U.S. DEPARTMENT *of* ENERGY

Office of Environmental Management

ATTACHMENT A

Los Alamos Legacy Cleanup & Hexavalent Chromium Plume Update

Jessica Kunkle, Manager

DOE Environmental Management Los Alamos Field Office (EM-LA)

December 16, 2025

Bottom Line Up Front

- FY 2025 legacy waste shipment metrics exceeded
- Expanding legacy waste activities in FY 2026 to accelerate disposition
- DOE is meeting commitments in the 2016 Compliance Order on Consent
- Establishing adaptive site management plan for hexavalent chromium plume
- Continuing regular engagement with pueblos, local governments, stakeholders, & the public

TRU Waste Mobile Loading

Mission

SHIP WASTE OFF-SITE — TRANSURANIC (TRU), LOW-LEVEL, & MIXED LOW-LEVEL

CLEAN UP THE LAND — CONTAMINATED SOIL, LEGACY LANDFILLS

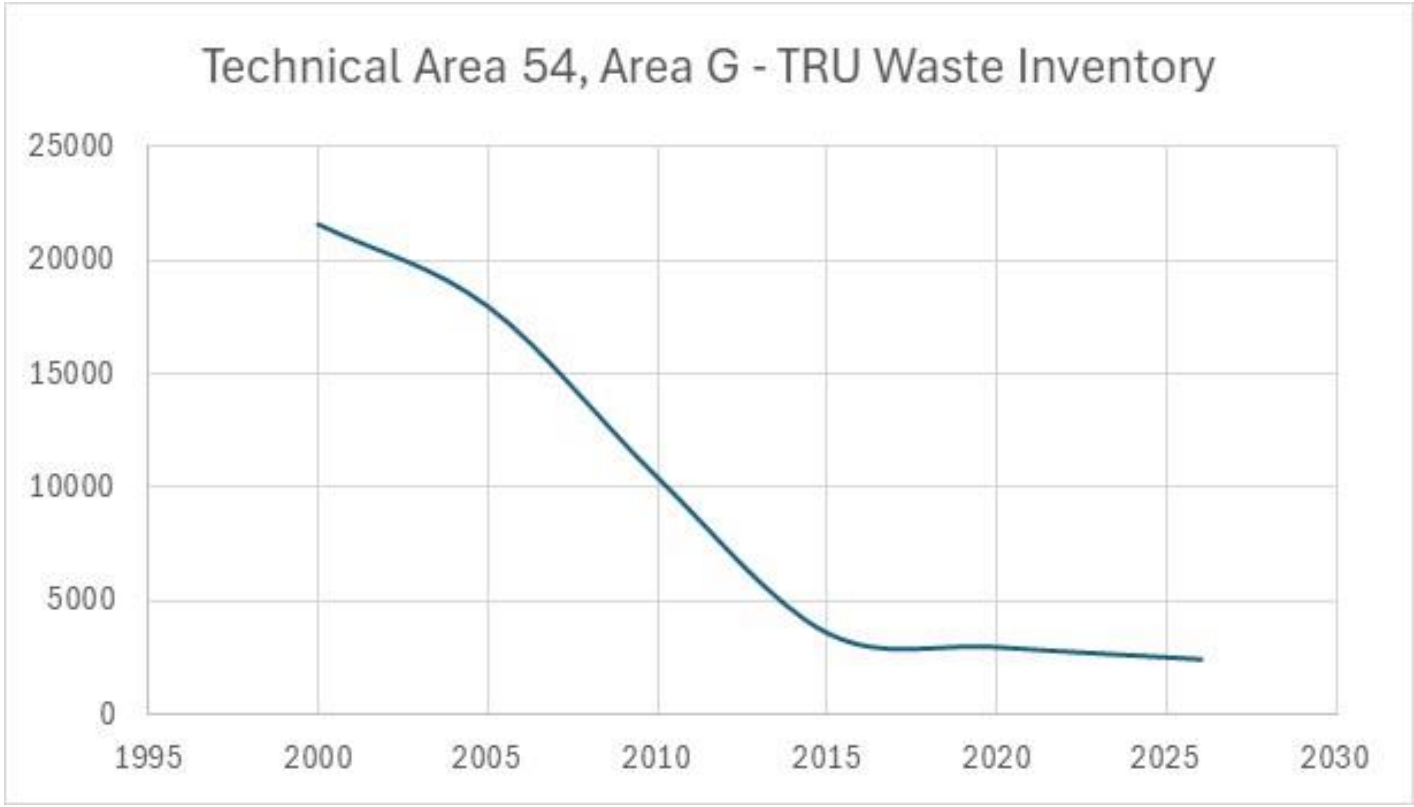
PROTECT WATER QUALITY — GROUNDWATER, SURFACE WATER, STORM WATER

D&D EXCESS FACILITIES — EXCESS FACILITY DISPOSITION

MISSION: Safely, effectively, efficiently, & transparently complete the cleanup of legacy contamination & waste (pre-1999) resulting from nuclear weapons development & government-sponsored nuclear research during the Manhattan Project & Cold War era at LANL

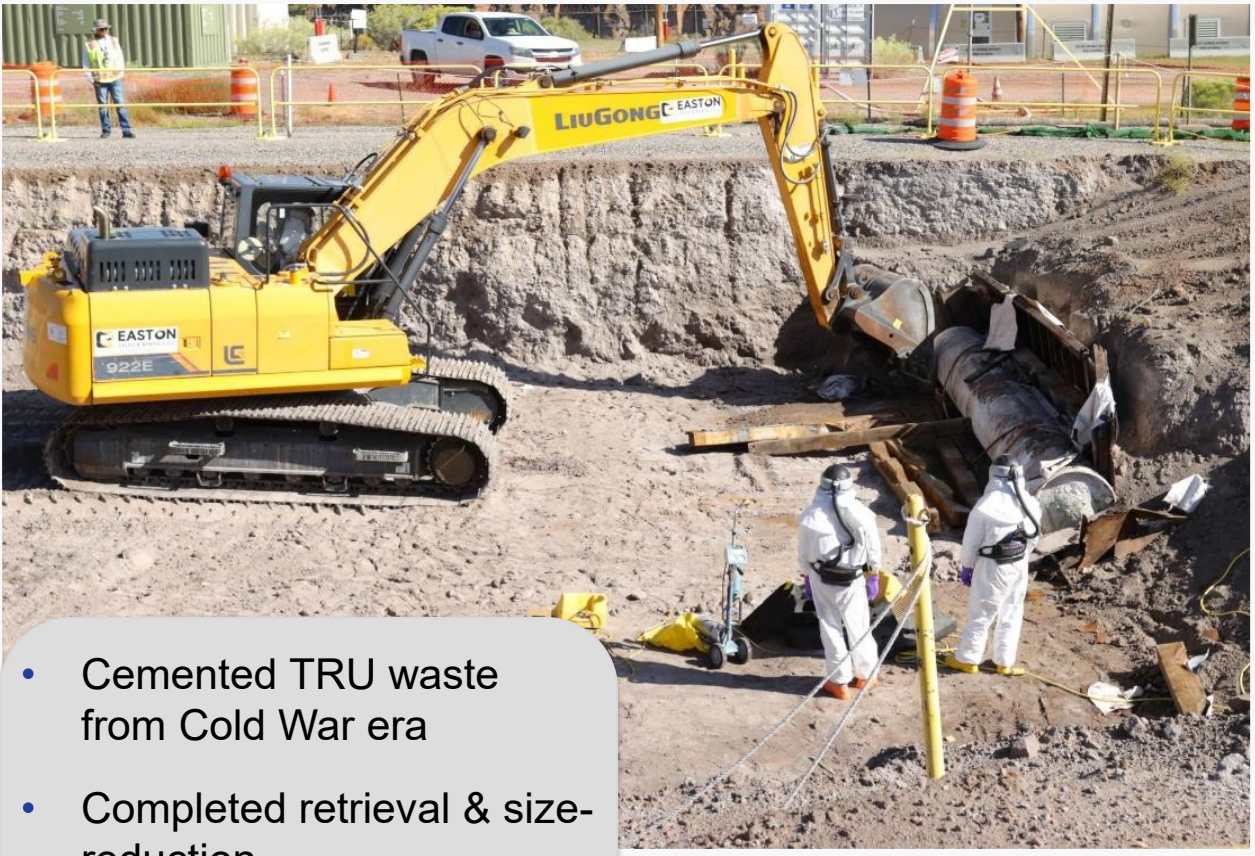
Legacy Waste Characterization & Disposition

- **LEGACY WASTE**: defense-related TRU waste retrieved, buried, &/or generated prior to Oct 1, 1999
- Shipped 193.4 m^3 of TRU waste in FY 2025, exceeding goal of 62 m^3
- Los Alamos has an “at-ready” agreement with WIPP; LANL shipments take priority



