



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**ENVIRONMENTAL  
MANAGEMENT**



# Environmental Management Los Alamos Field Office

## Program Overview and Update

### November 2018

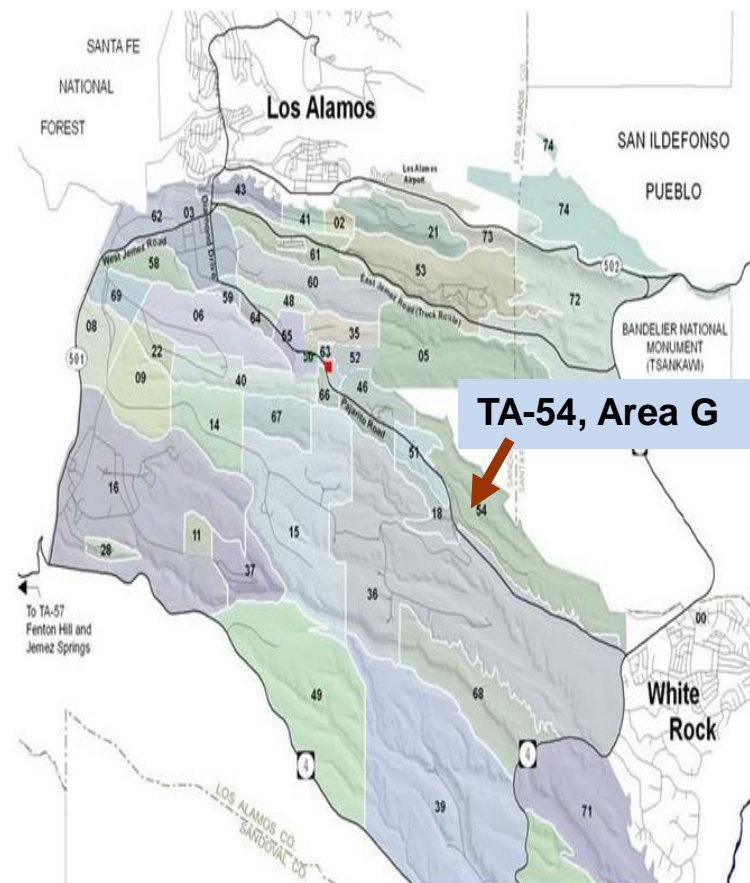


**ENVIRONMENTAL MANAGEMENT**  
SAFETY ♦ PERFORMANCE ♦ CLEANUP ♦ CLOSURE

**Steve Hoffman**  
Deputy Manager  
Environmental Management Los Alamos Field Office  
November 7, 2018



- ❑ The EM-LA mission is to safely, efficiently, and with full transparency complete the cleanup of legacy contamination and waste (pre-1999) resulting from nuclear weapons development and government-sponsored nuclear research.
- Legacy cleanup of soil & groundwater across the laboratory
- Legacy waste is primarily in Area G located at Technical Area 54 (TA-54)



