U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

Los Alamos Legacy Cleanup Strategic Vision Presentation

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

EM-LA ENVIRONMENTAL MANAGEMENT
SAFETY ❖ PERFORMANCE ❖ CLEANUP ❖ CLOSURE

N3B Los Alamos

For More Information

- Visit: www.energy.gov/em-la/strategic-vision-development
- Contact us: emla_strategicvision@em.doe.gov

Acronym List

AOC	area of concern
AA	aggregate area
BOK	basis of knowledge
CGP	Construction General Permit
CH-TRU	contact-handled transuranic waste
CME	corrective measures evaluation
CMI	corrective measures implementation
CMP	corrugated metal pipe
CO	Consent Order (2016 Compliance Order on Consent)
D&D	decommission and demolition
DOE	Department of Energy
EJ	environmental justice
EM-LA	Environmental Management Los Alamos Field Office
ENS	early notification system
EPA	Environmental Protection Agency
ER	environmental remediation
FRP	fiberglass-reinforced plywood
HAZCat	hazard category (1, 2, 3 or below 3)
HWFP	Hazardous Waste Facility Permit
IP	Individual Permit
IWL	industrial waste line
L&A	Longenecker & Associates
LANL	Los Alamos National Laboratory
MDA	material disposal area
MDPR	Middle DP Road
MSGP	Multi-Sector General Permit
N3B	Newport News Nuclear—BWXT Los Alamos
NMED	New Mexico Environment Department
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
RDX	Royal Demolition Explosive
SSLs	soil screening levels
SVE	soil vapor extraction
SVOC	semi-volatile organic compound
SWB	standard waste box
SWMU	solid waste management unit
TA	technical area
TRU	transuranic
VOC	volatile organic compound
WIPP	Waste Isolation Pilot Plant

Commonly Used Terms and Definitions

aggregate area: a geographic area defined by watershed and canyon running east to west toward the Rio Grande River

AOC: an area where a potential release of hazardous waste or constituents may have occurred; not for solid waste management

CO: an enforceable agreement between NMED and DOE for the cleanup of legacy waste at LANL; issued in 2016 and modified in 2017; establishes an effective structure for accomplishing cleanup work on a priority basis through the use of dedicated campaigns with achievable and enforceable milestones and targets

CO campaign: consists of one or more projects, and includes one or more milestones and targets; may be revised annually based on work progress, changed conditions, risk and funding; are prioritized based on risks to workers, the public, and the environment, as well as stakeholder priorities, as agreed by DOE and NMED

corrective measure alternative: all actions taken to clean up, remove, remediate, contain, treat, monitor, assess, evaluate or in any other way address hazardous materials in the indoor and outdoor environment (aka alternative, cleanup alternative, cleanup approach, cleanup strategy, remediation strategy, remedy)

deferred site: the SWMUs and AOCs for which full investigation and/or remediation is deferred until such time as the SWMU or AOC is taken out of service or otherwise becomes accessible (e.g., firing sites and active facilities)

environmental media: soil, sediment and surface water and groundwater

Commonly Used Terms and Definitions

HAZCat 1: hazard analysis shows the potential for significant off-site consequences

HAZCat 2: hazard analysis shows the potential for significant on-site consequences

HAZCat 3: hazard analysis shows the potential for only significant localized consequences

legacy waste: waste generated before 1999

non-CO campaigns: base program compliance monitoring activities (e.g., groundwater monitoring, surface water monitoring, sediment sampling) that are not specifically part of a campaign, but are done continuously according to existing work plans

slab: a building's foundation (aka concrete slab)

SWMU: any discernible unit where solid waste was placed at any time, and from which NMED determines there may be a risk of a release of hazardous waste or hazardous waste constituents, irrespective of whether the unit was intended for the management of solid or hazardous waste; such units include any area at which solid wastes have been routinely and systematically released; and they do not include one-time spills

TRU waste: materials containing alpha-emitting radionuclides; with half-lives greater than twenty years and atomic numbers greater than 92; and in concentrations greater than 100 nanocuries per gram of waste

What is the EM-LA Strategic Vision

[Strategic Vision Development | Department of Energy]

General Overview

In 2022, the Department of Energy (DOE) Environmental Management Los Alamos (EM-LA) initiated the development of a long-term strategic vision for future LANL Legacy Cleanup Campaigns. The goals of the EM-LA strategic vision are to enhance stakeholder engagement in cleanup decisions, and to align with the objectives of the Los Alamos Legacy Cleanup Contract, regulatory interfaces, anticipated cleanup funding and desired outcomes. The EM-LA strategic vision will be integrated with DOE's broader goals for the legacy cleanup completion.

Purpose

- Develop a long-term strategic vision from the "ground-up" for the remaining legacy cleanup that is based on consensus of values and priorities from stakeholders and pueblos in northern New Mexico
- Obtain vision through sustained and robust education and engagement
- Aid EM-LA in prioritizing the remaining cleanup work

Objectives

- Provide stakeholders and pueblos (i.e., engagement groups) an opportunity to play a meaningful role in shaping the direction and completion of remaining legacy cleanup work at Los Alamos
- Build and strengthen relationships with stakeholders and pueblos
- Develop a realistic and stakeholder-informed vision document for remaining LANL legacy cleanup to assist DOE in prioritization
- Consider existing regulatory commitments
- Determine how best to use available funding and resources

What is the EM-LA Strategic Vision Phases

PHASE 1

Inform and Invite

Request participation; hold initial meetings; share objectives with engagement groups

PHASE 2

Elicit Values

Solicit and discuss values related to cleanup through facilitated listening sessions

PHASE 3

Collaborate to Develop Vision

Build strategic vision framework; show decision prioritization process that incorporates values and input

PHASE 4

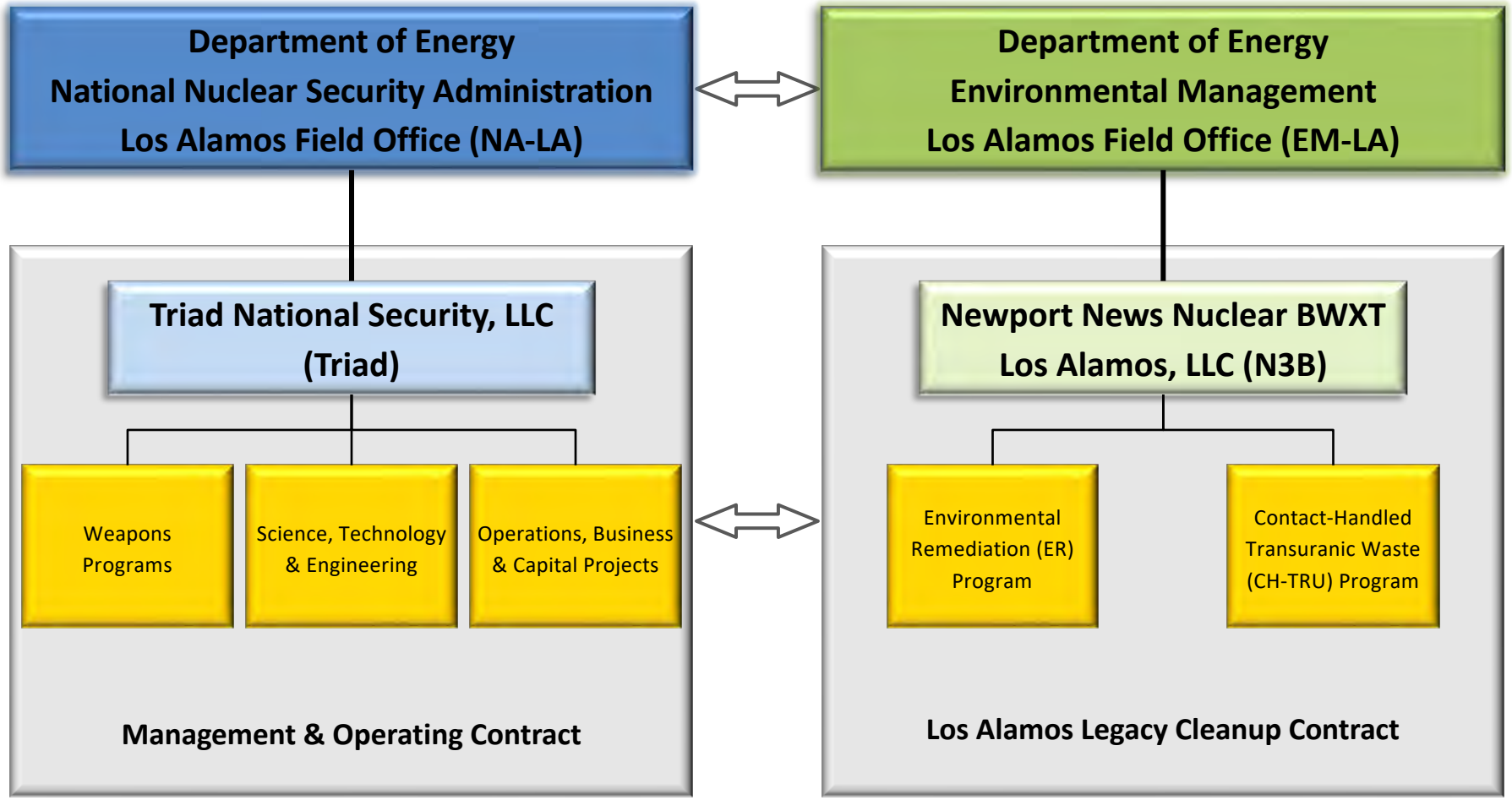
Produce and Rollout Strategic Vision

Implement guiding document to prioritize EM-LA legacy cleanup

We envision a multi-phase process that we anticipate will wrap up at the end of 2024

Note: There are no pre-determined conclusions for this process—this vision will be developed through the values and feedback we hear from you

Organizational Structure



Los Alamos Legacy Cleanup Mission

Legacy Cleanup Scope

EM-LA Scope Areas

Contact-Handled Transuranic Waste (CH-TRU) Program
Waste Management, Characterization and Shipping
Transuranic Waste
Mixed/Low-Level Waste
Remediation Waste
Hazardous Waste
Other Waste Streams
Legacy Waste Retrieval and Processing
Above Ground Inventory Waste Processing
Below Ground Waste Processing: Corrugated Metal Pipes
Below Ground Waste Processing: Pit 9 Waste Processing
Below Ground Waste Processing: Trenches A–D Waste Processing
Below Ground Waste Processing: Shafts Waste Processing

Other Work
Ion Beam Facility D&D

Environmental Remediation (ER) Program
Groundwater Monitoring
Interim Facility-Wide Groundwater Monitoring Plan
Surface Water Monitoring
Multi-Sector General Permit
Individual Permit
Consent Order Campaigns
Chromium Interim Measures & Characterization
Chromium Final Remedy
Royal Demolition Explosives Characterization
Royal Demolition Explosives Remedy
Historical Properties Completion
Supplemental Investigation Reports
Southern External Boundary
Sandia Canyon Watershed
Pajarito Watershed
Upper Water Watershed
TA-21 D&D and Cleanup
Material Disposal Areas (MDAs) A & T Remedy and General's Tanks
MDA C Remedy
MDA AB Remedy
MDA H Remedy
MDAs G & L Remedy
Soil Remediation
Middle DP Road Site Completion

- FY22 approved budget: $292 million
- N3B FY22 cleanup budget: $236 million

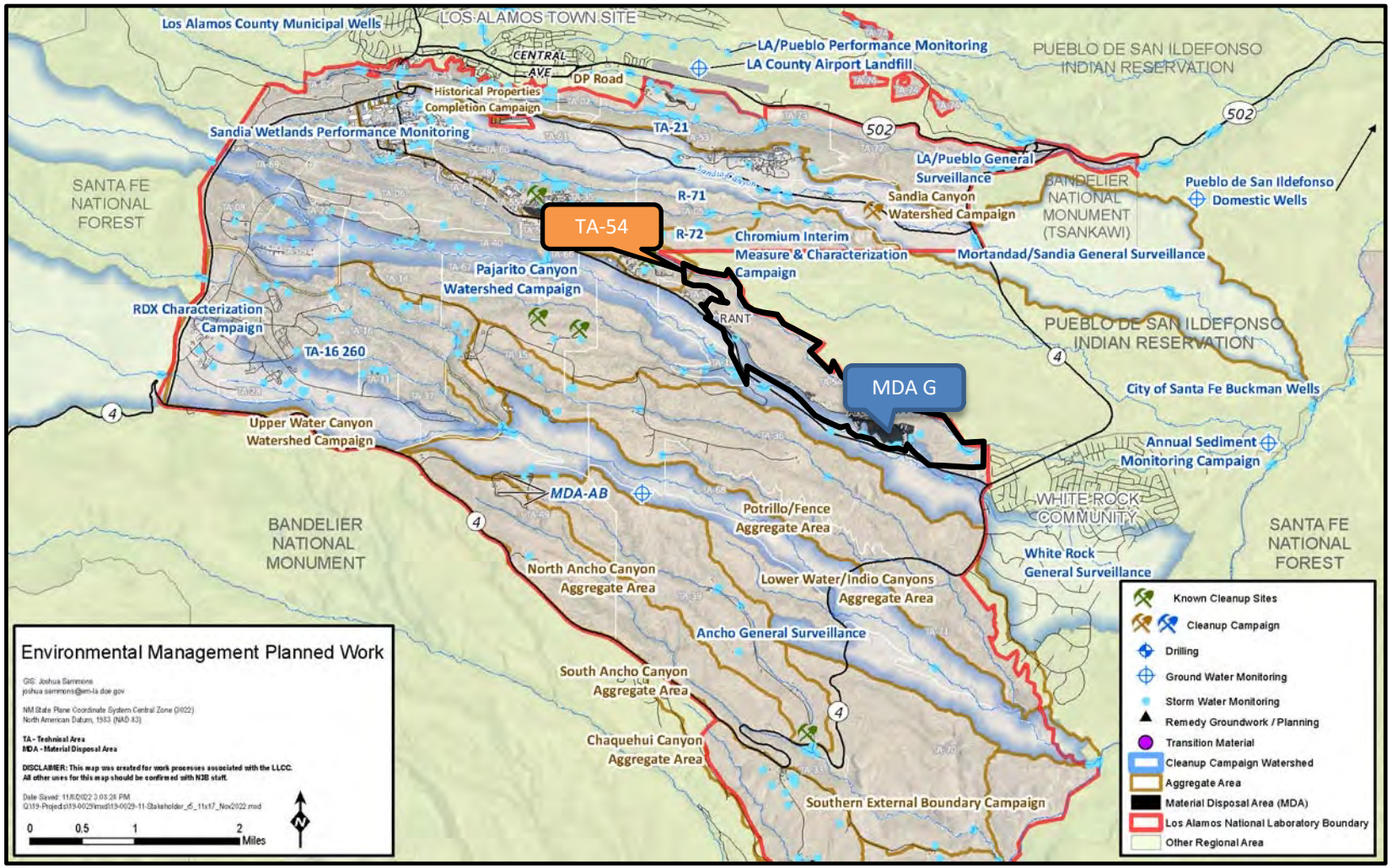
Regulatory Framework

Clean Water Act (Regulator: U.S. EPA)	
National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit	• Authorizes storm water discharges associated with industrial activities • N3B maintains authorization for two separate facilities, Areas G and L and the TA-54 Maintenance Facility • N3B is the signatory for this permit
NPDES Construction General Permit	• Eligible projects are authorized to discharge storm water associated with construction activities • Currently, N3B has six projects with active coverage under this general permit • N3B is the signatory for this permit
NPDES Individual Permit	• For discharges of storm water associated with industrial activities from specified solid waste management units and areas of concern • EM-LA and N3B are signatories to the current, administratively continued permit • EPA Region 6 issued a new permit in August 2022
Discharge Permits (Regulator: NMED Groundwater Quality Bureau)	
Discharge Permit (DP) 1793: General Land Application of Treated Groundwater	• EM-LA and N3B are signatories
DP 1835: Injection Wells for Chromium Project	• EM-LA and N3B are signatories
Clean Air Act (Regulator: NMED Air Quality Bureau)	
Title V/VI: Stationary Sources (Small Site Generator) Permit	• EM-LA and N3B sources are integrated with site-wide program • EM-LA, N3B, NA-LA and Triad (i.e., all four parties) are signatories
Resource Conservation and Recovery Act (Regulator: NMED Hazardous Waste Bureau)	
Los Alamos National Laboratory Hazardous Waste Facility Permit	• EM-LA and N3B have a separate program for their operations • All four parties are signatories
★ 2016 Compliance Order on Consent	• EM-LA is the signatory

This table is a general listing of regulatory requirements. EM-LA and its contractor must also comply with the National Environmental Policy Act (NEPA), DOE Orders and other applicable local, state or federal regulations. Additional information on regulatory requirements can be found in the Los Alamos Legacy Cleanup Contract (https://www.energy.gov/em-la/contracts).