28,526 TRU WASTE CONTAINERS SHIPPED TO WIPP SINCE 1999

Buried Waste Retrieval: Corrugated Metal Pipes (CMP)



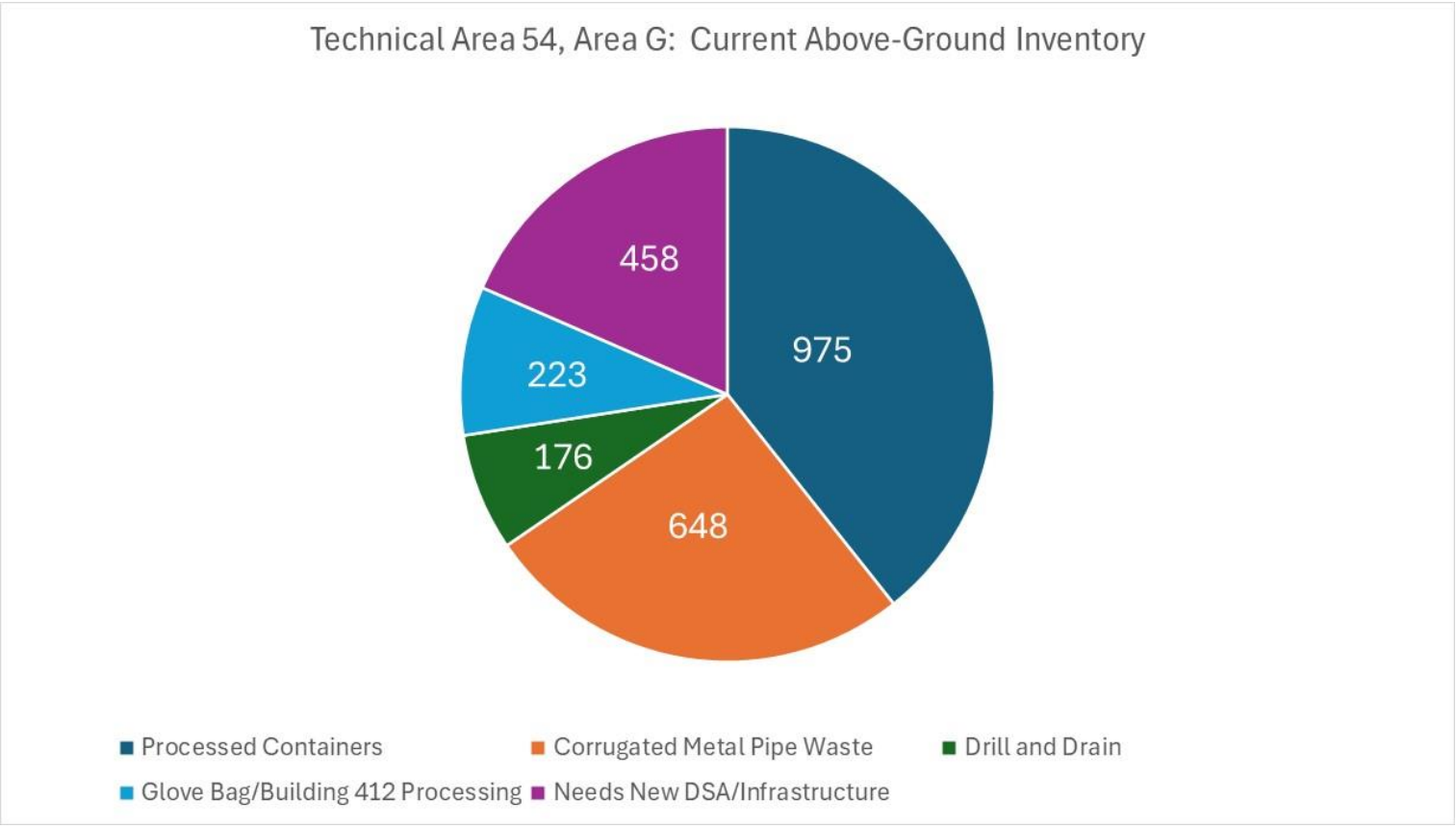
CMP Retrieval at Area G

CMP segment lowered into a standard waste box

- Cemented TRU waste from Cold War era
- Completed retrieval & size-reduction
- Shipments to WIPP began late May 2025