*Los Alamos National Laboratory*



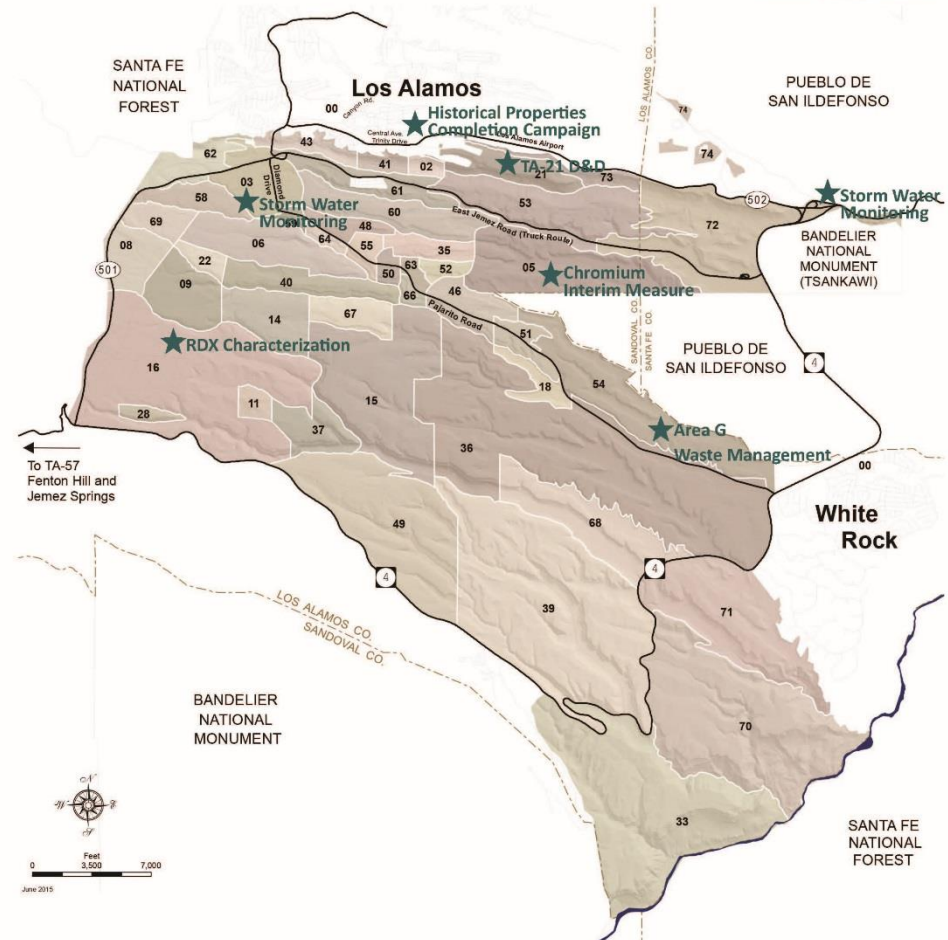




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## Key Environmental Management Cleanup and Waste Management Sites at Los Alamos National Laboratory