Overview: CH-TRU Program

TA-54: CH-TRU Projects



TA-54: CH-TRU Fact Sheet

Los Alamos National Laboratory
TRU Waste Management at Area G
Fact Sheet

CAMPAIGN NAME:	LOCATION:	PROJECT ACTIVITIES:	PROJECT GOAL:	ESTIMATED COMPLETION:
TRU Waste Management at Area G	Area G, which covers 63 acres, lies inside Technical Area 54 at Los Alamos National Laboratory	Store, remediate and ship LANL's above-ground transuranic waste to the Waste Isolation Pilot Plant	Ensure contaminated waste from past LANL operations do not threaten human and environmental health	After 2028

HISTORY

Technical Area 54 (TA-54) is Los Alamos National Laboratory's (LANL) legacy waste management area. Opened in 1957, Area G is a site within TA-54 that contains past radioactive waste disposal areas. This area includes 32 pits, 194 shafts, and four trenches with depths ranging from 10 to 65 feet below the original ground surface. Area G is now dedicated to storing, characterizing, and remediating LANL's transuranic (TRU) and low-level waste to ship it offsite for permanent disposal.

NOVEMBER 2020 STATUS

- N3B began shipping from the Radioassay and Nondestructive Testing (RANT) facility.
- The RANT facility allows N3B to load TRU waste waste in inventory awaiting shipment, minimizing shipments to WIPP.

TRU WASTE

TRU waste is radioactive waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years. Transuranic elements are those greater than uranium on the Periodic Table of Elements. Most TRU waste at LANL is "contact-handled," meaning it can be safely handled directly by workers using protection.

SAFETY SYSTEMS

The TRU waste containers are stored in domes equipped with fire detection and air monitoring systems. The containers are routinely monitored and inspected. TRU waste from LANL's past defense-related activities is intended to be disposed deep underground at the Department of Energy's Waste Isolation Pilot Plant (WIPP) in southeastern New Mexico. Prior to shipment, the containers and their contents are independently, non-destructively analyzed and certified under a state- and Environmental Protection Agency-approved program to confirm that containers meet the WIPP Waste Acceptance Criteria.

SHIPPING WASTE OFFSITE

Mobile loading capabilities are fully operational at Area G, enabling TRU waste to be shipped to WIPP, weather and schedule permitting. TRU waste containers destined for WIPP—such as drums, standard waste boxes, and 10-drum overpacks—are secured inside robust shipping casks that have met strict Nuclear Regulatory Commission (NRC) requirements and testing under extreme conditions.

Produced by Los Alamos Legacy Cleanup Contractor N3B Los Alamos, on behalf of DOE's Environmental Management Los Alamos Field Office

BY THE NUMBERS

- 3,500 — Containers of above-ground TRU waste to be removed from Area G
- 67 — Projected number of shipments to WIPP from October 2020 through April 2023
- ~500 — Estimated number of shipments to complete the Area G TRU waste shipping campaign

s at Area G unrelated to the current TRU campaign include
ted TRU waste from below-grade pits, shafts, and trenches. Work
ixed low-level waste and low-level waste for transport to offsite

Waste Storage Domes at Area G

CONTACT DOE Environmental Management Los Alamos Field Office (505) 257-7950 | publicaffairs.emla@em.doe.gov

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Revised: 11/12/2020

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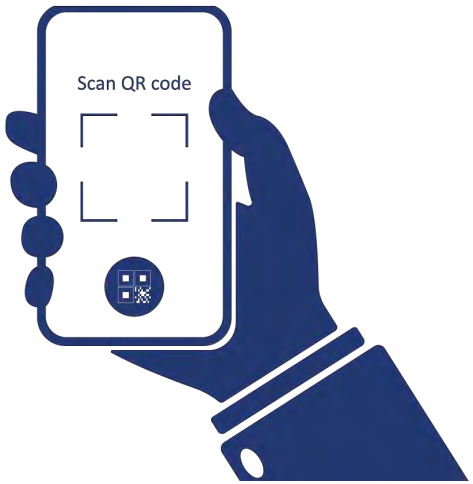

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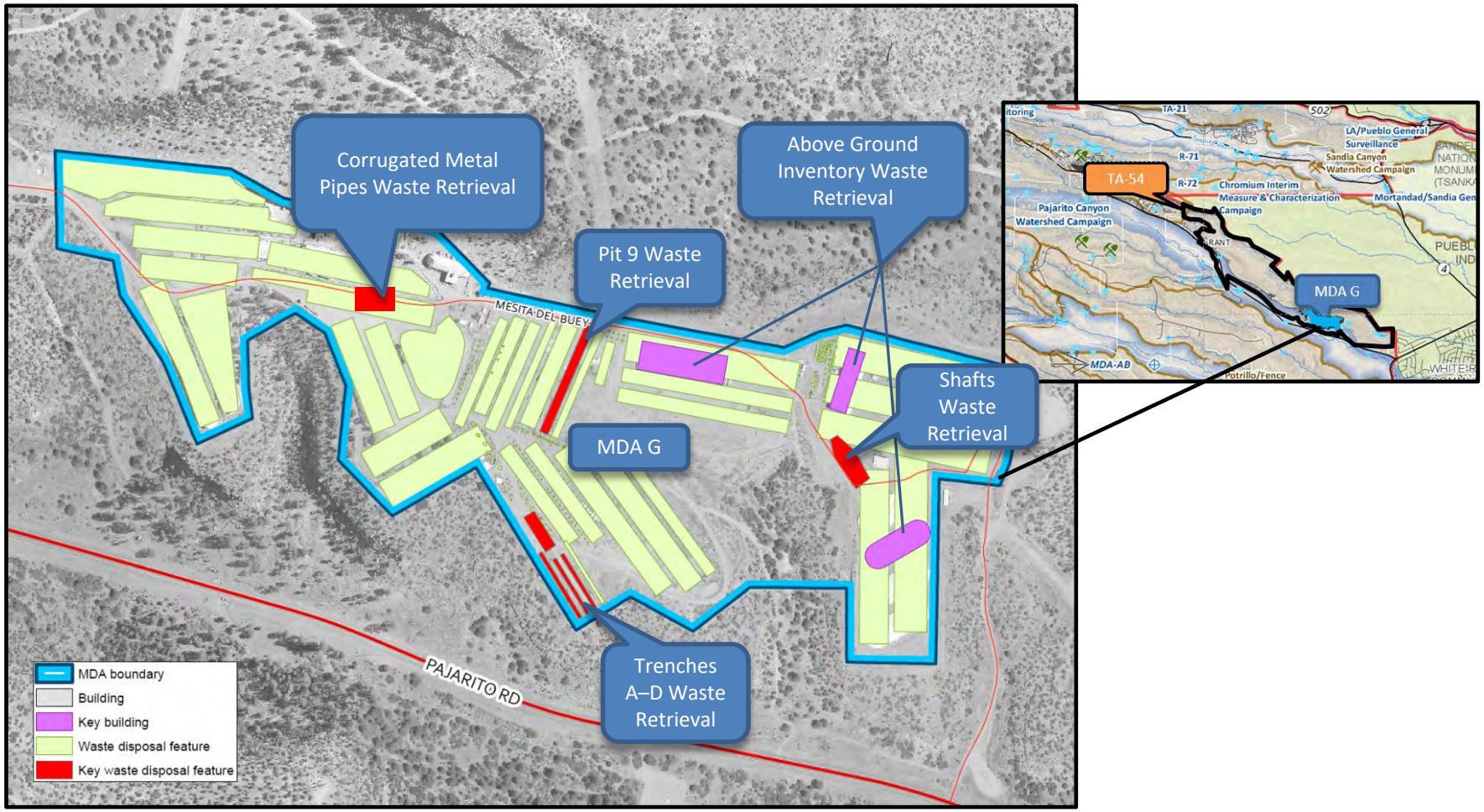
N3B Los Alamos

PR001

TA-54: CH-TRU Projects



CMPs Excavation and Processing

CMP Retrieval: Removing Overburden Soil and Plywood

CMP Size Reduction Mock-up Activities

Pit 9 Waste Emplacement

Waste Containers Were Placed into Pit 9 from 1974 through 1979

Fiberglass-reinforced Plywood Boxes in Pit 9

Trenches A–D Waste Emplacement

Arrays Have the Capacity to Hold Two 30-Gallon Drums Stacked One Above the Other

Arrays of Sealed Concrete Casks

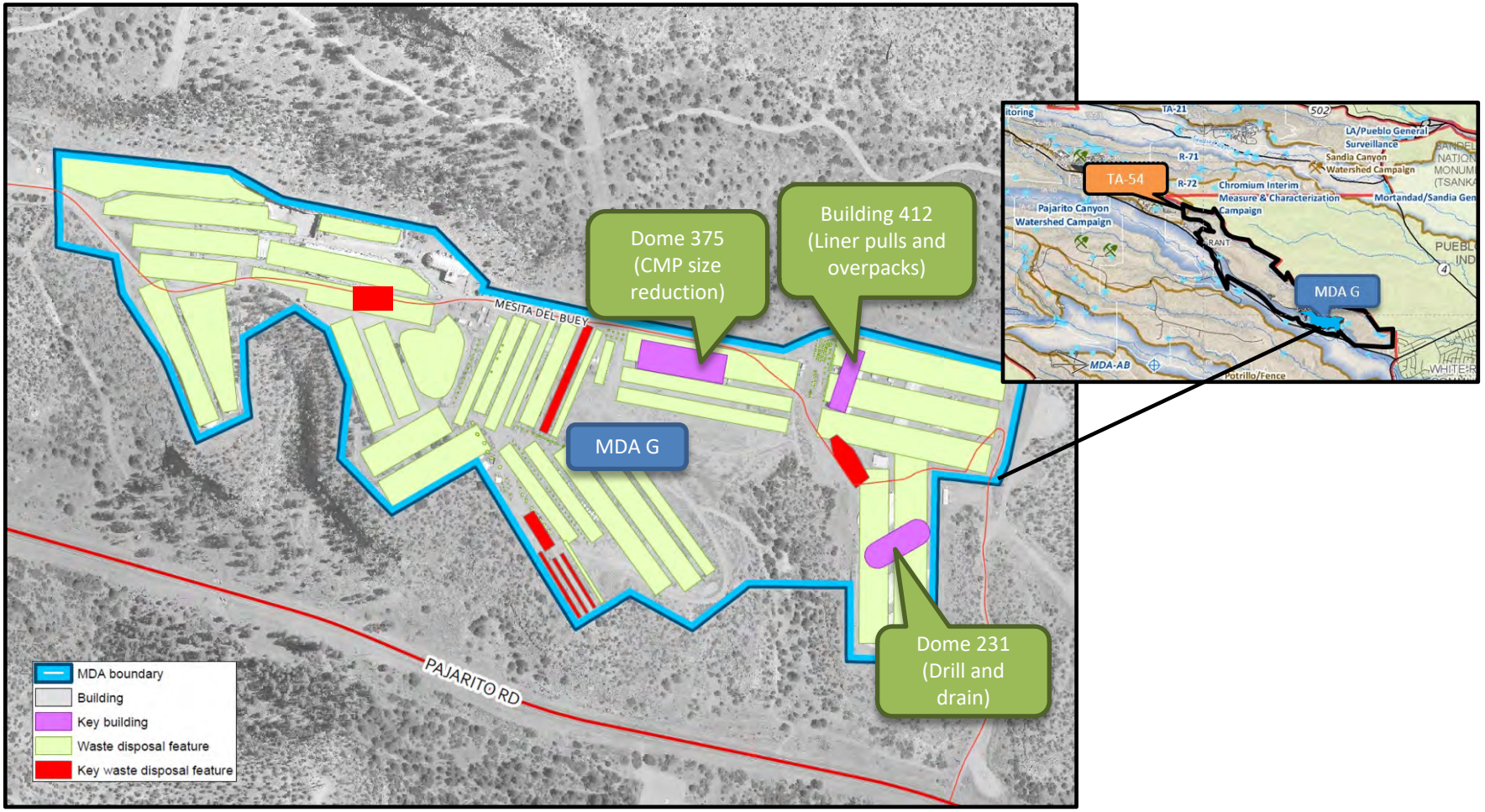
33 Shafts

The 33 Shafts at MDA G

Above Ground TRU Waste Storage

Above Ground Waste Inventory

TA-54: Processing Facilities



Processing Facilities: Dome 231

Drum Processing Area at PermaCon Inside Dome 231

Mock-up of Dome 231 Glovebag Drill and Drain to Process Drums Not Compliant for WIPP

Processing Facilities: Dome 375

Dome 375 PermaCon, Looking East into Cell 3

CMP Shear Ventilation Contamination Enclosure (Shown During Mock-ups)

Processing Facilities: Building 412

Repackaging Waste at Building 412

High Energy Real Time Radiography Scan of a Sealed Container

CH-TRU Complexity, Risks and Challenges

CH-TRU Projects	Complexity, Risks and Challenges[1]	Status
CMPs Waste Processing	• Located in TA-54, Area G, there are 158 CMPs, totaling 439 m^3 of cemented radioactive waste • CMPs are approx. 20 feet long and 30 inches in diameter with approximately 4- to 59-inch thick concrete plugs at each end • Each CMP will be moved into Dome 375, size reduced, characterized and then loaded in SWBs; processing time for size reduction will vary due to the nature of the material • Once loaded in a SWB, it must be certified for TRU disposal and shipped to WIPP; the timeline for certification varies • Work safety hazards involve high temperature environment, industrial hazards, heavy equipment hazards and radiological equipment hazards	In process
Pit 9 Waste Processing	• Located in TA-54, Area G, there are 4,079 containers, totaling 1,583 m^3 of waste • Before processing, each drum must be radiographed to learn about contents and determine how the drum will be processed and repackaged • Challenge in processing capacity and timeline due to Dome 375 setup for CMP size-reduction; Dome 375 will require facility modifications before initiating processing	Not started
Trenches A–D Waste Processing	• There are 710 containers, which are organized in arrays of sealed concrete casks with a capacity to hold two 30-gallon drums stacked one above the other • There are 420 concrete casks, and of those, 357 casks were used to store TRU waste • Will retrieve 81 m^3 of waste to process in Dome 375 • However, the challenge in processing capacity and timeline is because Dome 375 is setup for CMP size-reduction, and will require facility modifications to process Pit 9 waste and additional modifications for Trenches A–D • Additionally, Trenches A–D contain the most highly concentrated and technically challenging waste streams that will have to be redistributed to process	Not started

