confirmatory and extent sampling
- Additional samples will be collected and evaluated to determine whether further excavation is necessary
- Low-level waste shipments from site are in progress
- An Assessment Report will be submitted to NMED for review/approval
 - Forecast to submit report by March 2023

A crew worker at Middle DP Road Site screens debris mixed with soil for radiological activity





Aggregate Areas



Areas across Los Alamos National Laboratory containing soil and debris contaminated from legacy operations

Comprised of one or more Solid Waste Management Units (SWMU) or Areas of Concern (AOC)

Under the 2016 Consent Order, SWMUs and AOCs are aggregated into campaigns to address area-wide contamination, human health and ecological risk





Aggregate Area Campaign Work

- Characterize historical contamination
- Remediate sites as needed
- Ship waste to designated disposal facility
- Two large campaigns in progress:
 - Southern External Boundary Campaign: 5 Aggregate Areas and 65 SWMUs/AOCs
 - Pajarito Watershed Campaign: 4 Aggregate Areas and 177 SWMUs/AOCs



Surface debris at Chaquehui Canyon Aggregate Area SWMU 33-010(f)

As part of the Southern External Boundary Campaign, a geologist assesses excavation of contaminated soil in Lower Water Canyon





➤ N3B-wide Stop Work

- On October 13, 2022, cleanup contractor issued an N3B-wide stop work due to a series of worker safety issues observed over the past month
- Operated at minimum-safe, minimum-compliant status for environmental and nuclear operations, and operated in office environment
- Proactive decision from N3B leadership enabled evaluation of operations and review and oversight on all work
- N3B stop work reinforced safety as our top priority
- As of November 10, all paused work has been resumed





- Defense Nuclear Facilities Safety Board Public Hearing
 - On November 16, EM-LA and N3B will participate on the LANL Area G Transuranic Waste Management Facility panel in Santa Fe
- NMED
 - Priority effort to reset relationship
 - Improvements based on transparency and open conversations
 - Conduct regular meetings with senior leadership and technical teams
- 2016 Compliance Order on Consent
 - Achieved 18 of 18 FY22 Appendix B Milestones early or on time
 - Successful negotiations for FY23 Appendix B Milestones with NMED





Campaign	FY22 Milestone #	Title	Due Date (Actual)
Chromium IM & Characterization, RDX Characterization, MDAs A & T, MDA C, MDA H, MDAs G & L Remedies	1	Interim Facility-Wide Groundwater Monitoring Plan (IFGMP) for MY2023 (October 2022-September 2023)	6/30/2022 (6/15/2022)
Chromium IM & Characterization	2	Chromium Interim Measures and Characterization Work Plan	9/30/2022 (9/29/2022)
Chromium IM & Characterization	3	Annual Progress Report on Chromium Plume Control Interim Measure Performance	6/30/2022 (6/30/2022)
Chromium IM & Characterization	4	Letter Report Documenting Completion of R-71 and Collection of First Samples	2/28/2022 (2/14/2022)
Chromium IM & Characterization	5	Letter Report Documenting Completion of R-72 and Collection of First Samples	1/31/2022 (1/27/2022)
Chromium IM & Characterization	6	Drilling Work Plan for Groundwater Monitoring Well R-73	11/30/2021 (11/30/2021)
Chromium IM & Characterization	7	Letter Report Documenting Completion of R-73 and Collection of First Samples	8/31/2022 (Extension Request Submitted to NMED on 8/11/2022; NMED Approved Request on 8/24/2022)
Chromium IM & Characterization	8	Drilling Work Plan for Replacement of Groundwater Monitoring Well R-28	3/31/2022 (3/21/2022)
Chromium IM & Characterization	9	Drilling Work Plan for New Chromium Groundwater Monitoring Well R-77	3/31/2022 (3/17/2022)
RDX Characterization	10	Fate and Transport Modeling and Risk Assessment Report for RDX Contamination in Deep Groundwater, Revision 1	9/30/2022 (9/29/2022)
RDX Characterization	11	Drilling Work Plan for Regional Well R-74	3/16/2022 (3/14/2022)
Supplemental Investigation Reports	12	Supplemental Investigation Report for Sites at Technical Area 49 Inside the Nuclear Environmental Site Boundary, Revision 1	5/30/2022 (5/24/2022)
Supplemental Investigation Reports	13	Supplemental Investigation Report for Sites at Technical Area 49 Outside the Nuclear Environmental Site Boundary, Revision 1	5/30/2022 (5/24/2022)
Southern External Boundary	14	Progress Report for Phase II Investigation Report for North Ancho Canyon Aggregate Area	9/30/2022 (9/27/2022)
Pajarito Watershed	15	Twomile Canyon Aggregate Area Progress Report	9/30/2022 (9/27/2022)
Pajarito Watershed	16	Phase II Threemile Canyon Aggregate Area Progress Report	9/30/2022 (9/19/2022)
Pajarito Watershed	17	Starmer/Upper Pajarito Canyon Aggregate Area Progress Report	9/30/2022 (9/28/2022)
MDAs-G & -L Remedies	18	Interim Measures Final Report for Soil-Vapor Extraction of Volatile Organic Compounds from Material Disposal Area L, Technical Area 54, Revision 1	6/30/2022 (6/29/2022)
MDAs-G & -L Remedies	19	Periodic Monitoring Report for 2021 Vapor-Sampling Activities at Material Disposal Area L, Solid Waste Management Unit 54-006, at Technical Area 54	5/30/2022 (5/27/2022)



- The Justice40 Initiative is a whole-of-government effort to deliver at least 40% of the overall benefits from certain Federal investments in climate and clean energy to disadvantaged communities
- EM-LA was selected as one of five DOE Justice40 Initiative Pilot Programs, and the only Justice40 pilot program in EM
- LANL legacy cleanup fits under the Federal Covered Program of “remediation and reduction of legacy pollution”
- All initial pilot program deliverables have been submitted
- Conducting ongoing engagement with stakeholders, pueblos and the public
- Leveraging “Thought Partners” to collaborate on best practices
- In parallel with Justice40 Initiative efforts, EM-LA is developing a long-term Strategic Vision to prioritize work scope for future cleanup campaigns





- In 2022, EM-LA launched its long-term Strategic Vision development
- Important endeavor to enhance engagement and participation in legacy cleanup decisions
- Conducting sessions to obtain feedback and values to aide in prioritizing work scope for the remaining legacy cleanup campaigns
- EM-LA Strategic Vision will be integrated with DOE's broader goals for cleanup completion
- A beta session was conducted with Northern New Mexico Citizens' Advisory Board members in October
- Secured initial participation from diverse group of stakeholders and all four Accord Pueblos
- To participate, contact EMLA_STRATEGICVISION@EM.DOE.GOV





Stakeholder Engagement

- New Mexico Environment Department
- NM Radioactive & Hazardous Materials Committee
- Defense Nuclear Facilities Safety Board
- Natural Resource Damage Assessment Trustee Council
- Tribal Governments, Pueblos in Northern New Mexico
- Accord Pueblos Executive Leadership Meetings
- Accords Technical Exchange Meetings
- Santa Fe Indian School
- DOE, EPA and State Dialogue Meetings
- National Governors Association/Federal Facility Task Force
- Waste Management Symposia
- Los Alamos County
- Northern New Mexico Citizens' Advisory Board
- Environmental Management Cleanup Forums
- Site Tours

Northern New Mexico Citizens' Advisory Board site tour



Santa Fe Indian School visit with STEM and wildlife biology instructors





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MDPR Work Completed Jan - Oct 2021