Overview of EM's Legacy Cleanup and  
Legacy Waste Management at LANL



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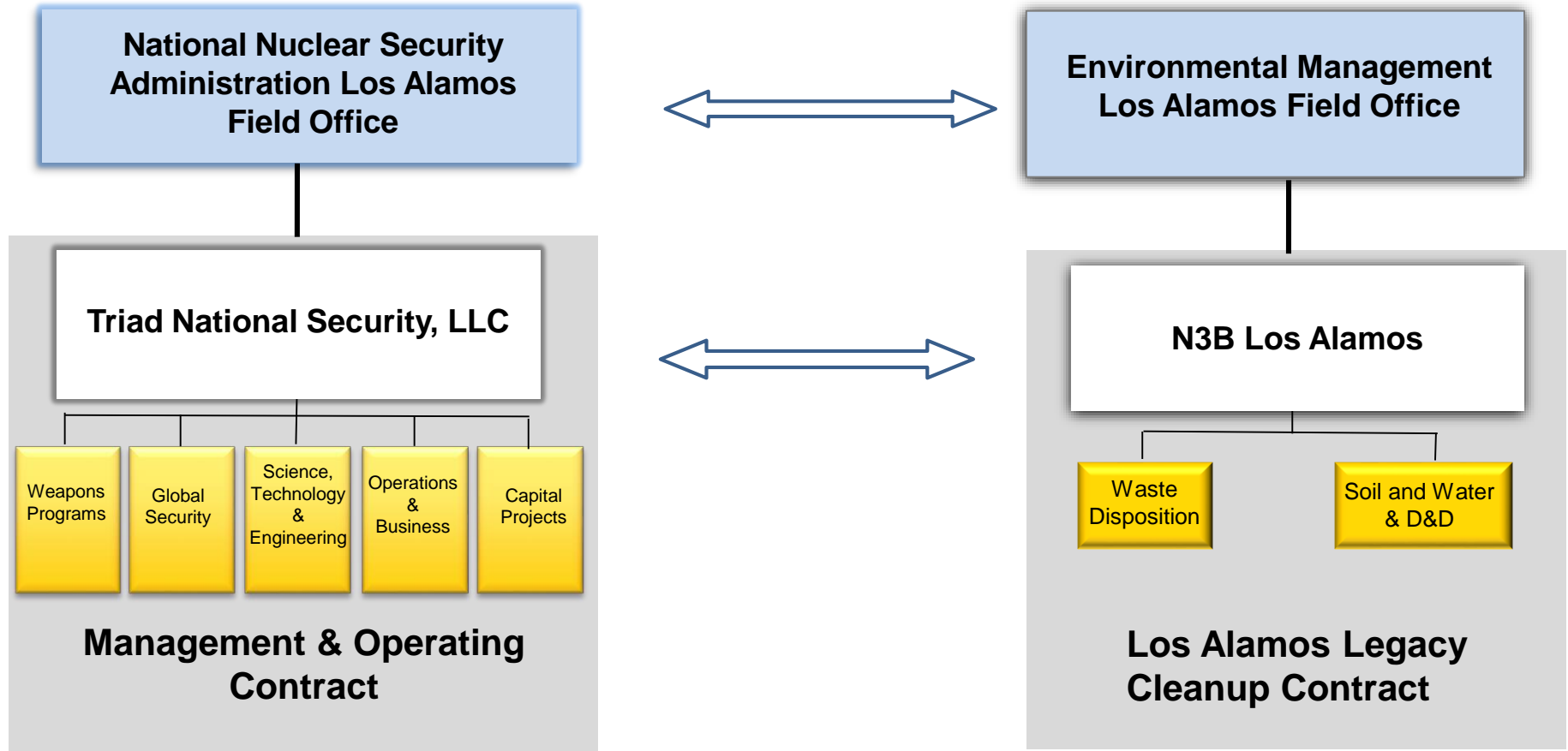


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# Los Alamos National Laboratory Organizational Structure





- ☐ **EM-LA Lifecycle Cost Estimate (LCE) is based on a campaign approach**
  - **LCE is integrated with the 2016 Consent Order**
    - 17 Soil and water campaigns identified
  - **Legacy waste is a stand alone campaign**
- ☐ **As one campaign completes, the next scheduled campaign commences**
- ☐ **Multiple campaigns underway simultaneously**
- ☐ **Safe, efficient and transparent execution**





# Consent Order Campaigns

Item #	Campaign Title	SWMUs/AOCs	Estimated Completion	Estimated Cost (M)
1	Chromium Interim Measure	1	2020 – 2022	\$38.9 - \$50.6
2	Historical Properties Completion	84	2019 – 2020	\$5.3 - \$6.4
3	Royal Demolition Explosives (RDX) Characterization	2	2022 – 2024	\$1.6 - \$2.1
4	Supplemental Investigations Reports	222	2019 – 2019	\$0 - \$1.0
5	TA-21 D&D and Cleanup	41	2020 – 2022	\$45.8 - \$54.9
6	RDX Remedy	0	2024 – 2025	\$22.3 - \$26.8
7	Known Cleanup Sites	20	2027 - 2028	\$34.8 - \$41.8
8	Material Disposal Area (MDAs) A & T Remedy	30	2028 – 2031	\$92.1 - \$124.3
9	Chromium Final Remedy	0	2026 – 2028	\$100.3 - \$130.0
10	Southern External Boundary	60	2025 – 2026	\$10.0 - \$12.0
11	MDA C Remedy	1	2024 – 2026	\$34.6 - \$48.7
12	Sandia Canyon Watershed	49	2024 – 2025	\$6.3 - \$7.6
13	Pajarito Watershed	167	2028 – 2030	\$20.7 - \$24.9
14	Upper Water Watershed	253	2030 – 2031	\$33.5 - \$40.2
15	MDA AB Remedy	12	2027 – 2030	\$41.8 - \$50.2
16	MDA H Remedy	1	2029 – 2030	\$15.3 - \$18.3
17	MDA G & L Remedy / D&D	12	2035 – 2040	\$237.9 - \$356.9