~20% OF CMP WASTE SHIPPED OFF-SITE TO DATE

Above-Ground Waste Inventory & Future Activities



Processed Legacy Waste Containers

- Establishing re-processing & disposition capability in FY 2026
- Allows portion of inventory to be more appropriately characterized as low-level waste for disposition at commercial disposal facilities, preserving capacity at WIPP
- Allows legacy waste disposition during WIPP outages

Disposal Overpack Containers

- Acquiring Upender repositioning machine, providing additional on-site capability
- Increased disposition efficiency & risk avoidance

Ion Beam Facility Disposition

FACILITY:

- Built in 1951, housed two accelerators
- 60,000 sq ft, decommissioned in 1999

SCOPE:

- Surveying & sampling, demolition, & slab removal
- PCB soil remediation currently underway
- Demolition of administrative wing & horizontal accelerator to begin first half of 2026

REDUCES RISK OF EXCESS CONTAMINATED FACILITY

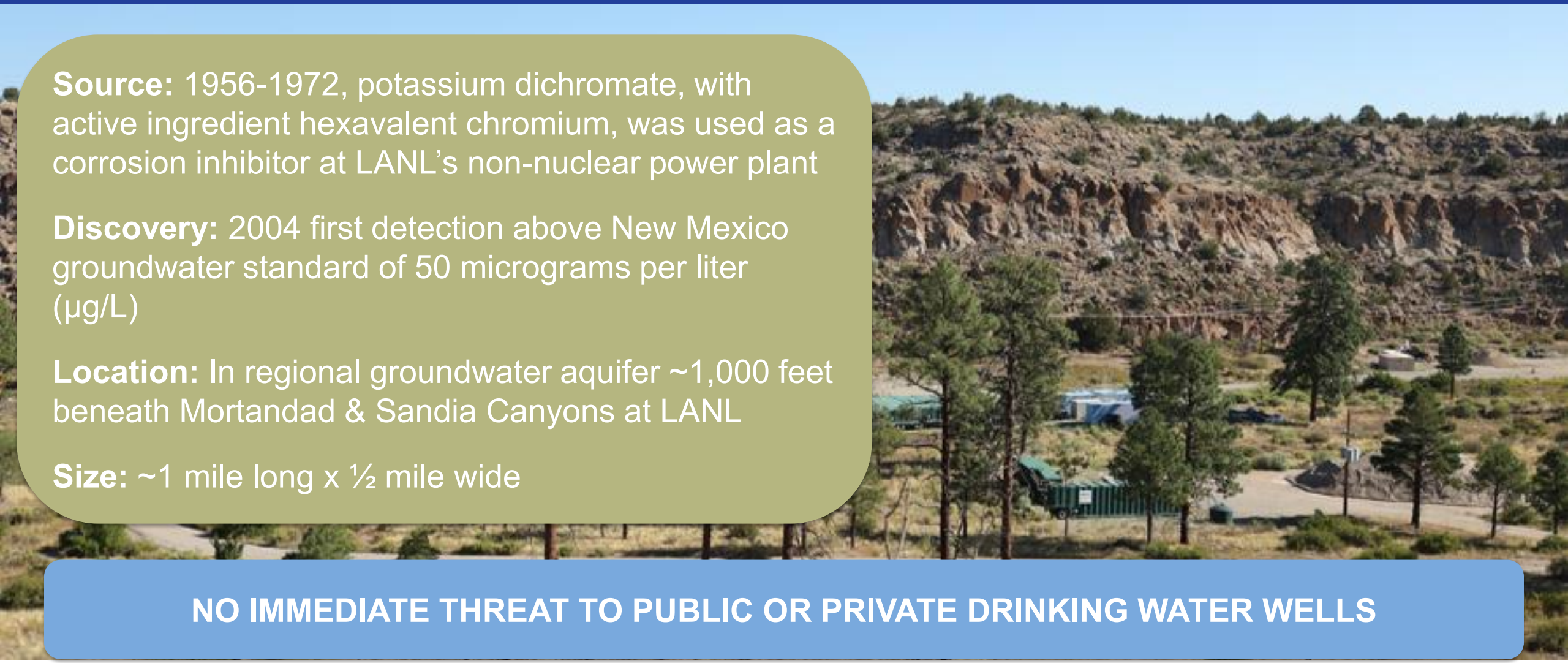
Meeting Consent Order Commitments

- All FY 2025 Milestones completed
- FY 2026 planning completed with New Mexico Environment Department (NMED)
- Annual joint public meeting with EM-LA & NMED planned for early next year
- Certificates of Completion issued by NMED for 589 of 1,405 known or suspected contaminated sites in the Consent Order