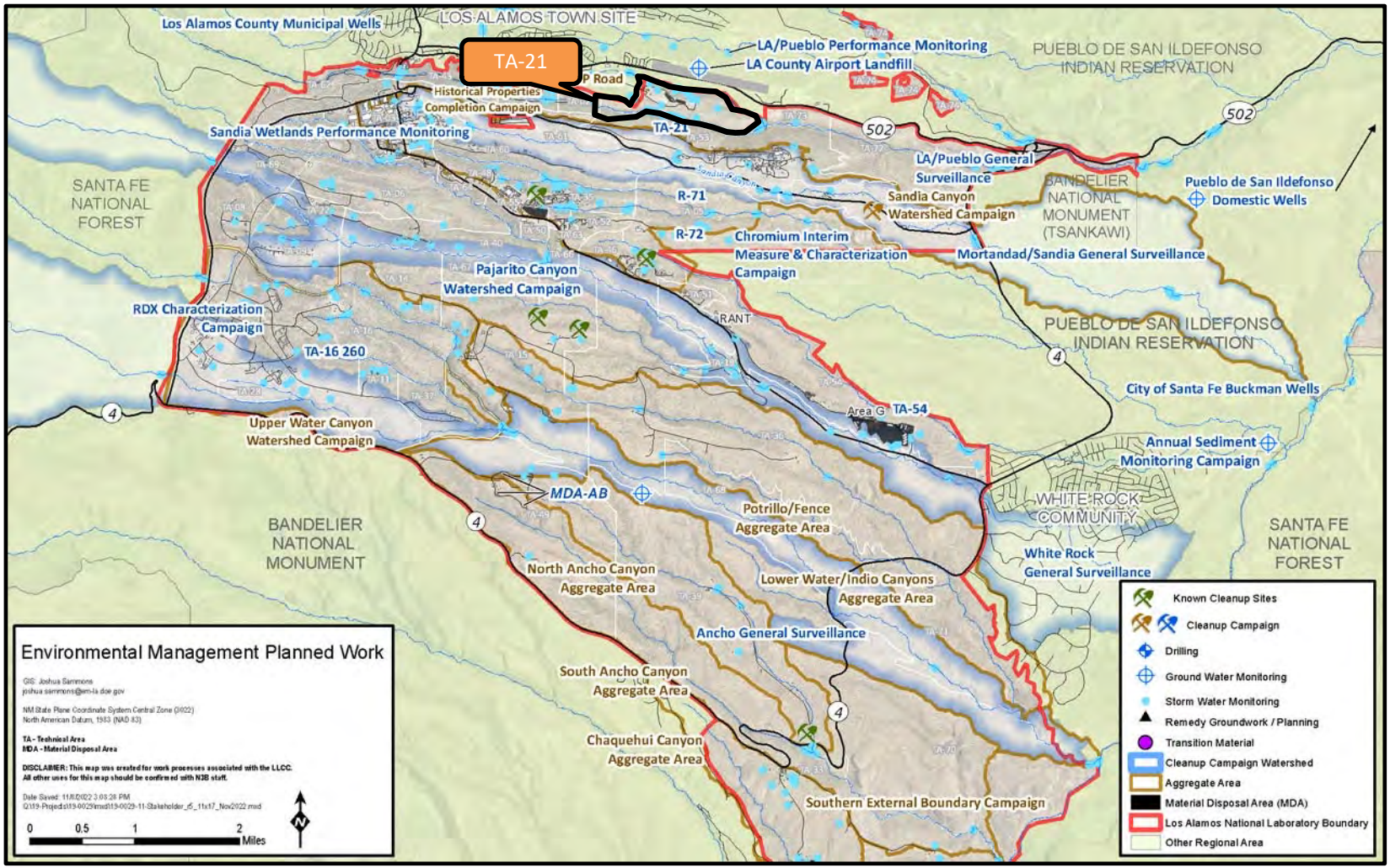
CH-TRU Complexity, Risks and Challenges

CH-TRU Projects	Complexity, Risks and Challenges[1]	Status
Shafts Waste Processing	• Located in TA-54, Area G, stored in vertical shafts that are buried 100 feet deep with CMPs lined near top surface • Contain five hot cell liners, five tritium packages, and a single waste package referred to as the 17th Canister; each requires separate retrievals • Challenge in processing capacity and timeline due to Dome 375 setup for CMP size-reduction, which will require facility modifications	Not started
Above Ground Inventory Waste Processing	• Located at multiple storage units across TA-54, Area G, totaling 2,327 containers (e.g., 55-gallon drums, 85-gallon drums, 110-gallon drums and SWBs) • In various phases of characterization, remediation and packaging for shipment off-site facilities, including WIPP • Diamond saw required for size-reduction of large items (i.e., Bolas Grandes) • There is a standard operating process involving the design, procurement, installation and startup of a Hi-MAR glovebox, and the timeline for each process varies • Challenge and complexity is the timeline related to waste certification via BOK process that may take up to a year	In process

1. General or high-level complexities, risks and challenges that apply to all projects include:
   - Worker safety
   - Staffing challenges: clearance (obtaining and maintaining), specialty certifications, SMEs
   - Inventory shortage: SWBs, etc.
   - Equipment: maintenance, scheduling of equipment to be delivered (subcontractors bringing drills could take up to a year to schedule)
   - Unknown or unforeseen events
   - Natural disasters: fires, droughts, etc.
   - Transportation and injuries

Overview: ER Program

TA-21: D&D


TA-21
Los Alamos County Municipal Wells
LOS ALAMOS TOWN SITE
LA/Pueblo Performance Monitoring
LA County Airport Landfill
PUEBLO DE SAN ILDEFONSO INDIAN RESERVATION
P Road
Historical Properties Completion Campaign
Sandia Wetlands Performance Monitoring
TA-21
502
LA/Pueblo General Surveillance
SANTA FE NATIONAL FOREST
R-71
Sandia Canyon Watershed Campaign
BANDELIER NATIONAL MONUMENT (TSANKAWI)
Pueblo de San Ildefonso Domestic Wells
R-72
Chromium Interim Measure & Characterization Campaign
Mortandad/Sandia General Surveillance
Pajarito Canyon Watershed Campaign
RDX Characterization Campaign
TA-16 260
RANT
PUEBLO DE SAN ILDEFONSO INDIAN RESERVATION
City of Santa Fe Buckman Wells
Area G
TA-54
Upper Water Canyon Watershed Campaign
Annual Sediment Monitoring Campaign
MDA-AB
WHITE ROCK COMMUNITY
Potrillo/Fence Aggregate Area
BANDELIER NATIONAL MONUMENT
SANTA FE NATIONAL FOREST
White Rock General Surveillance
North Ancho Canyon Aggregate Area
Lower Water/Indio Canyons Aggregate Area
Ancho General Surveillance
South Ancho Canyon Aggregate Area
Chaquehui Canyon Aggregate Area
Southern External Boundary Campaign
Environmental Management Planned Work
GIS: Joshua Sammons
joshua.sammons@em-la.doe.gov
NM State Plane Coordinate System Central Zone (3022)
North American Datum, 1983 (NAD 83)
TA - Technical Area
MDA - Material Disposal Area
DISCLAIMER: This map was created for work processes associated with the LLCC. All other uses for this map should be confirmed with N3B staff.
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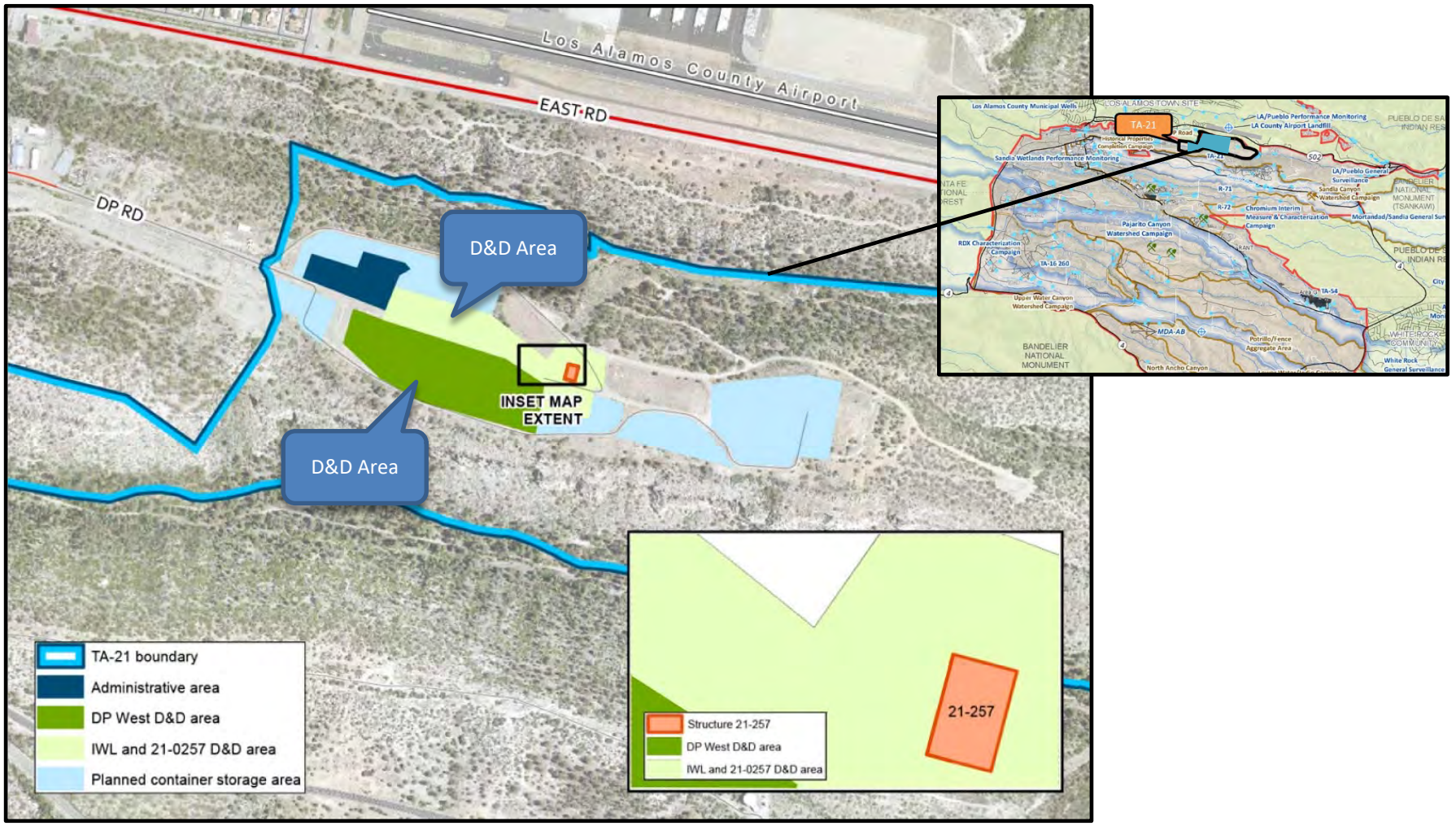
0 0.5 1 2 Miles
N
Known Cleanup Sites
Cleanup Campaign
Drilling
Ground Water Monitoring
Storm Water Monitoring
Remedy Groundwork / Planning
Transition Material
Cleanup Campaign Watershed
Aggregate Area
Material Disposal Area (MDA)
Los Alamos National Laboratory Boundary
Other Regional Area

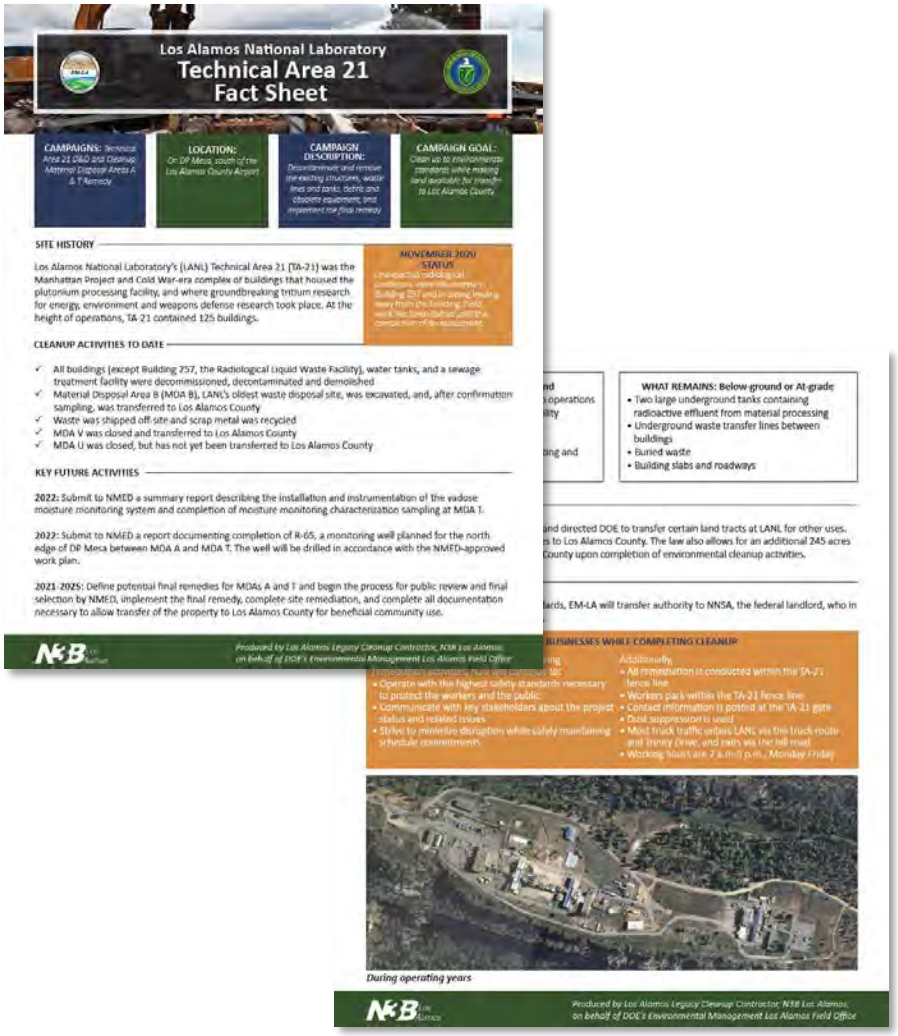
TA-21: D&D


Los Alamos County Airport
EAST RD
DP RD
D&D Area
INSET MAP EXTENT
D&D Area
TA-21 boundary
Administrative area
DP West D&D area
IWL and 21-0257 D&D area
Planned container storage area
Structure 21-257
DP West D&D area
IWL and 21-0257 D&D area
21-257
TA-21
BANDELIER NATIONAL MONUMENT

TA-21 D&D

Building 21-257 to be Decommissioned and Demolished

TA-21 Fact Sheet



Los Alamos National Laboratory
Technical Area 21
Fact Sheet

CAMPAIGNS: Technical Area 21 D&D and Cleanup; Material Disposal Areas A & T Remedy

LOCATION: On DP Mesa, south of the Los Alamos County Airport

CAMPAIGN DESCRIPTION: Decommission and remove the existing structures, waste lines and tanks; debris and obsolete equipment; and implement the final remedy

CAMPAIGN GOAL: Clean up to environmental standards while making land available for transfer to Los Alamos County

SITE HISTORY

Los Alamos National Laboratory's (LANL) Technical Area 21 (TA-21) was the Manhattan Project and Cold War-era complex of buildings that housed the plutonium processing facility, and where groundbreaking tritium research for energy, environment and weapons defense research took place. At the height of operations, TA-21 contained 125 buildings.

NOVEMBER 2020 STATUS

Unexpected radiological conditions were encountered in Building 257 and in piping routes a way from the building. Field work has been halted until the cause(s) can be determined.

CLEANUP ACTIVITIES TO DATE

- ✓ All buildings (except Building 257, the Radiological Liquid Waste Facility), water tanks, and a sewage treatment facility were decommissioned, decontaminated and demolished
- ✓ Material Disposal Area B (MDA B), LANL's oldest waste disposal site, was excavated, and, after confirmation sampling, was transferred to Los Alamos County
- ✓ Waste was shipped off-site and scrap metal was recycled
- ✓ MDA V was closed and transferred to Los Alamos County
- ✓ MDA U was closed, but has not yet been transferred to Los Alamos County

KEY FUTURE ACTIVITIES

2022: Submit to NMED a summary report describing the installation and instrumentation of the vadose moisture monitoring system and completion of moisture monitoring characterization sampling at MDA T.

2022: Submit to NMED a report documenting completion of R-65, a monitoring well planned for the north edge of DP Mesa between MDA A and MDA T. The well will be drilled in accordance with the NMED-approved work plan.

2021-2025: Define potential final remedies for MDAs A and T and begin the process for public review and final selection by NMED, implement the final remedy, complete site remediation, and complete all documentation necessary to allow transfer of the property to Los Alamos County for beneficial community use.

Produced by Los Alamos Legacy Cleanup Contractor, N3B Los Alamos, on behalf of DOE's Environmental Management Los Alamos Field Office

WHAT REMAINS: Below-ground or At-grade

- Two large underground tanks containing radioactive effluent from material processing
- Underground waste transfer lines between buildings
- Buried waste
- Building slabs and roadways

...and directed DOE to transfer certain land tracts at LANL for other uses. ...s to Los Alamos County. The law also allows for an additional 245 acres ...County upon completion of environmental cleanup activities.

...ards, EM-LA will transfer authority to NNSA, the federal landlord, who in ...