Highlighted rows indicate campaigns currently underway





# Consent Order FY 2018 Enforceable Milestones

Campaign	Consent Order Milestone	Target Date	Forecast	Actual (M/NM)
Chromium IM & Characterization	Technical Report Package for Chromium Plume Center Characteristics	Mar 30, 2018	Mar 28, 2018	<b>Met</b>
Chromium IM & Characterization	Letter Report to NMED-HWB documenting integrated operation of Chromium Extraction Well 4 (CrEX-4) into the existing IM System	Mar 30, 2018	Mar 22, 2018	<b>Met</b>
Chromium IM & Characterization	Summary Report (Completion or Progress) Phase I Pilot Amendment Test Results	Jul 31, 2018	Jul 31, 2018	<b>Met</b>
Chromium IM & Characterization	Phase II Pilot Amendment Test Work Plan	Sep 28, 2018	Sep 28, 2018	<b>Met</b>
Chromium IM & Characterization	Annual Progress Report on Chromium Plume Control IM Performance	Sep 28, 2018	Sep 28, 2018	<b>Met</b>
RDX Characterization	Technical Report Package related to Deep Groundwater Investigation	Mar 30, 2018	Mar 30, 2018	<b>Met</b>
RDX Characterization	R-69 Field Completion	Sep 28, 2018	Sep 28, 2018	<b>Renegotiated</b>
RDX Characterization	First Annual Long-Term Monitoring Report following completion of Surface CMI and approval of Long-Term Monitoring Plan	Sep 28, 2018	Sep 28, 2018	<b>Met</b>