Excavation of contaminated soil from LANL legacy operations

42% OF CONSENT ORDER SITES COMPLETED

Hexavalent Chromium Plume



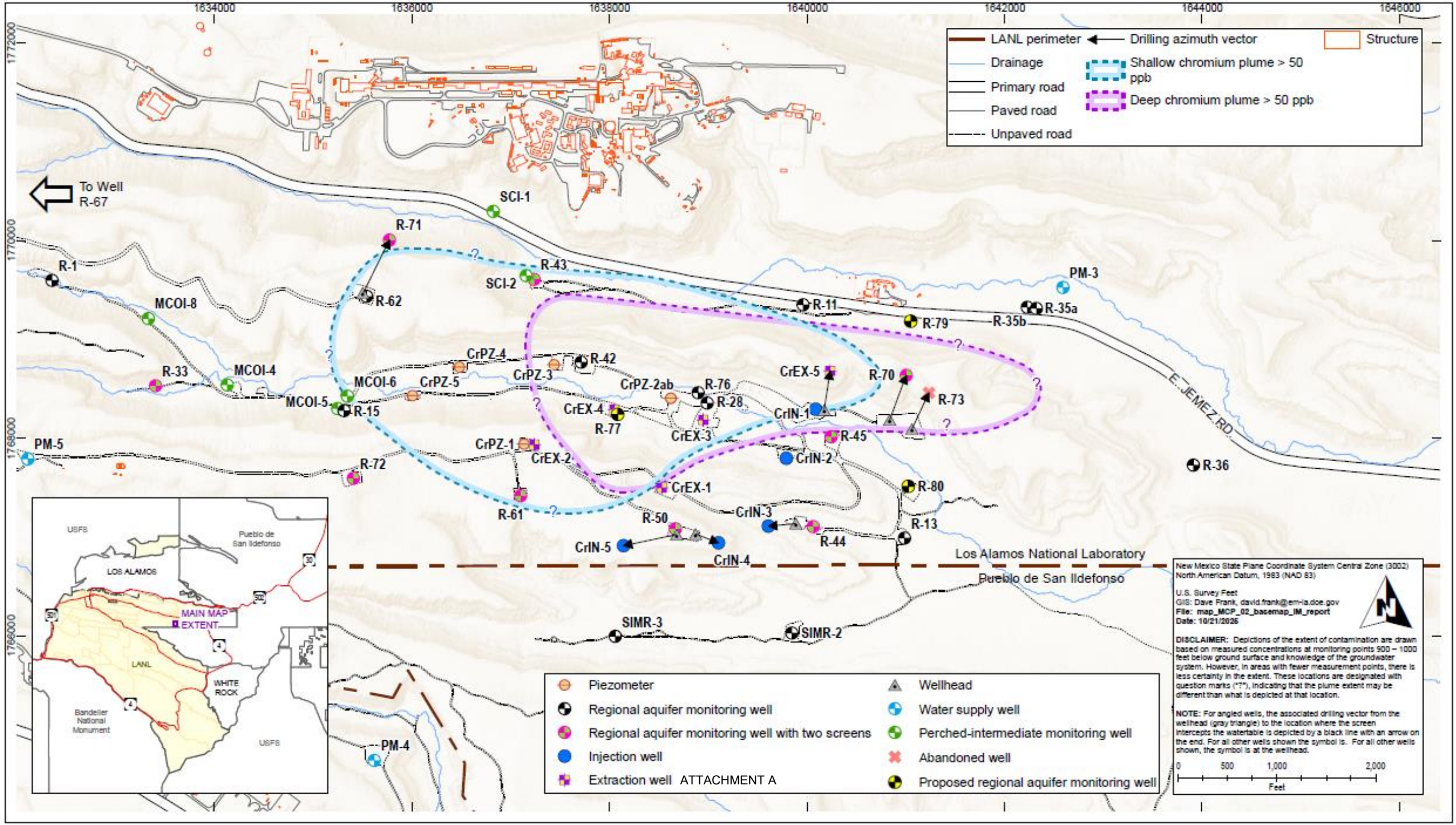
Source: 1956-1972, potassium dichromate, with active ingredient hexavalent chromium, was used as a corrosion inhibitor at LANL's non-nuclear power plant