...BUSINESSES WHILE COMPLETING CLEANUP

- ...operations ...ity ...ng and ...
- Operate with the highest safety standards necessary to protect the workers and the public
- Communicate with key stakeholders about the project status and related issues
- Strive to minimize disruption while safely maintaining schedule commitments

Additionally,
- All remediation is conducted within the TA-21 fence line
- Workers park within the TA-21 fence line
- Contact information is posted at the TA-21 gate
- Dust suppression is used
- Most truck traffic enters LANL via the truck route and Penny Circle, and exits via the hill road
- Working hours are 7 a.m.-5 p.m., Monday-Friday

During operating years

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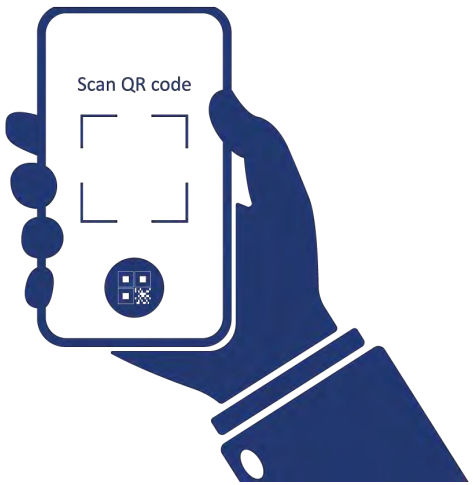

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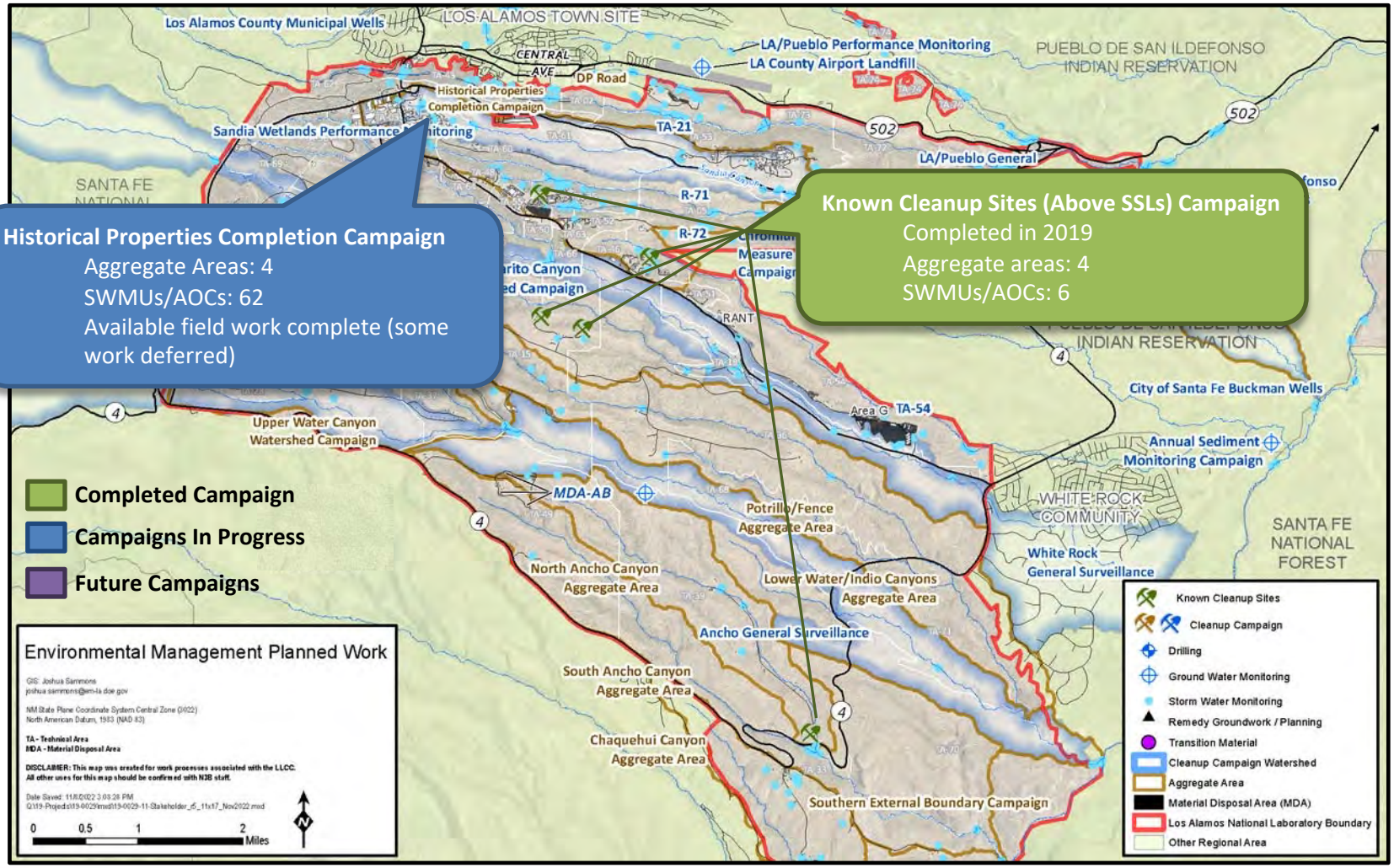
N3B Los Alamos

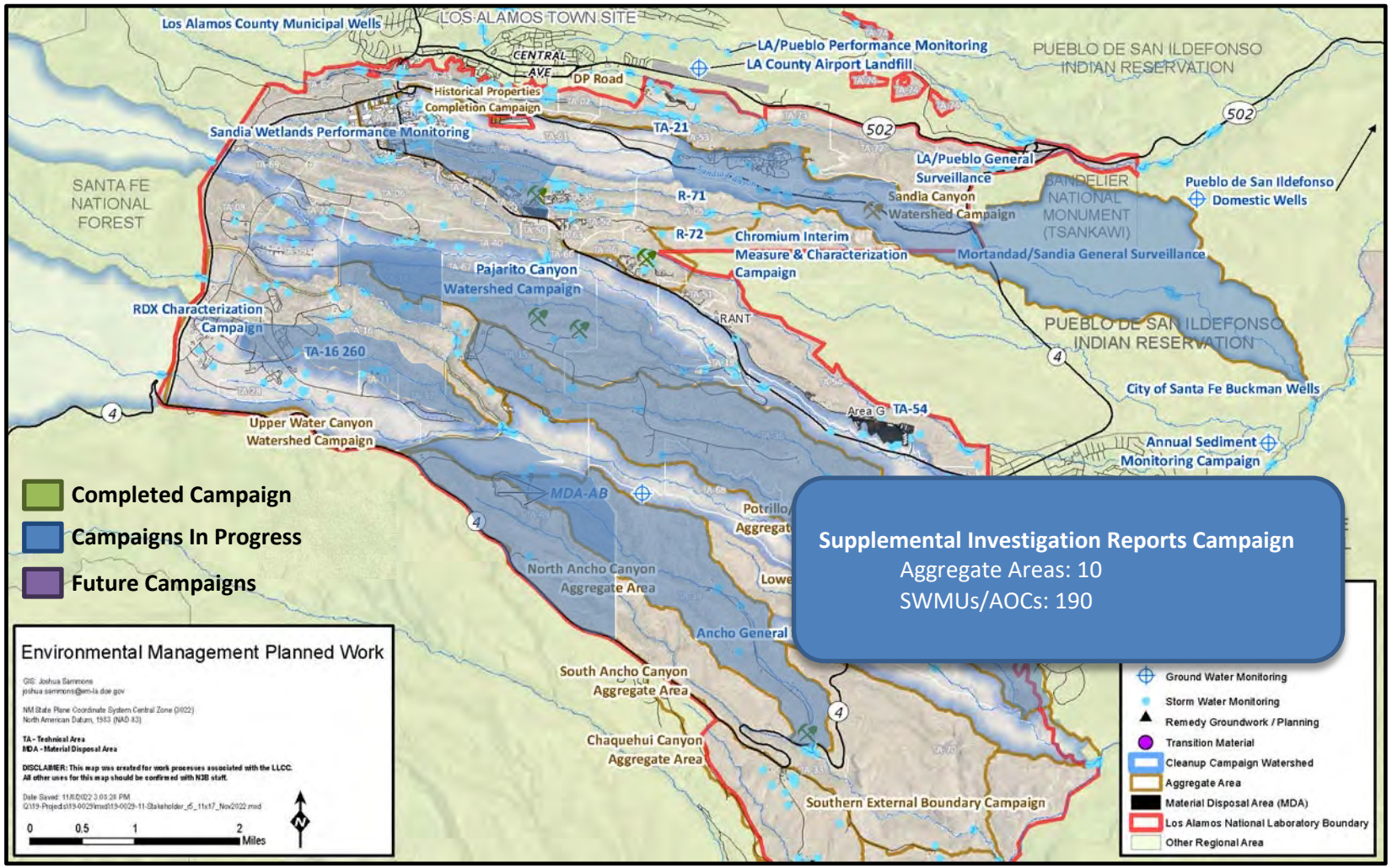
Aggregate Areas

Historical Properties Completion Campaign
- Aggregate Areas: 4
- SWMUs/AOCs: 62
- Available field work complete (some work deferred)

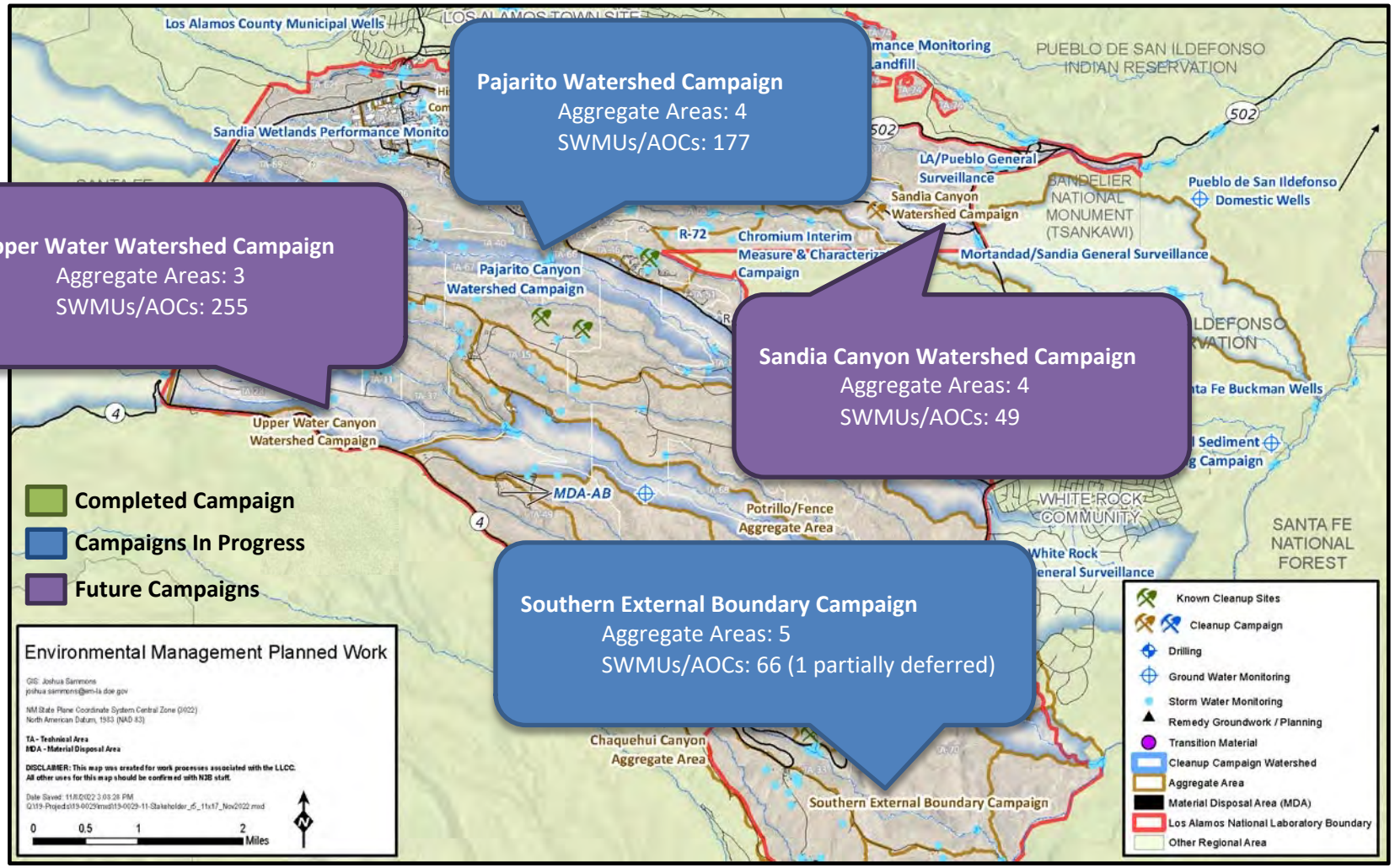
Known Cleanup Sites (Above SSLs) Campaign
- Completed in 2019
- Aggregate areas: 4
- SWMUs/AOCs: 6