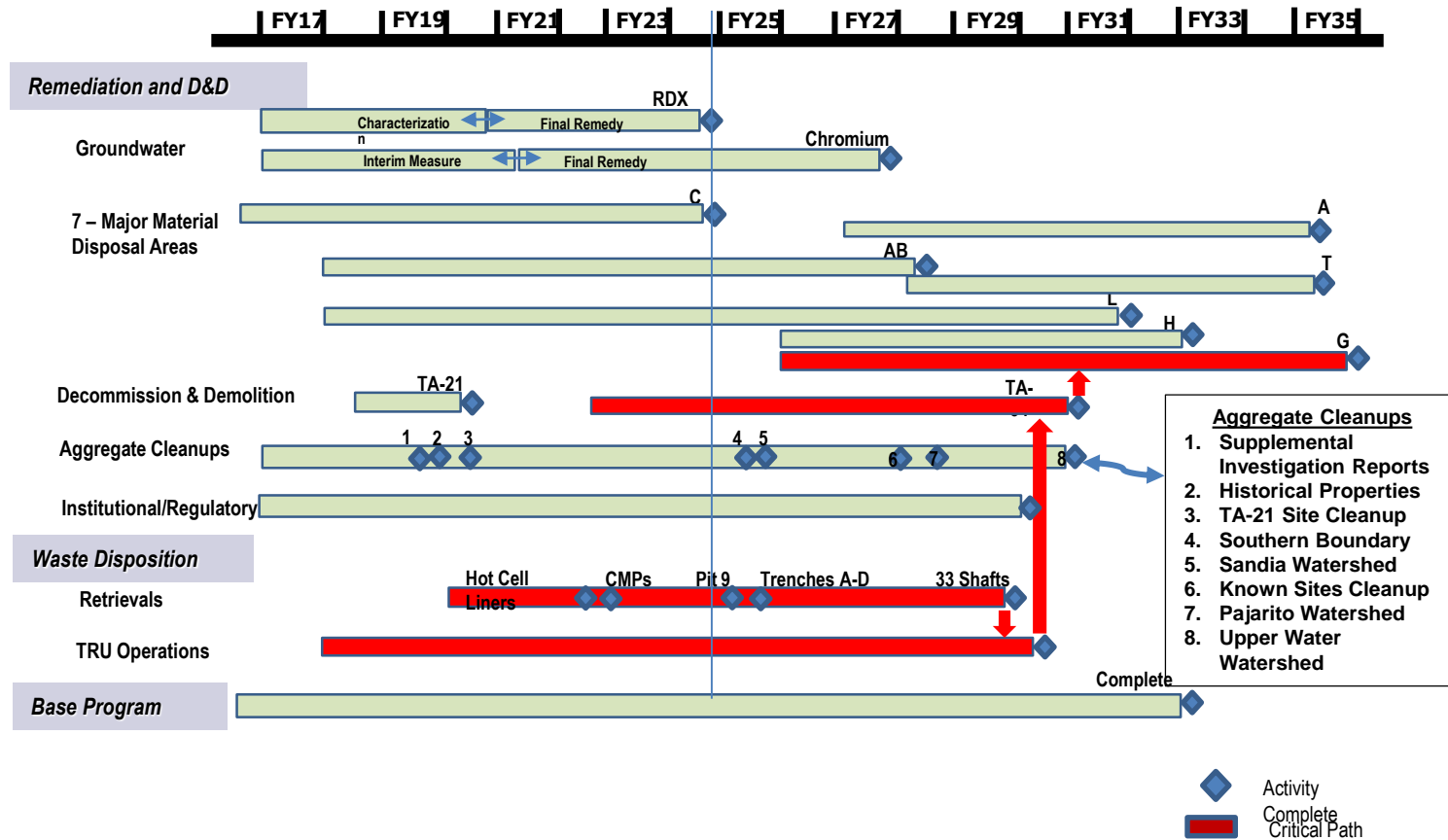




Campaign	Consent Order Milestone	Target Date	Forecast	Actual (M/NM)
Historical Properties Upper LA Canyon	Upper LA Canyon Phase II IR Submitted to NMED	Sept 28, 2018	Sept 28, 2018	<b>Met</b>
Historical Properties Middle LA Canyon	Middle LA Canyon Phase II IR Submitted to NMED	Sept 28, 2018	Sept 28, 2018	<b>Met</b>
TA-21 D&D and Cleanup	Investigation Report for DP sites Aggregate Area at DP East at TA-21	Jun 29, 2018	Jun 29, 2018	<b>Met</b>
Known Cleanup Sites	Field Completion for Aggregate Area Known Cleanup Sites	Sep 28, 2018	Sep 28, 2018	<b>Met</b>
Sandia Canyon Watershed	Sandia Canyon Wetland Performance Report for Period April 2017-December 2017	Apr 30, 2018	Apr 30, 2018	<b>Met</b>
N/A	Annual Monitoring Report for the completed FY17 and Plan for the upcoming FY18 LA/Pueblo Watershed Sediment Transport Mitigation Project	Apr 30, 2018	Apr 28, 2018	<b>Met</b>
N/A	Annual Update to the Interim Facility-Wide Groundwater Monitoring Plan	May 30, 2018	May 30, 2018	<b>Met</b>









*Workers use an angled drilling rig at the  
CrIN-4 site*



*The closed vault at injection well CrIN-5*

## ❑ Chromium Interim Measure and Characterization Campaign

- The Interim Measure is underway
- Interim Measure involves pumping and injection to control plume advancement and shrink footprint
- FY 2018 accomplishments include:
  - Drilled angled injection wells to meet injection objectives while avoiding sensitive cultural sites
  - Installed pumps, pipelines and treatment systems.
  - Well pads and pipelines were located to avoid sensitive cultural sites
  - Significant advancements in site conceptual model and modeling in support of remedy evaluation
  - Deployed amendments for field pilot-scale testing of potential in-situ remedy
  - Installed over 3 miles of pipeline, booster pump station, concrete well-head vaults, instrumentation and controls
  - Installed centralized water treatment system