Discovery: 2004 first detection above New Mexico groundwater standard of 50 micrograms per liter (µg/L)

Location: In regional groundwater aquifer ~1,000 feet beneath Mortandad & Sandia Canyons at LANL

Size: ~1 mile long x ½ mile wide

NO IMMEDIATE THREAT TO PUBLIC OR PRIVATE DRINKING WATER WELLS


1634000
1636000
1638000
1640000
1642000
1644000
1646000
1772000
1770000
1768000
1766000
LANL perimeter
Drilling azimuth vector
Structure
Drainage
Shallow chromium plume > 50 ppb
Primary road
Deep chromium plume > 50 ppb
Paved road
Unpaved road
To Well R-67
SCI-1
R-71
R-1
R-43
SCI-2
R-62
MCOI-8
R-11
PM-3
R-35a
R-79
R-35b
E. JEMEZ RD.
CrPZ-4
R-42
R-33
MCOI-4
CrPZ-3
CrPZ-2ab
R-76
CrEX-5
R-70
MCOI-6
CrPZ-5
R-28
R-73
MCOI-5
R-15
CrEX-4
CrIN-1
R-77
CrEX-3
R-45
PM-5
CrPZ-1
CrIN-2
CrEX-2
R-72
R-36
CrEX-1
R-80
R-61
CrIN-3
R-50
R-13
R-44
CrIN-5
CrIN-4
Los Alamos National Laboratory
Pueblo de San Ildefonso
SIMR-3
SIMR-2
PM-4
USFS
Pueblo de San Ildefonso
LOS ALAMOS
MAIN MAP EXTENT
LANL
WHITE ROCK
Bandelier National Monument
USFS
Piezometer
Wellhead
Regional aquifer monitoring well
Water supply well
Regional aquifer monitoring well with two screens
Perched-intermediate monitoring well
Injection well
Abandoned well
Extraction well
Proposed regional aquifer monitoring well
ATTACHMENT A
New Mexico State Plane Coordinate System Central Zone (3002)
North American Datum, 1983 (NAD 83)
U.S. Survey Feet
GIS: Dave Frank, david.frank@em-la.doe.gov
File: map_MCP_02_basemap_IM_report
Date: 10/21/2025
DISCLAIMER: Depictions of the extent of contamination are drawn based on measured concentrations at monitoring points 900 – 1000 feet below ground surface and knowledge of the groundwater system. However, in areas with fewer measurement points, there is less certainty in the extent. These locations are designated with question marks ("?"), indicating that the plume extent may be different than what is depicted at that location.
NOTE: For angled wells, the associated drilling vector from the wellhead (gray triangle) to the location where the screen intercepts the watertable is depicted by a black line with an arrow on the end. For all other wells shown the symbol is. For all other wells shown, the symbol is at the wellhead.
0
500
1,000
2,000
Feet

Extensive Collaboration Since 2004

- 17 monitoring wells
- Chromium Interim Measures (IM) approved by NMED to prevent migration of plume beyond LANL boundary via pump & treat
  - 10 wells
  - Water treatment system
  - Supporting infrastructure
- Convened Expert Technical Review Team for analysis on complex technical disputes
- Significant collaboration with NMED, Office of the State Engineer, & Pueblo de San Ildefonso

ATTACHMENT A

Water Treatment System

Expert Technical Review

Team of experts from the Network of National Laboratories for Environmental Management & Stewardship, industry, academia, & U.S. EPA Region 6