Aggregate Areas



Aggregate Areas



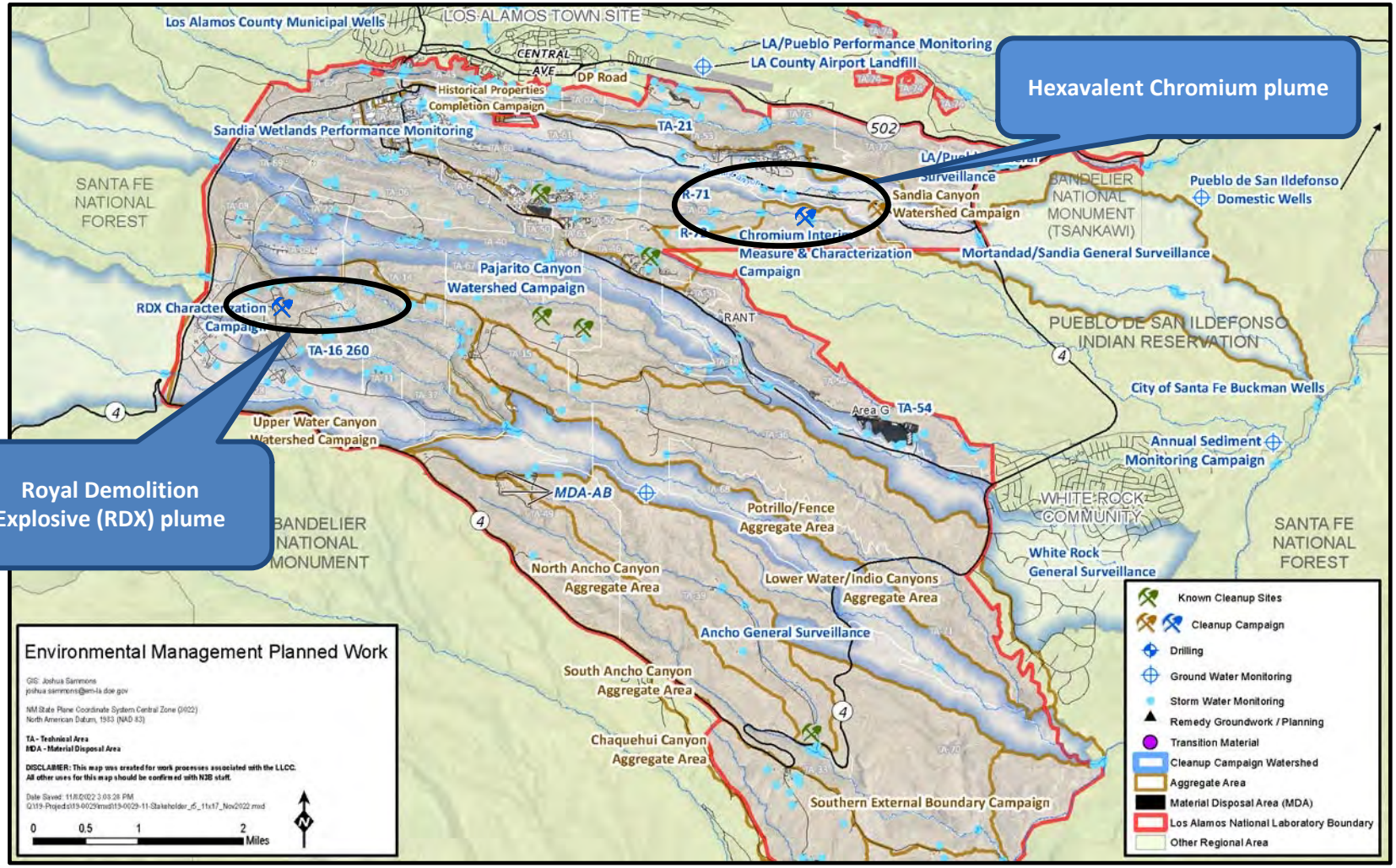
Aggregate Area Photos

Soil Sampling in Upper Water Canyon

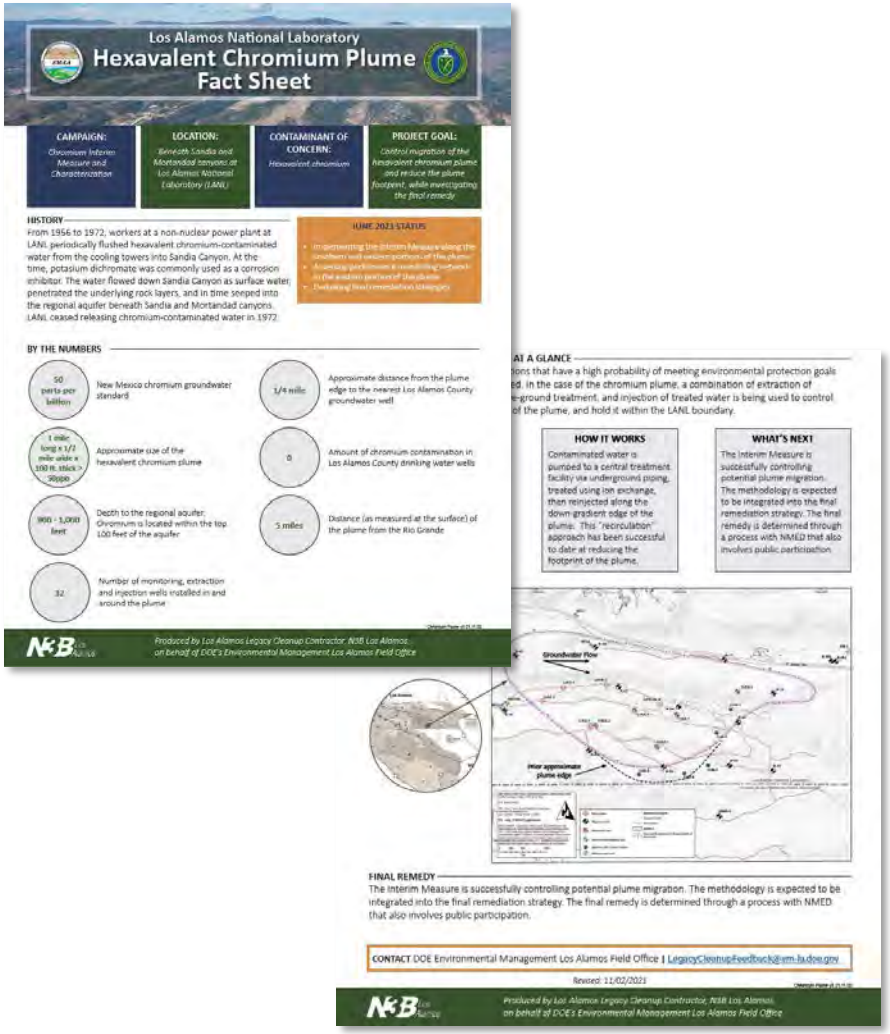
Installing Compost Sock in Pajarito Canyon

Storm Water Controls in Sandia Wetlands

Groundwater



Hexavalent Chromium Plume Fact Sheet



Los Alamos National Laboratory

Hexavalent Chromium Plume Fact Sheet

CAMPAIGN:	LOCATION:	CONTAMINANT OF CONCERN:	PROJECT GOAL:
Chromium Interim Measure and Characterization	Beneath Sandia and Mortandad canyons at Los Alamos National Laboratory (LANL)	Hexavalent chromium	Control migration of the hexavalent chromium plume and reduce the plume footprint, while investigating the final remedy

HISTORY

From 1956 to 1972, workers at a non-nuclear power plant at LANL periodically flushed hexavalent chromium-contaminated water from the cooling towers into Sandia Canyon. At the time, potasium dichromate was commonly used as a corrosion inhibitor. The water flowed down Sandia Canyon as surface water, penetrated the underlying rock layers, and in time seeped into the regional aquifer beneath Sandia and Mortandad canyons. LANL ceased releasing chromium-contaminated water in 1972.

JUNE 2021 STATUS

- Implementing the Interim Measure along the southern and western portions of the plume
- Assessing performance & conducting outreach on the eastern portions of the plume
- Developing final remediation strategies

BY THE NUMBERS

- 50 parts per billion — New Mexico chromium groundwater standard
- 1/4 mile — Approximate distance from the plume edge to the nearest Los Alamos County groundwater well
- 1 mile long x 1/2 mile wide x 100 ft. thick = 30ppb — Approximate size of the hexavalent chromium plume
- 0 — Amount of chromium contamination in Los Alamos County drinking water wells
- 900 - 1,000 feet — Depth to the regional aquifer. Chromium is located within the top 100 feet of the aquifer
- 5 miles — Distance (as measured at the surface) of the plume from the Rio Grande
- 32 — Number of monitoring, extraction and injection wells installed in and around the plume

Produced by Los Alamos Legacy Cleanup Contractor, N3B Los Alamos, on behalf of DOE's Environmental Management Los Alamos Field Office

AT A GLANCE

tions that have a high probability of meeting environmental protection goals ed. In the case of the chromium plume, a combination of extraction of e-ground treatment, and injection of treated water is being used to control of the plume, and hold it within the LANL boundary.

HOW IT WORKS

Contaminated water is pumped to a central treatment facility via underground piping, treated using ion exchange, then reinjected along the down-gradient edge of the plume. This "recirculation" approach has been successful to date at reducing the footprint of the plume.

WHAT'S NEXT

The Interim Measure is successfully controlling potential plume migration. The methodology is expected to be integrated into the final remediation strategy. The final remedy is determined through a process with NMED that also involves public participation.

Groundwater Flow

Inter approximate plume edge

FINAL REMEDY

The Interim Measure is successfully controlling potential plume migration. The methodology is expected to be integrated into the final remediation strategy. The final remedy is determined through a process with NMED that also involves public participation.

CONTACT DOE Environmental Management Los Alamos Field Office | LegacyCleanupFeedback@em.la.doe.gov

Revised: 11/02/2021

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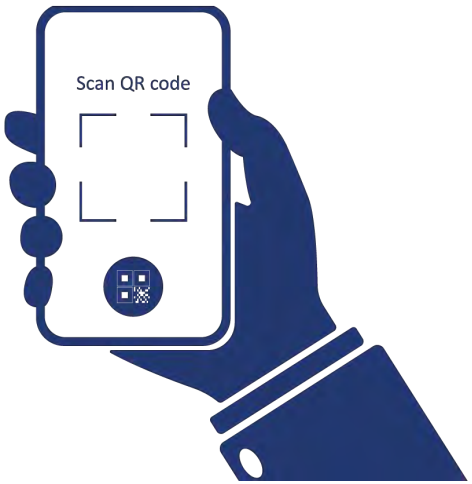
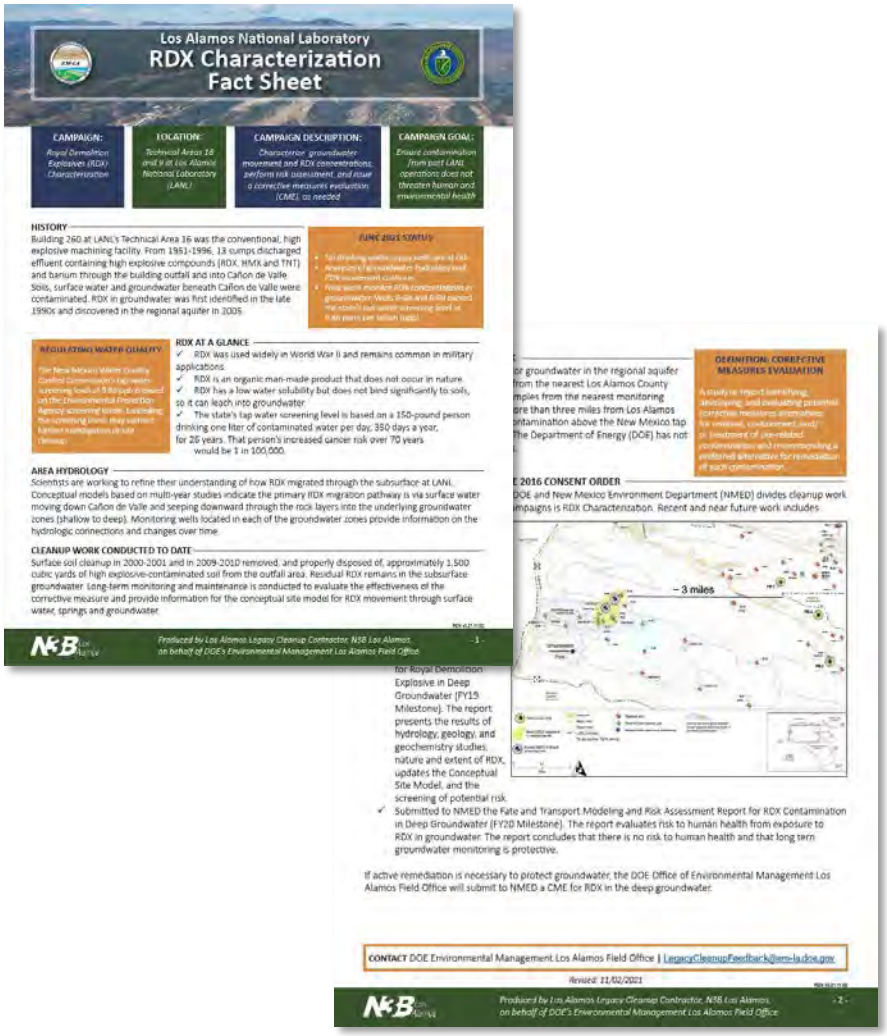


ENVIRONMENTAL MANAGEMENT
SAFETY ❖ PERFORMANCE ❖ CLEANUP ❖ CLOSURE

N3B Los Alamos

PR001

RDX Fact Sheet



Los Alamos National Laboratory
RDX Characterization Fact Sheet

CAMPAIGN: Royal Demolition Explosives (RDX) Characterization

LOCATION: Technical Areas 16 and 9 at Los Alamos National Laboratory (LANL)

CAMPAIGN DESCRIPTION: Characterize groundwater movement and RDX concentrations, perform risk assessment, and issue a corrective measures evaluation (CME), as needed

CAMPAIGN GOAL: Ensure contamination from past LANL operations does not threaten human and environmental health

HISTORY

Building 260 at LANL's Technical Area 16 was the conventional, high explosive machining facility. From 1951-1996, 13 sumps discharged effluent containing high explosive compounds (RDX, HMX and TNT) and barium through the building outfall and into Cañon de Valle. Soils, surface water and groundwater beneath Cañon de Valle were contaminated. RDX in groundwater was first identified in the late 1990s and discovered in the regional aquifer in 2005.

JUNE 2021 STATUS

- Six drinking water supply wells are at risk.
- Presence of groundwater that does not meet RDX movement criteria in
- Nine wells monitor RDX concentrations in groundwater. Wells R-60 and R-61 exceed the state's tap water screening level of 0.85 parts per billion (ppb).

REGULATING WATER QUALITY

The New Mexico Water Quality Control Commission's (4) water screening level of 0.85 ppb is based on the Environmental Protection Agency screening level. Exceeding this screening level may warrant further investigation or site cleanup.

RDX AT A GLANCE

- ✓ RDX was used widely in World War II and remains common in military applications.
- ✓ RDX is an organic man-made product that does not occur in nature.
- ✓ RDX has a low water solubility but does not bind significantly to soils, so it can leach into groundwater.
- ✓ The state's tap water screening level is based on a 150-pound person drinking one liter of contaminated water per day, 350 days a year, for 26 years. That person's increased cancer risk over 70 years would be 1 in 100,000.

AREA HYDROLOGY

Scientists are working to refine their understanding of how RDX migrated through the subsurface at LANL. Conceptual models based on multi-year studies indicate the primary RDX migration pathway is via surface water moving down Cañon de Valle and seeping downward through the rock layers into the underlying groundwater zones (shallow to deep). Monitoring wells located in each of the groundwater zones provide information on the hydrologic connections and changes over time.

CLEANUP WORK CONDUCTED TO DATE

Surface soil cleanup in 2000-2001 and in 2009-2010 removed, and properly disposed of, approximately 1,500 cubic yards of high explosive-contaminated soil from the outfall area. Residual RDX remains in the subsurface groundwater. Long-term monitoring and maintenance is conducted to evaluate the effectiveness of the corrective measure and provide information for the conceptual site model for RDX movement through surface water, springs and groundwater.

N3B Los Alamos — Produced by Los Alamos Legacy Cleanup Contractor, N3B Los Alamos, on behalf of DOE's Environmental Management Los Alamos Field Office — 1

or groundwater in the regional aquifer
from the nearest Los Alamos County
mples from the nearest monitoring
ore than three miles from Los Alamos
ntamination above the New Mexico tap
The Department of Energy (DOE) has not

DEFINITION: CORRECTIVE MEASURES EVALUATION

A study to report identifying, developing, and evaluating potential corrective measures alternatives for removal, containment, and/or treatment of site-related contamination and recommending a preferred alternative for remediation of such contamination.

2016 CONSENT ORDER

DOE and New Mexico Environment Department (NMED) divides cleanup work
mpaigns is RDX Characterization. Recent and near future work includes

for Royal Demolition Explosive in Deep Groundwater (FY19 Milestone). The report presents the results of hydrology, geology, and geochemistry studies; nature and extent of RDX; updates the Conceptual Site Model; and the screening of potential risk.

- ✓ Submitted to NMED the Fate and Transport Modeling and Risk Assessment Report for RDX Contamination in Deep Groundwater (FY20 Milestone). The report evaluates risk to human health from exposure to RDX in groundwater. The report concludes that there is no risk to human health and that long term groundwater monitoring is protective.

If active remediation is necessary to protect groundwater, the DOE Office of Environmental Management Los Alamos Field Office will submit to NMED a CME for RDX in the deep groundwater.

CONTACT DOE Environmental Management Los Alamos Field Office | LegacyCleanupFeedback@em-la.doe.gov

Revised: 11/02/2021

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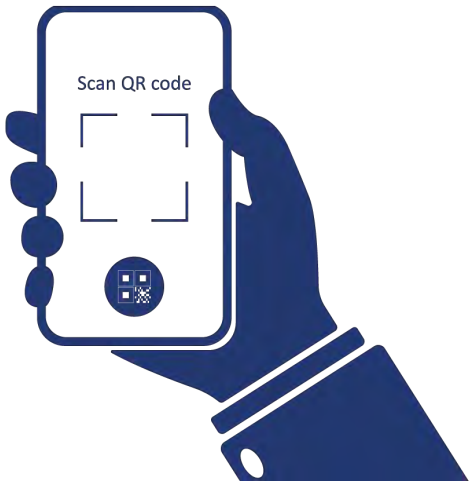


DEPARTMENT OF ENERGY · EM-LA · ENVIRONMENTAL MANAGEMENT · LOS ALAMOS

ENVIRONMENTAL MANAGEMENT
SAFETY ❖ PERFORMANCE ❖ CLEANUP ❖ CLOSURE

N3B Los Alamos

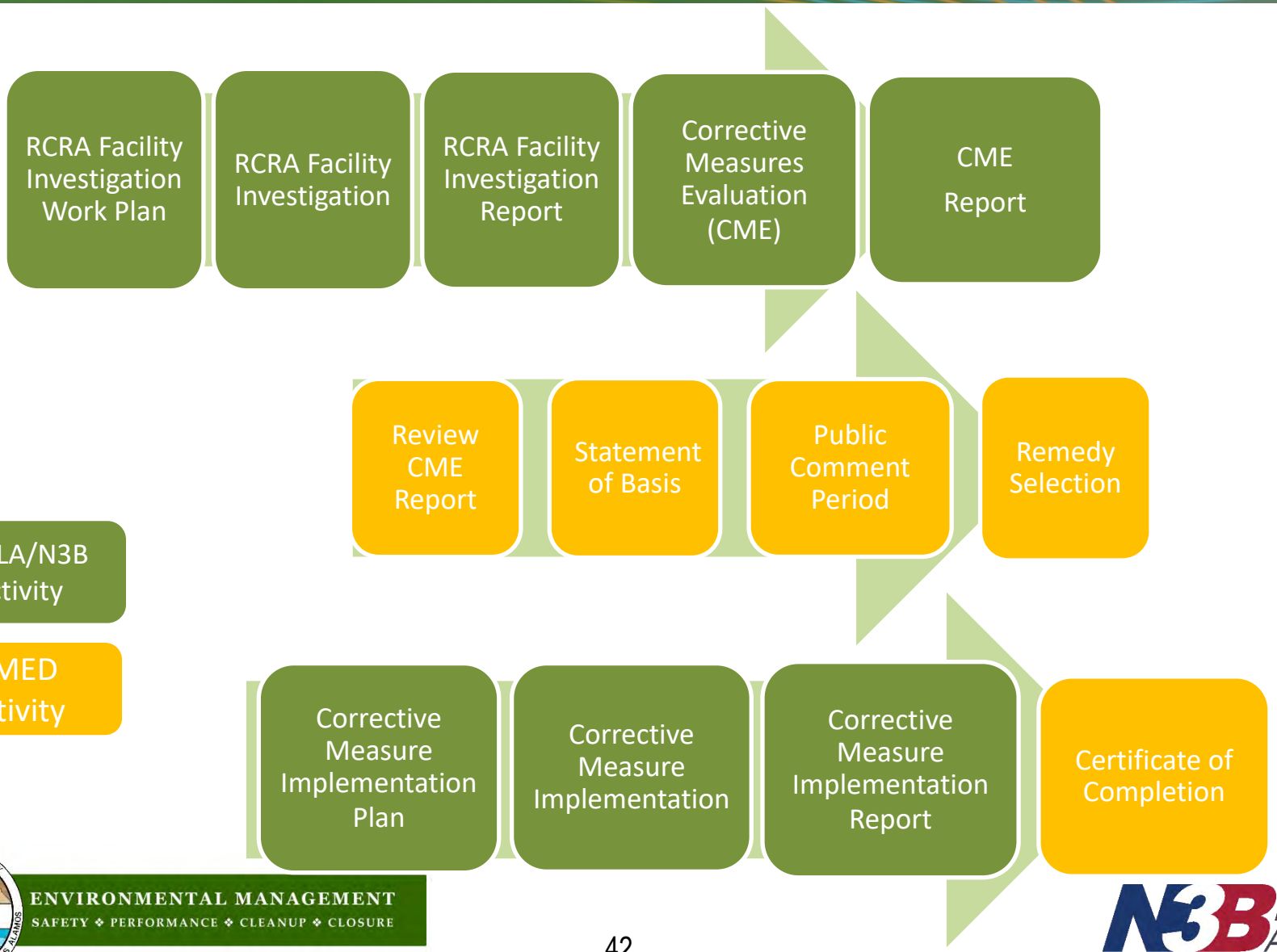
PR001

Hexavalent Chromium Plume Interim Measures

Ion Exchange Unit Where Groundwater Contaminated with Hexavalent Chromium is Treated