# Consent Order Status (continued)

## ❑ RDX Characterization Campaign

- Drilled well R-69 to refine conceptual model for RDX pathways into regional aquifer
- Sampling at R-69 will begin in November
- Including R-69, there are nine wells monitoring the regional groundwater as part of the RDX Characterization Campaign
- RDX has been detected above the screening level in one well (R-68), which is located more than three miles from the nearest drinking water well
- Deep Groundwater Investigation Report is due to NMED by August 31, 2019
- The report will discuss the fate and transport of RDX in regional groundwater and include a groundwater risk assessment to assess the potential for unacceptable risk to human health due to exposure to RDX in groundwater



*The monitoring well R-68 was drilled in FY 2017.*







## ❑ Waste Shipments

- N3B stood up mobile loading at Area G, enabling waste shipments to WIPP
- On October 4, 2018, N3B completed the first shipment of waste from Area G to WIPP since WIPP reopened
- The shipment contained OSRP waste from the NNSA program
- Future Area G shipments to WIPP will consist of legacy transuranic waste



*N3B waste management staff prepare the waste shipment for transport to the Waste Isolation Pilot Plant.*



*The waste management teams for EM-LA and N3B gathered to mark the completion of the first waste shipment*







## ☐ Remediated Nitrate Salt Drums

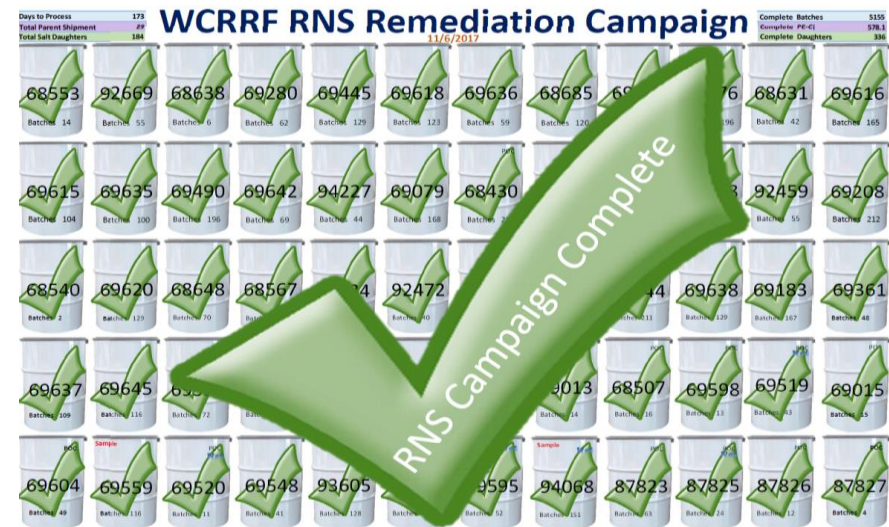
- Treated 60 improperly remediated nitrate salt drums completed
- Completed safely and successfully on November 3, 2017

## ☐ Unremediated Nitrate Salt Drums

- Treated 27 UNS drums
- Completed on March 13, 2018

## ☐ LANL Waste at Waste Control Specialists

- 31 shipments of Type One waste from WCS to WIPP completed safely





- ❑ Final FY 2019 budget bill allocated \$220 million for EM mission at LANL
  - As with FY 2018, increase of \$28 million from the President's Request of \$191.6 million





# Los Alamos Legacy Cleanup Contract

- ☐ **N3B Contract was awarded on December 6, 2017 and Transition commenced on January 25, 2018**
- ☐ **Transition ended on April 29, 2018 – N3B started on April 30<sup>th</sup>**
- ☐ **Unique transition that required N3B to standup business lines such as finance, human resources, payroll, information technology, and reporting**
- ☐ **“Safe in 90” – a safe and compliant resumption of operations – completed on August 1, 2018**