RECOMMENDATIONS

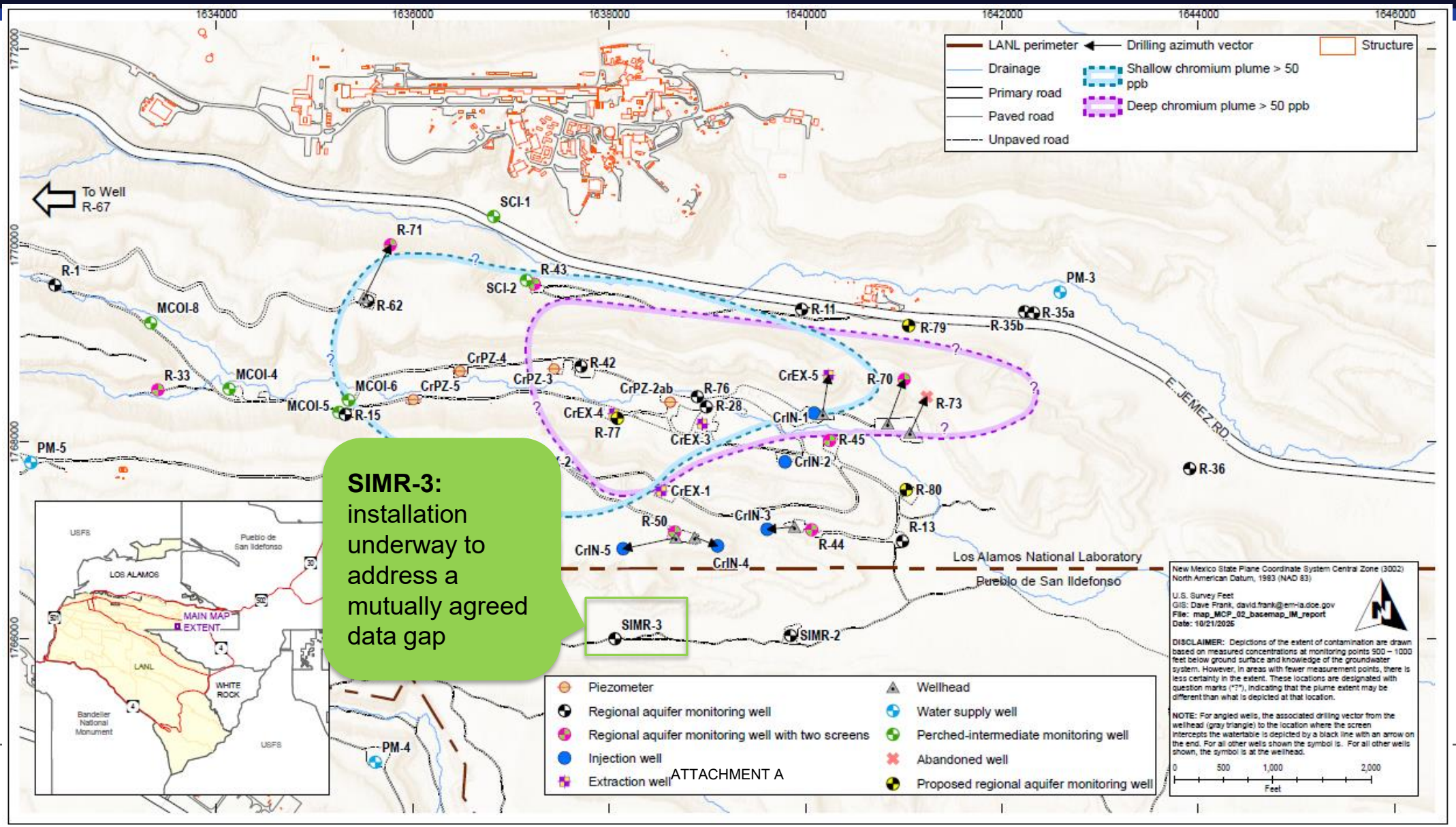
- Restart Interim Measures
- Transition modeling software to MODFLOW & improve the model
- Drill monitoring wells to fill data gaps
- Implement Adaptive Site Management
- Use of dual-screened wells

Interim Measures (IM) Operations

May 2018	IM Operations commenced
Mar 2023	IM operations ceased following direction from NMED to cease injection
Sept 2024	IM operations partially resumed in alignment with NMED authorization
Nov 2025	IM operations ceased following direction from NMED to cease injection