Drilling Operations for Groundwater Monitoring Well R-71

Consent Order Corrective Action Process (where CME is required)



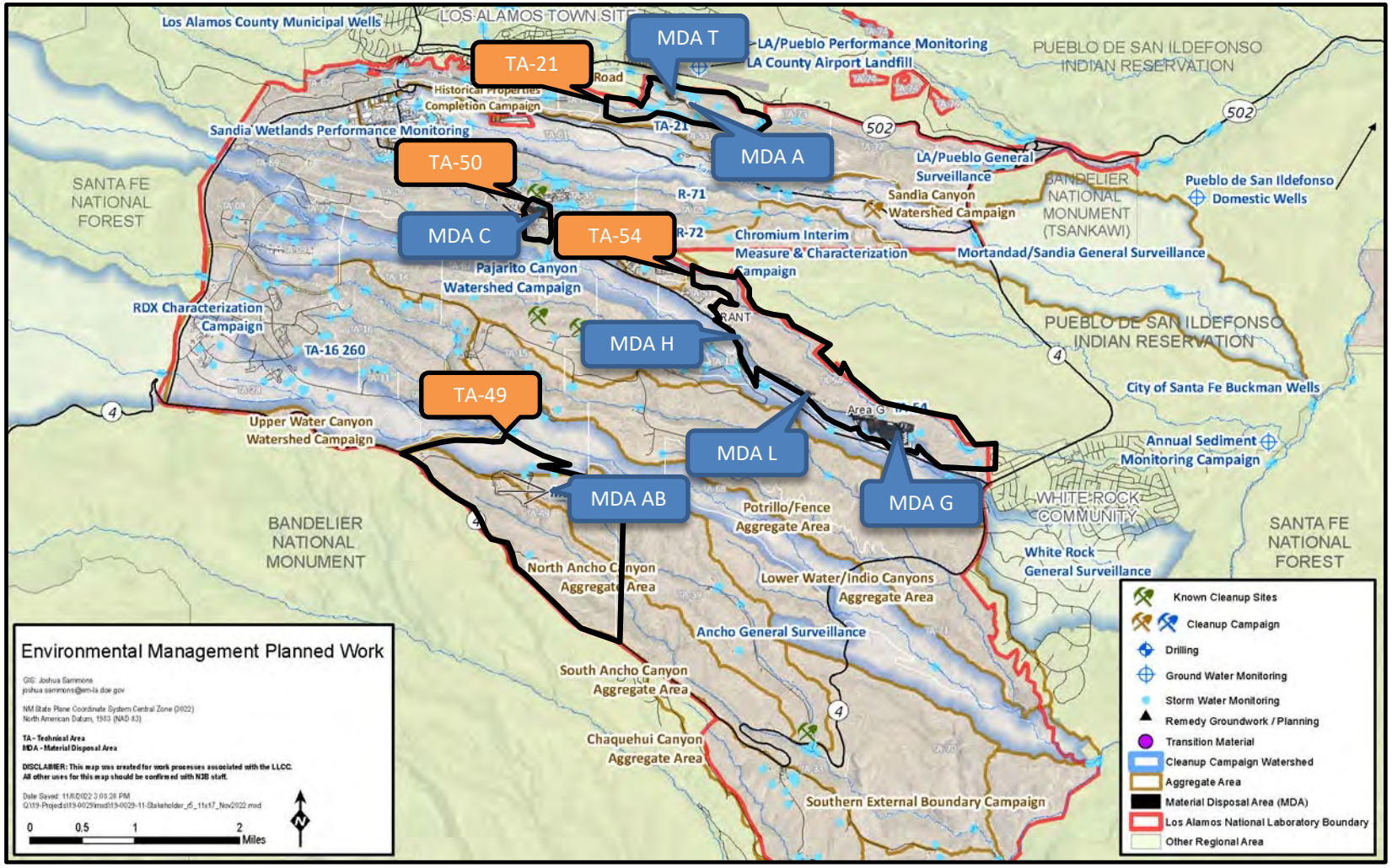
CME Process

Threshold Criteria	Balancing Criteria
Be protective of human health	Long-term reliability and effectiveness
Attain media cleanup objectives	Reduction of toxicity, mobility or volume of waste and contaminated media
Control the source(s) of releases	Short-term effectiveness
Comply with applicable standards for management of wastes	Implementability
	Cost

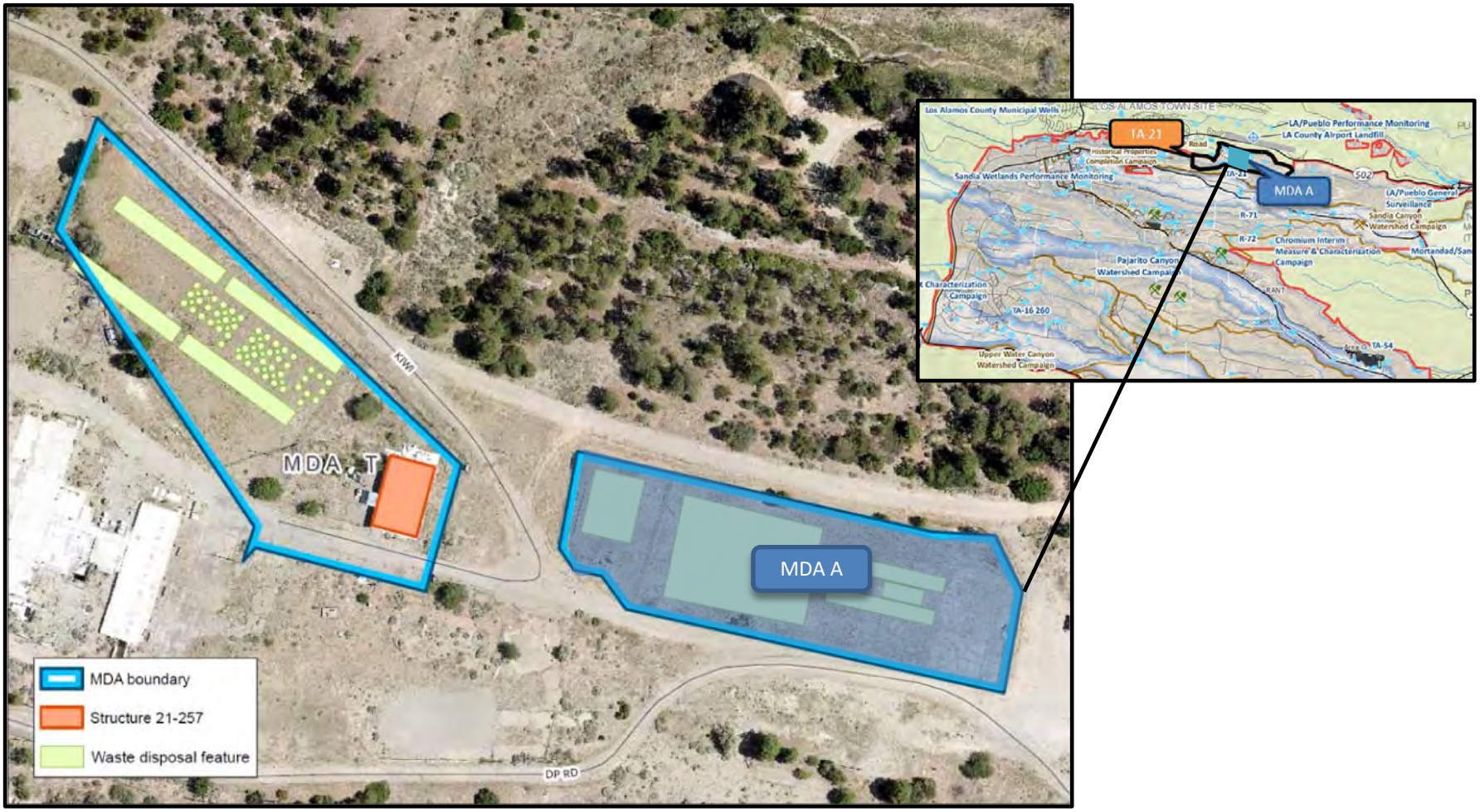
See EM-LA website for detailed info on criteria: https://www.energy.gov/em-la/strategic-vision-development

A cleanup approach must achieve all four threshold criteria to move on to balancing criteria.

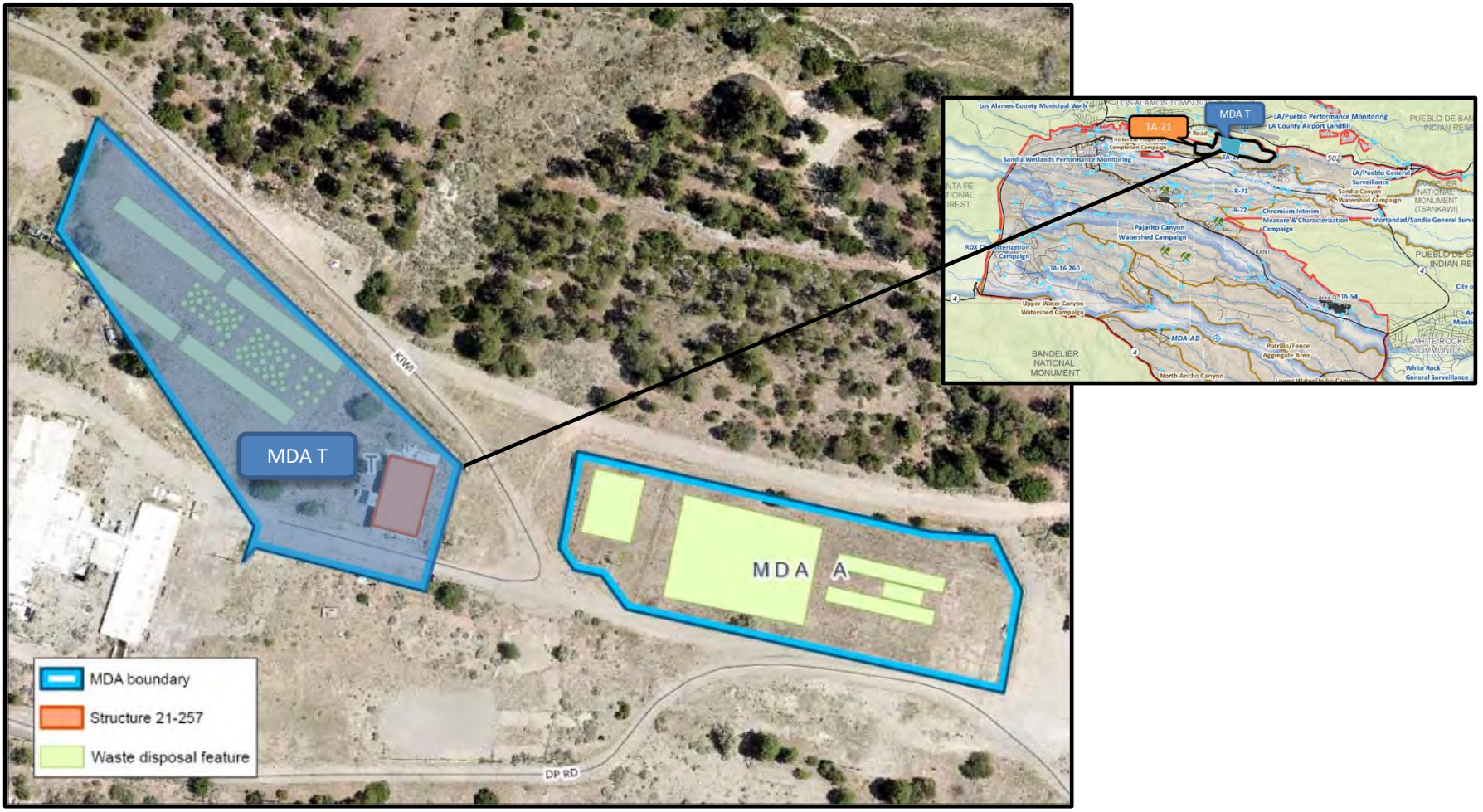
MDAs


Los Alamos County Municipal Wells
LOS ALAMOS TOWN SITE
MDA T
TA-21
LA/Pueblo Performance Monitoring
LA County Airport Landfill
PUEBLO DE SAN ILDEFONSO INDIAN RESERVATION
Historical Properties Completion Campaign
Sandia Wetlands Performance Monitoring
TA-50
MDA A
LA/Pueblo General Surveillance
Sandia Canyon Watershed Campaign
SANTA FE NATIONAL FOREST
BANDELIER NATIONAL MONUMENT (TSANKAWI)
Pueblo de San Ildefonso Domestic Wells
MDA C
TA-54
Chromium Interim Measure & Characterization Campaign
Mortandad/Sandia General Surveillance
Pajarito Canyon Watershed Campaign
RDX Characterization Campaign
MDA H
TA-16 260
TA-49
City of Santa Fe Buckman Wells
Upper Water Canyon Watershed Campaign
MDA L
Annual Sediment Monitoring Campaign
MDA AB
MDA G
WHITE ROCK COMMUNITY
Potrillo/Fence Aggregate Area
BANDELIER NATIONAL MONUMENT
SANTA FE NATIONAL FOREST
White Rock General Surveillance
North Ancho Canyon Aggregate Area
Lower Water/Indio Canyons Aggregate Area
Ancho General Surveillance
South Ancho Canyon Aggregate Area
Chaquehui Canyon Aggregate Area
Southern External Boundary Campaign
Environmental Management Planned Work
Known Cleanup Sites
Cleanup Campaign
Drilling
Ground Water Monitoring
Storm Water Monitoring
Remedy Groundwork / Planning
Transition Material
Cleanup Campaign Watershed
Aggregate Area
Material Disposal Area (MDA)
Los Alamos National Laboratory Boundary
Other Regional Area
0 0.5 1 2 Miles

TA-21: MDA A

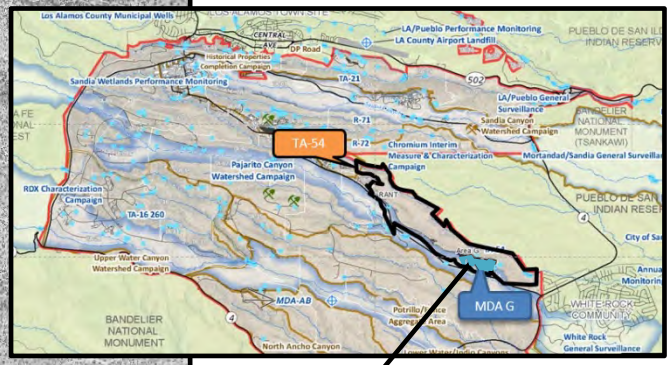

MDA T
MDA A
KIWI
DP RD
MDA boundary
Structure 21-257
Waste disposal feature
TA 21
MDA A
Los Alamos County Municipal Wells
LA/Pueblo Performance Monitoring
LA County Airport Landfill
Sandia Wetlands Performance Monitoring
LA/Pueblo General Surveillance
Sandia Canyon Watershed Campaign
Chromium Interim Measure & Characterization Campaign
Pajarito Canyon Watershed Campaign
TA-16 260
Upper Water Canyon Watershed Campaign
TA-54