EMPIRICAL DATA DEMONSTRATE IM OPERATIONS EFFECTIVELY REDUCE CHROMIUM CONCENTRATIONS

Current Well Drilling



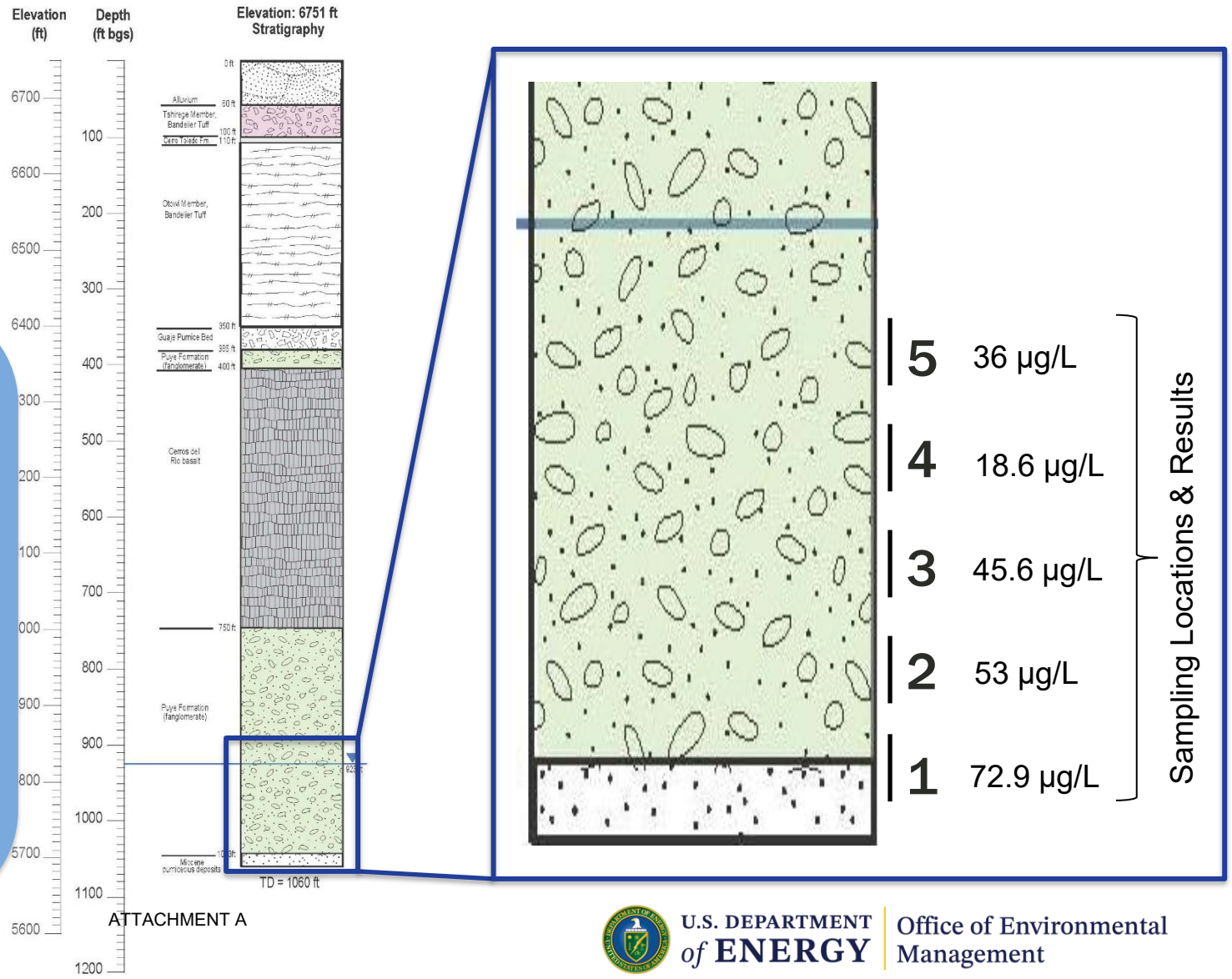
Zonal Sampling at SIMR-3

Zonal sampling is intended to inform well design, specifically screen location

- Zone of highest concentration
- Zone of highest permeability

Zonal sampling is not intended to predict long-term trends in the regional aquifer

- Disturbance due to drilling can create temporary conditions beyond the normal aquifer environment
- Normal aquifer environment should be established via a trend of monthly sampling following well installation



ATTACHMENT A

Next Steps for Hexavalent Chromium

- Complete installation of SIMR-3 & begin monthly sampling as quickly as possible
- Consult with Pueblo de San Ildefonso
- Evaluate & refine conceptual site model
- Analyze opportunities to modify interim measures
- Continue adaptive site management with NMED, Office of the State Engineer, Pueblo de San Ildefonso, & Los Alamos County

Drilling SIMR-3

Stakeholder Engagement






Summary

- FY 2025 legacy waste shipment metrics exceeded
- Expanding legacy waste activities in FY 2026 to accelerate disposition
- DOE is meeting commitments in the 2016 Compliance Order on Consent
- Establishing adaptive site management plan for hexavalent chromium plume
- Continuing regular engagement with pueblos, local governments, stakeholders, & the public

U.S. DEPARTMENT *of* ENERGY

Office of Environmental Management

ATTACHMENT A