TA-21: MDA T

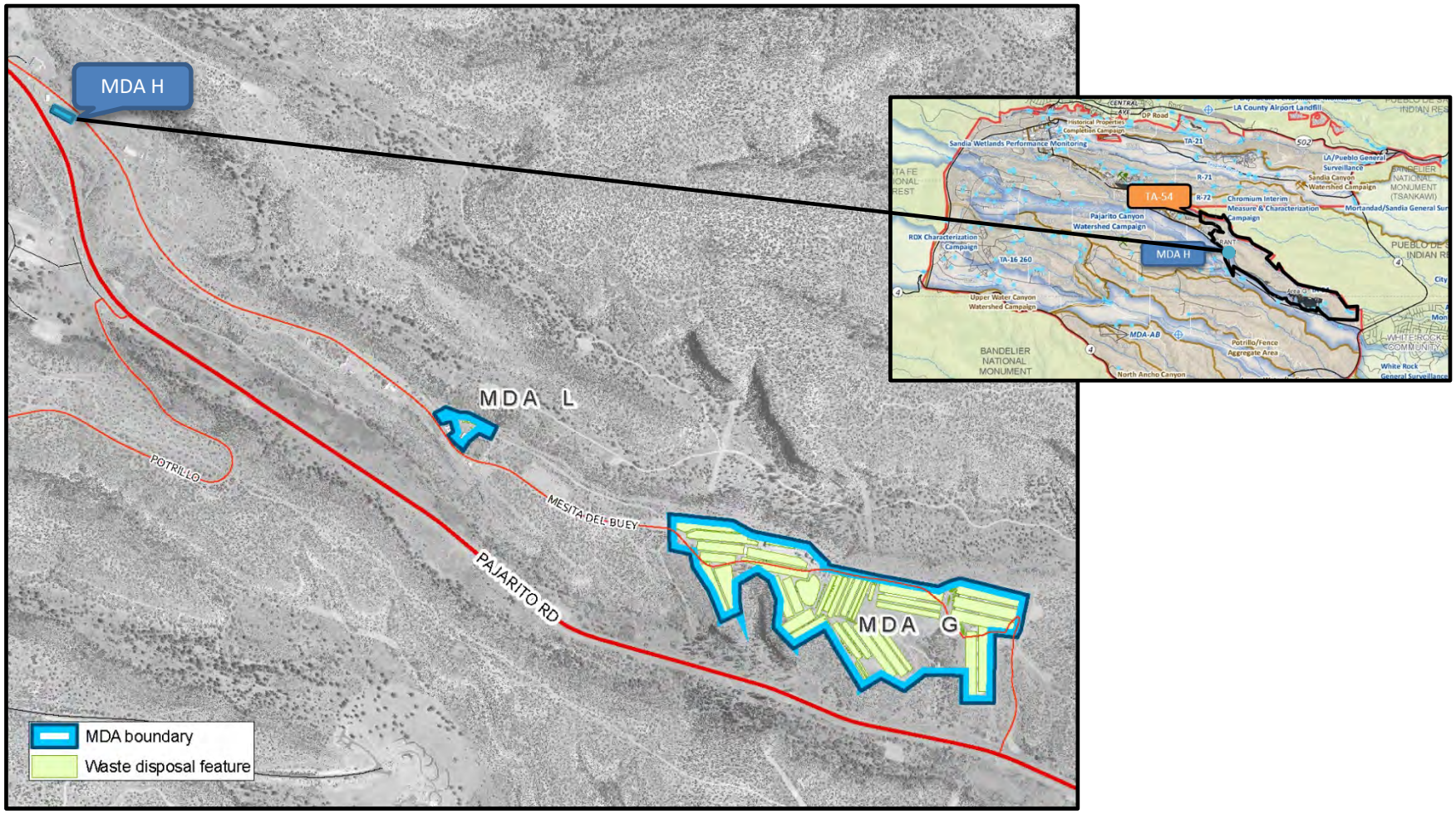

MDA T
MDA A
KIWI
DP RD
MDA boundary
Structure 21-257
Waste disposal feature
TA-21
MDA T
LA/Pueblo Performance Monitoring
LA County Airport Landfill
Sandia Wetlands Performance Monitoring
Pajarito Canyon Watershed Campaign
Upper Water Canyon Watershed Campaign
MDA-AB
Potrillo/Fence Aggregate Area
North Ancho Canyon
BANDELIER NATIONAL MONUMENT
WHITE ROCK COMMUNITY
White Rock General Surveillance

TA-54: MDA G


MDA H
MDA L
POTRILLO
MESITA DEL BUEY
PAJARITO RD
MDA G
MDA boundary
Waste disposal feature


TA-54
MDA G
BANDELIER NATIONAL MONUMENT

TA-54: MDA H


MDA H
MDA L
MDA G
POTRILLO
MESITA DEL BUEY
PAJARITO RD
MDA boundary
Waste disposal feature
TA-54
MDA H
BANDELIER NATIONAL MONUMENT
LA County Airport Landfill
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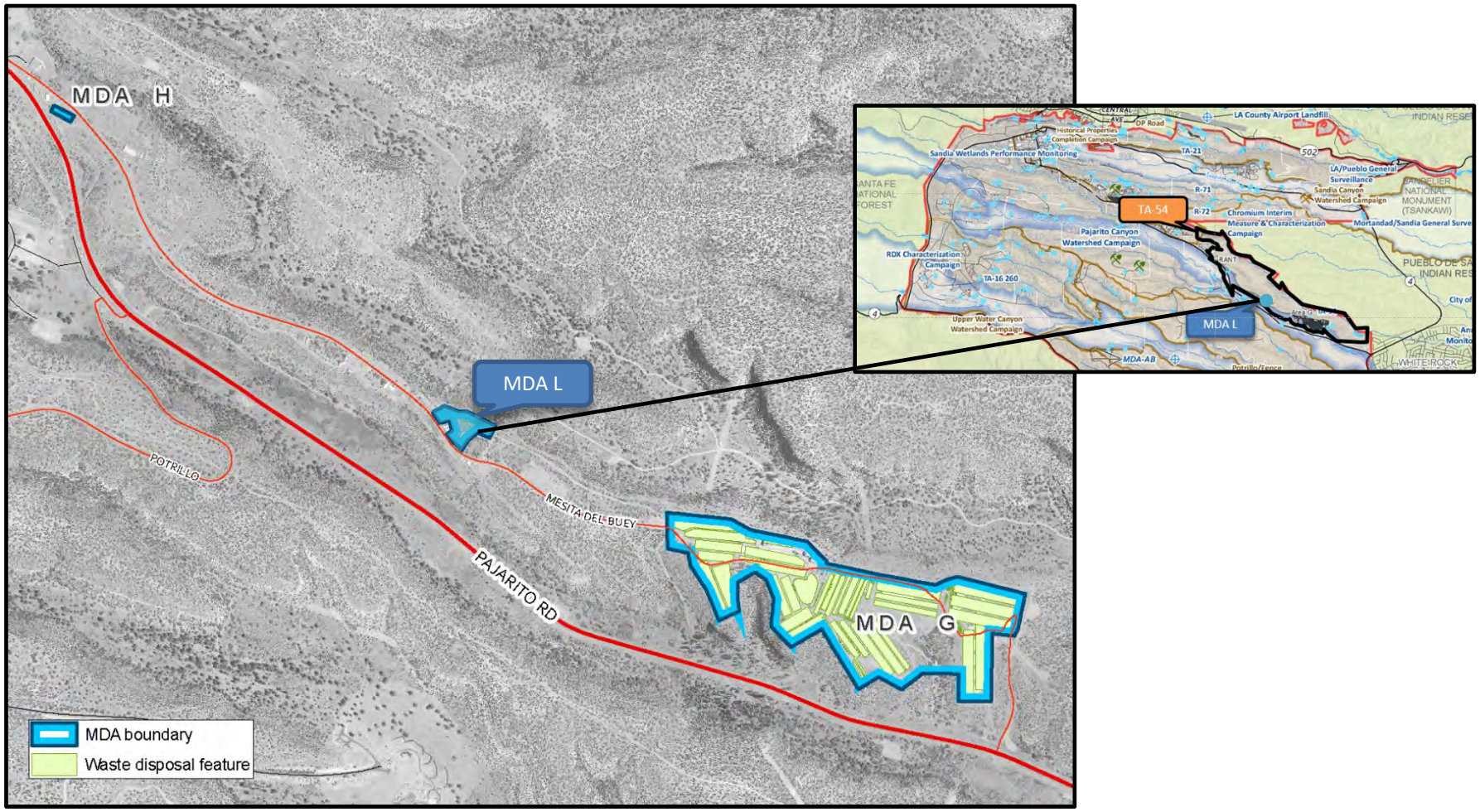
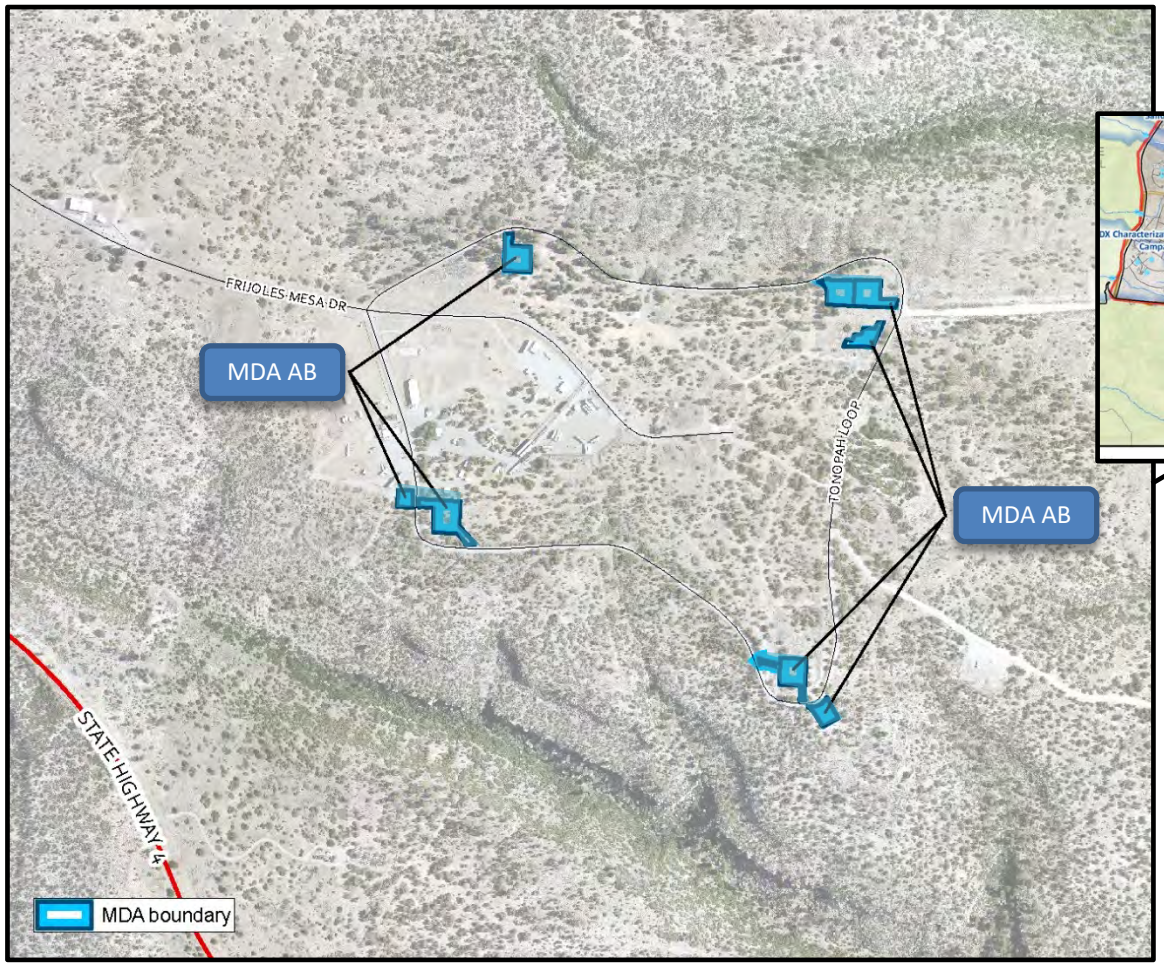
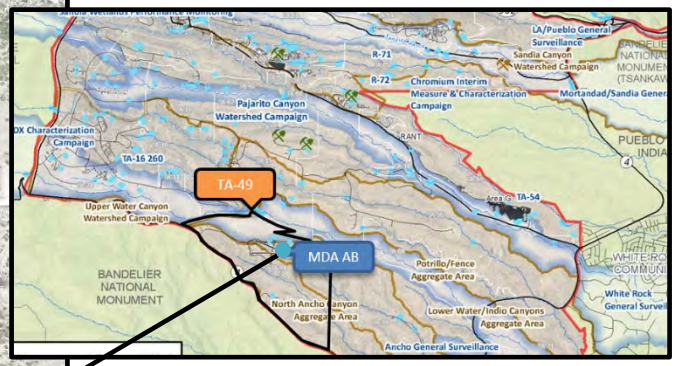
Pajarito Canyon Watershed Campaign
RDX Characterization Campaign
Upper Water Canyon Watershed Campaign
MDA-AB
Potrillo Fence Aggregate Area
North Ancho Canyon
White Rock General Surveillance

TA-54: MDA L

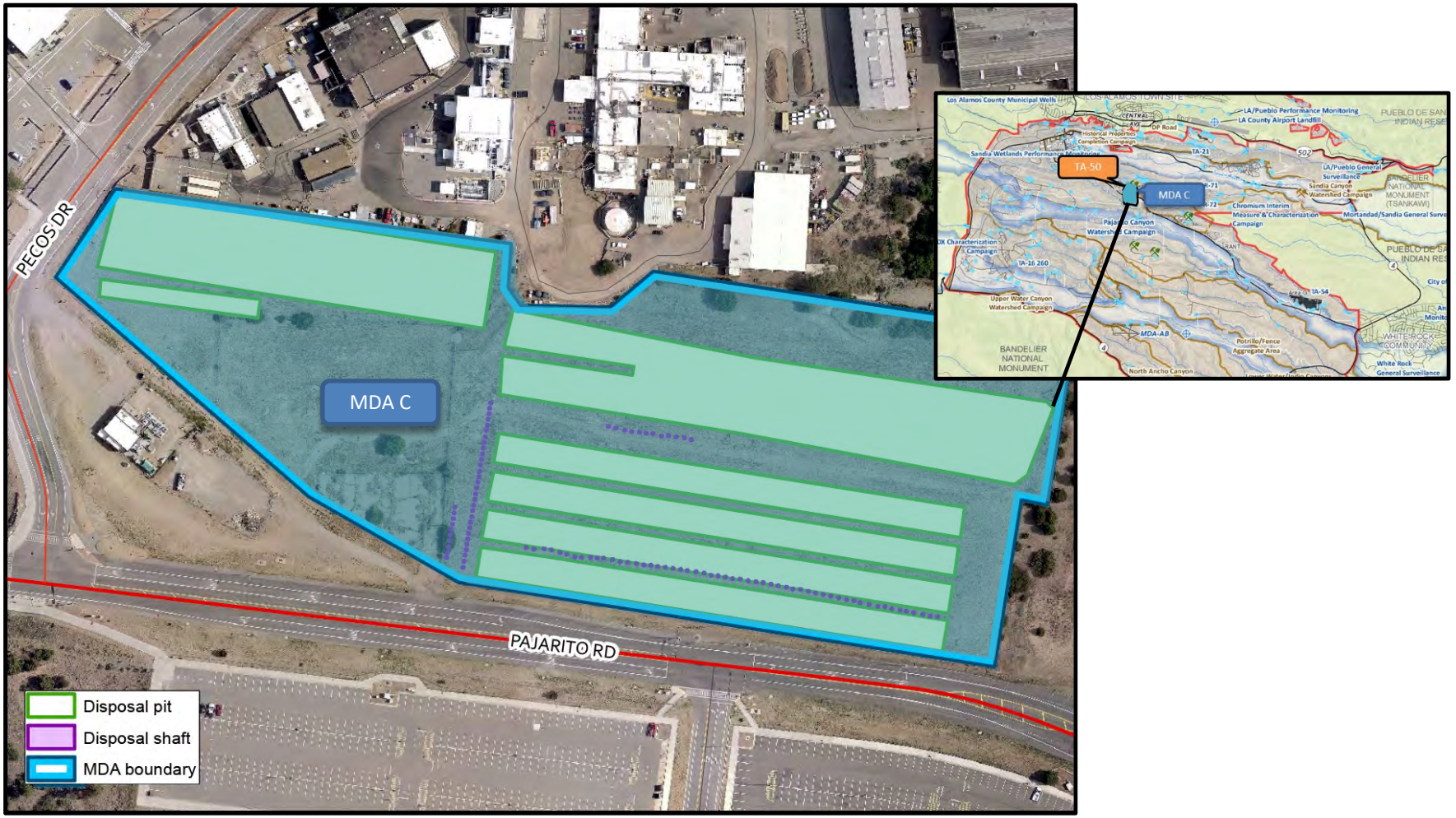

MDA H
MDA L
POTRILLO
MESITA DEL BUEY
PAJARITO RD
MDA G
MDA boundary
Waste disposal feature
TA-54
MDA L
Sandia Wetlands Performance Monitoring
Pajarito Canyon Watershed Campaign
RDX Characterization Campaign
Upper Water Canyon Watershed Campaign
Chromium Interim Measure & Characterization Campaign
Sandia Canyon Watershed Campaign
LA/Pueblo General Surveillance
Mortandad/Sandia General Surve
LA County Airport Landfill
Historical Properties Completion Campaign
DP Road
TA-21
TA-16 260
R-71
R-72
MDA-AB
Potrillo Fence
WHITE ROCK

TA-49: MDA AB


FRIJOLES MESA DR
MDA AB
MDA AB
TOMOPAH LOOP
STATE HIGHWAY 4
MDA boundary


TA-49
MDA AB
BANDELIER NATIONAL MONUMENT
Pajarito Canyon Watershed Campaign
Upper Water Canyon Watershed Campaign
Chromium Interim Measure & Characterization Campaign
Sandia Canyon Watershed Campaign
LA/Pueblo General Surveillance
Potrillo Fence Aggregate Area
Lower Water/Indio Canyons Aggregate Area
Ancho General Surveillance
TA-16 260
TA-54
R-71
R-72

TA-50: MDA C


PECOS DR
MDA C
PAJARITO RD
Disposal pit
Disposal shaft
MDA boundary
TA-50
MDA C
BANDELIER NATIONAL MONUMENT

MDA Fact Sheet

Los Alamos National Laboratory
Material Disposal Areas
Fact Sheet

CAMPAIGNS
The investigation and remediation of Material Disposal Areas (MDAs) is spread over seven Consent Order campaigns

LOCATIONS
On mesas throughout the Los Alamos National Laboratory (LANL)

CAMPAIGNS GOAL
Continue to protect the public, workers, and the environment

BACKGROUND

Material Disposal Areas (MDAs) are Cold War-era waste disposal sites. These sites ranged from septic tanks up to multi-acre waste burial areas. Burial of wastes in trenches or pits complied with waste disposal standards of the time based on known hazards. LANL originally had 28 material disposal areas, most of which have been characterized, and, where necessary, remediated. This work usually involved digging up the buried waste and shipping it to approved waste disposal facilities. Others did not require remediation.

MARCH 2021 STATUS

MDA C MDA AB

MDA CAMPAIGNS UNDER THE CONSENT ORDER

The Consent Order between the New Mexico Environment Department (NMED) and the United States Department of Energy (DOE) identifies seven MDAs that warrant additional investigation and remedial action. The seven MDAs are grouped into Consent Order campaigns: MDA C Remedy, MDA AB Remedy, MDAs A & T Remedy, MDA H Remedy and MDA G & L Remedy. All MDAs are designated Solid Waste Management Units under the federal Resource Conservation and Recovery Act (RCRA).

MDA C

MDA C, which operated from 1948-1974, is an 11.8-acre site within Technical Area (TA) 50. MDA C contains 115 subsurface disposal units (seven pits and 108 shafts). Wastes include hazardous constituents that are regulated by NMED and radionuclides that are regulated by DOE. Subsurface releases created a volatile organic compound vapor plume in the vadose zone (the area between the surface and underlying groundwater). MDA C is listed under the Consent Order as SWMU 50-009.

MDA AB

MDA AB, which lies near LANL's southern boundary in TA-49, is an underground, former explosive test site composed of three distinct areas, each with a series of deep shafts used for explosive testing. The area is about a half acre radiological waste disposal site classified as a hazard category 2 nuclear facility due to the radiological inventory in the disposal shafts. The main contaminants are plutonium, uranium, lead, and beryllium. MDA AB is listed under the Consent Order as SWMUs 49-001 (a-g).

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G & MDA L

w-level waste storage, characterization, and remediation area. The area is of White Rock and about one-eighth of a mile from the boundary between ks H, G and L lie within TA-54.

DEFINITION: SOLID WASTE MANAGEMENT UNIT

Solid Waste Management Unit (SWMU) means any discernible unit at which solid waste has been placed at any time, and from which the New Mexico Environment Department (NMED) determines there may be a risk of a release of hazardous waste or hazardous waste constituents. All MDAs are comprised of one or more SWMUs

86, is a 0.3-acre site composed of t in diameter and 60 feet deep ium hydride, high-explosives, ials and volatile organic compounds der as SWMU 54-004.

nactive waste disposal site. It trenches with depths ranging from d surface. MDA G is listed under the 54-014 (b-d), 54-015 (k), 54-017, 54-024.

1960s until 1985, is about 2.58 acres and was used to dispose of MDA L contains one inactive subsurface disposal pit and 84 inactive disposal t deep and vary in diameter from 3 feet to 8 feet. They were used to chemical wastes. When filled, the shafts were covered with concrete about three feet thick. The disposal units are covered with asphalt. MDA L is listed under the Consent Order as SWMU 54-006 and Area of Concern 54-014 (a).

REGULATION: HAZARDOUS VERSUS RADIOACTIVE WASTE

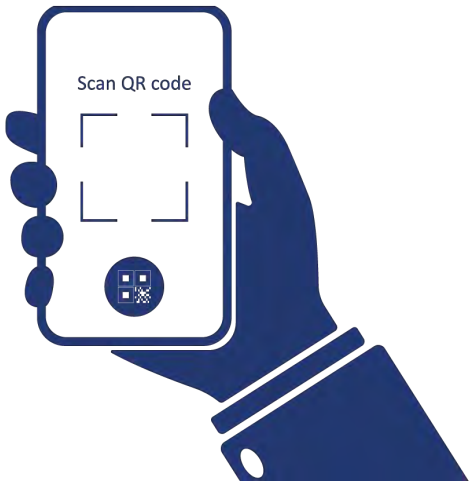
The Consent Order between NMED and DOE applies its hazardous waste, including the hazardous portion of mixed waste. The Consent Order does not apply to radioactive waste.

NUCLEAR ENVIRONMENTAL SITE (NES):

NES are below-ground sites containing sufficient quantities and types of radioactive isotopes to warrant categorization as nuclear facilities

Waste drums at TA-54

Los Alamos | N3B | Produced by Los Alamos Legacy Cleanup Contractor, N3B Los Alamos, on behalf of DOE's Environmental Management Los Alamos Field Office



ENVIRONMENTAL MANAGEMENT
SAFETY ❖ PERFORMANCE ❖ CLEANUP ❖ CLOSURE

N3B Los Alamos

Consent Order Fact Sheet

2016 Compliance Order on Consent
Los Alamos National Laboratory
Fact Sheet

OVERVIEW

The Compliance Order on Consent, commonly called the Consent Order, is an enforceable agreement between the New Mexico Environment Department (NMED) and the Department of Energy (DOE) for the cleanup of legacy waste at Los Alamos National Laboratory (LANL). Issued in June 2016, the Consent Order establishes an effective structure for accomplishing cleanup work on a priority basis through the use of dedicated campaigns with achievable milestones and targets.

HISTORY

The 2016 Consent Order supersedes the 2005 Consent Order. The 2016 Consent Order continues cleanup processes and enforcement provisions from the 2005 Consent Order. It also includes work from the 2005 Consent Order that remained uncompleted. The 2016 Consent Order enables DOE and NMED to annually prioritize cleanup work and establish a schedule for key deliverables based on up-to-date information, such as latest monitoring data, funding, and risk.

JANUARY 2020 STATUS

- Fiscal year (FY) 2020 includes 17 milestones tied to four cleanup campaigns.
- For FY19, 15 of the 20 milestones were met. One was renegotiated and one was missed.
- The milestone for the Known Cleanup Site was renegotiated and completed in early FY20.
- 74 additional deliverables were completed in FY19, including certificates of completion and periodic monitoring reports.

CONSENT ORDER AT A GLANCE

- Constitutes compliance with the Resource Conservation and Recovery Act (RCRA) and New Mexico's Hazardous Waste Act (HWA) for legacy waste cleanup work at LANL.
- Provides the framework for NMED and DOE to establish 10-20 milestones annually for the upcoming fiscal year (FY) and identify 10-20 targets for each of the next two fiscal years (FY+1 and FY+2).
- Applies to hazardous waste, including the hazardous portion of mixed waste. The Consent Order does not apply to radioactive waste.

HOW THE 2016 CONSENT ORDER WORKS

- Cleanup work detailed in the 2016 Consent Order is grouped into campaigns, several of which are in progress and will continue toward completion.
- As one campaign winds down and completes, the next prioritized campaign will commence and continue until completion.

PRIORITIZING CLEANUP WORK

Consent Order campaigns are prioritized based on risks to workers, the public, and the environment, as well as stakeholder priorities, as agreed by DOE and NMED. Each campaign consists of one or more projects, and includes one or more milestones and targets. The campaigns may be revised annually based on work progress, changed conditions, risk, and funding.

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DEFINITIONS: MILESTONES AND TARGETS

PUBLIC ENGAGEMENT

Each year, NMED and DOE establish new milestones and targets. Afterward, NMED hosts a public meeting to describe work accomplished during the previous year and any changes in funding levels or other factors that may have contributed to changes to the milestones and targets.

Following NMED selecting a proposed cleanup remedy, the agency initiates a public comment period, allowing the opportunity for a public hearing on the proposed remedy before making a decision.

RESOURCES

The Consent Order can be found at https://www.energy.gov/em-la/2016-consent-order and hard copies are available in the DOE public reading room, 94 Cities of Gold Road, Santa Fe, NM, 87506.

CONTACT DOE Environmental Management Los Alamos Field Office (505) 665-5658 | publicaffairs.emla@em.doe.gov

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Revised: 01/28/2020

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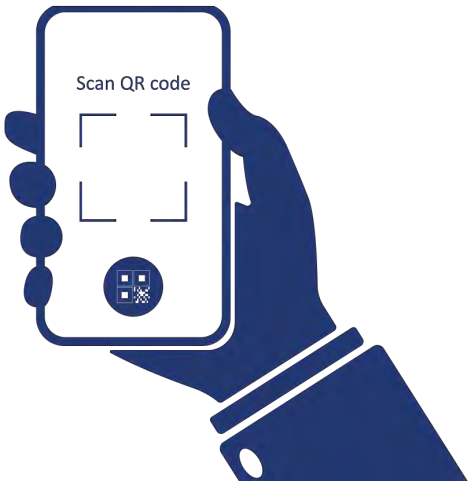

ENVIRONMENTAL MANAGEMENT
SAFETY ❖ PERFORMANCE ❖ CLEANUP ❖ CLOSURE

N3B Los Alamos

ER Complexity, Risks and Challenges

ER Projects	Complexity, Risks and Challenges[1]	Status
TA-21 D&D	• At the height of operations, TA-21 contained 125 buildings; the remaining effort at TA-21 includes demolishing Building 21-257 and DP West Slabs, removing IWLs and completing final disposition of the 38 remaining SWMUs/AOCs • Challenge: HAZCat 2 nuclear facility and additional safety and security measures are required; for example, the safety analysis, in best case scenario, may take 18 months to fully complete and implement	In process
Aggregate Areas	• Multiple SWMUs and AOCs are combined into Aggregate Areas, a number of which in turn are managed in Consent Order Campaigns to address area-wide contamination, human health and ecological risk • Environmental media affected or potentially affected by releases from SWMUs or AOCs include soil, sediment and surface water and groundwater • Challenges include depleted uranium, beryllium, proximity to cultural sites, endangered species, historical munitions and fieldwork within active facility operations areas	In process
Groundwater (Hexavalent Chromium)	• A plume of dissolved phase hexavalent chromium has been delineated in the regional aquifer beneath Sandia and Mortandad Canyons • The regional aquifer is the potable water source for both LANL and Los Alamos County; beneath LANL, it is approximately 5,000 feet thick with the water table approximately 1,000 feet below ground surface • The plume is approximately 6,000 feet long by 2,500 feet wide; over most of the length, it is limited to the upper-most 100 feet of the aquifer • The current Interim Measures is a combination of extraction, treatment and injection of water to control plume migration and hold it within the LANL boundary; it successfully prevented the plume from crossing the property line onto Pueblo de San Ildefonso land • It has not been detected in sentinel wells, and there is no current risk to drinking water wells • Challenges: Complex geology and hydrology of the aquifer make it difficult to fully understand contaminant movement, especially at this considerable depth • The extreme terrain and abundance of cultural sites predict severely limited potential sites for drilling new wells • The Chromium Interim Measures and Characterization Campaign is in progress • EM-LA is working with NMED on a strategy to transition to final remedy	In process

ER Complexity, Risks and Challenges

ER Projects	Complexity, Risks and Challenges[1]	Status
Groundwater (RDX)	• Building 260 at LANL's TA-16 was the machining facility for conventional high explosives; machining water contained RDX and was discharged to the adjacent Cañon de Valle, resulting in the contamination of soils, surface water and groundwater • The endangered species Mexican Spotted Owl has breeding sites in the area for up to six months in the calendar year, which impacts scheduling and timeline of fieldwork • A risk assessment analyzed current and future risk, and determined there is no risk to human health and that long-term groundwater monitoring is protective • The RDX Characterization Campaign is in progress • The RDX Remedy Campaign has not begun	In process
MDAs	• MDAs are Cold War-era waste disposal sites, that totaled 28 MDAS with now seven remaining • They range from septic tanks up to multi-acre waste burial areas • The seven remaining MDAs warrant additional investigation and remedial action: MDA A, MDA T, MDA C, MDA G, MDA L, MDA H and MDA AB • Challenges include lack of reliable inventory documentation (all MDAs), radiological inventories (MDA T), wide range of waste types and configurations (MDAs C and G), vapor plumes (MDAs C, L and G), high explosives (MDA H), HAZCat 2 nuclear facilities (MDA AB) • If NMED selects full excavation as the final remedy for an MDA, truckloads of waste and injuries/accidents increase significantly; for example, full excavation of MDA C (11.8 acres) would result in 41,200, 20-ton truckloads of waste and clean fill and >3 traffic accidents during the project	In process

1. General or high-level complexities, risks and challenges that apply to all projects include:
   - Worker safety
   - Staffing challenges: clearance (obtaining and maintaining), specialty certifications, SMEs
   - Inventory shortage: SWBs, etc.
   - Equipment: maintenance, scheduling of equipment to be delivered (subcontractors bringing drills could take up to a year to schedule)
   - Unknown or unforeseen events
   - Natural disasters: fires, droughts, etc.
   - Transportation and injuries

Next Steps: Phase 2 Session

We want your feedback on the remaining scope

Remaining scope includes:

- CH-TRU: Pit 9, Trenches A–D and Shafts waste processing
- ER: TA-21 D&D, Aggregate Areas, Hexavalent chromium, RDX, MDAs

What should be prioritized and why?

Summary

Purpose: Develop a long-term strategic vision from the "ground-up" for the remaining legacy cleanup that is based on consensus of values and priorities from stakeholders, pueblos in northern New Mexico and the public

An opportunity to voice your values and priorities as they relate to the remaining cleanup scope

What do we mean by values and priorities?

- Values: Individual beliefs that motivate people to act one way or another
- Priorities: What's most important to you?
  - Cleanup highest risk sites to people first
  - Cleanup sites that can be transferred/used for economic development
  - Cleanup sites near residents