# FY17 Scope of Work
# Aggregate Areas Phase I Nature & Extent Sampling

## Background

Los Alamos National Laboratory is participating in a national effort by the U.S. Department of Energy to reduce risk to human health and the environment at its facilities. To ensure that past operations do not threaten human or environmental health and safety in and around Los Alamos, the Laboratory is investigating sites potentially contaminated by historical operations known as solid waste management units (SWMUs) or areas of concern (AOCs).

## Current Status

Approximately 1,009 SWMUs and AOCs of the original 2,123 sites identified on and adjacent to Laboratory property require further investigation. Sites are addressed in aggregate areas, areas of sites that are grouped by watersheds or canyons and require similar investigation and remediation strategies.

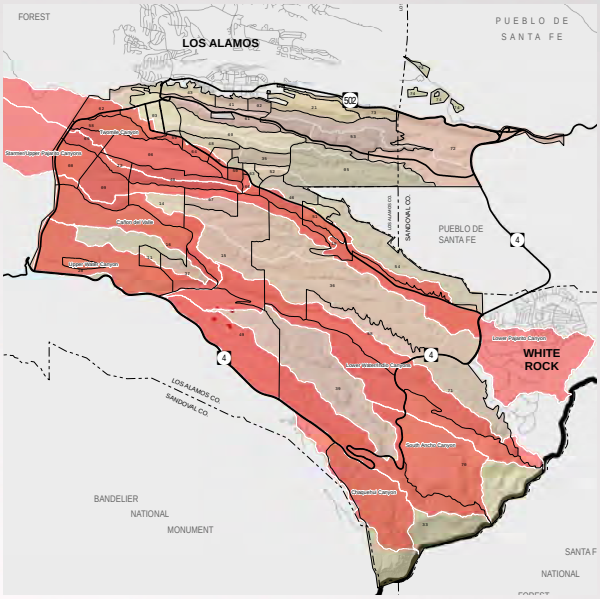
The 2005 Compliance Order on Consent with the New Mexico Environment Department requires a phased investigation approach with submittal of phased work plans and reports for each aggregate area.

The Laboratory has completed 20 initial aggregate area investigations, known as Phase I investigations. Of those 20 investigations, 12 require additional characterization activities, which will be conducted during Phase II investigations.

Nine Phase I aggregate area investigations remain.

## Proposed Scope

- Determine the nature and extent of contamination and assess the risks to human health and the environment at remaining sites that require Phase I investigations
- Address the highest-risk sites first to eliminate or reduce human health and ecological risks
- Complete cleanup actions to eliminate or reduce risks to acceptable levels in compliance with federal, state, and local statutes




*The Laboratory determines nature and extent of contamination by taking soil samples at various depths around sites. The samples are analyzed and compared to regulated screening levels to determine whether further action is required.*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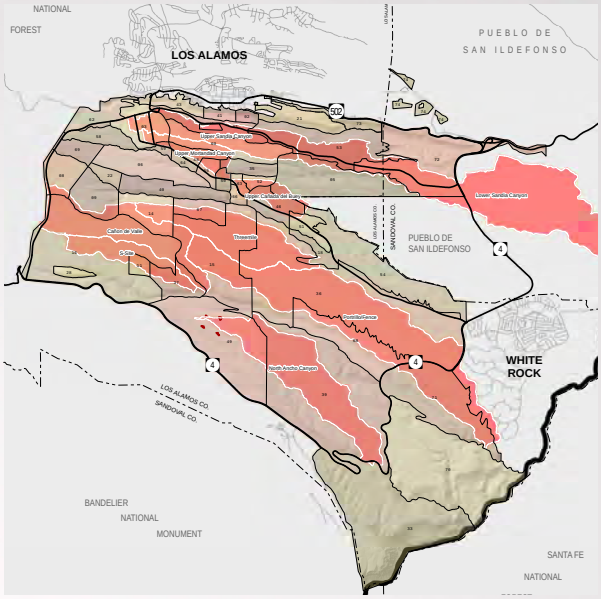
# FY17 Scope of Work
# Aggregate Areas Supplemental Investigation Reports

## Background

In January 2012, the New Mexico Environment Department (NMED) and U.S. Department of Energy (DOE) entered into a framework agreement to realign environmental priorities at Los Alamos National Laboratory. Under this agreement, NMED and DOE agreed to review previous characterization efforts to identify sites where the nature and extent of contamination have been adequately characterized.

Pursuant to the framework agreement, the Laboratory reviewed its data evaluation process and concluded that the process for defining extent of contamination could be revised to complete site characterization more efficiently, while providing full protection of human health and the environment. The Laboratory revised the process to provide a greater emphasis on risk and dose reduction consistent with U.S. Environmental Protection Agency guidance. The Laboratory will implement the revised process by preparing supplemental investigation reports (SIRs).




## Current Status

The Laboratory plans to reevaluate 11 existing investigation reports to develop SIRs that will identify chemicals of potential concern, evaluate the nature and extent of contamination, and assess the potential human health and ecological risks for solid waste management units and areas of concern included in each report. The SIRs will present recommendations for sites requiring additional sampling and/or remediation and recommend certificates of completion (CoCs) with or without controls, as appropriate. The Laboratory anticipates that this reevaluation process will result in approximately 200 CoCs.

## Proposed Scope

- Upper Sandia Canyon Aggregate Area SIR
- Upper Mortandad Canyon Aggregate Area SIR
- Upper Cañada del Buey Aggregate Area SIR
- S-Site Canyon Aggregate Area SIR
- Potrillo & Fence Canyons Aggregate Area SIR
- Threemile Canyon Aggregate Area SIR
- Technical Area (TA) 49 inside and outside the nuclear environmental sites (NES) SIR
- TA-49 outside the NES SIR
- Cañada de Valle Aggregate Area TA-14 SIR
- North Ancho Canyon Aggregate Area SIR
- Lower Sandia Canyon Aggregate Area SIR

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# FY17 Scope of Work
# MDA L Interim Measures Soil Vapor Extraction

## Background

Between 1975 and 1985, Los Alamos National Laboratory disposed nonradioactive liquid waste in two impoundments and 22 shafts at Material Disposal Area (MDA) L, a 2.5-acre liquid disposal area. Over time, a vapor plume of volatile organic compounds (VOCs) formed beneath the MDA. To protect human health and the environment, the Laboratory plans to remove the plume under the 2005 Compliance Order on Consent with the New Mexico Environment Department (NMED).

To prevent the plume from migrating downward through the basalt toward the groundwater, the Laboratory installed and tested two soil vapor extraction (SVE) units in 2014 to extract vapor from the plume. This initiative is a proactive, voluntary interim measure to protect the groundwater beneath the plume while a final remedy is being evaluated and selected.

## Current Status

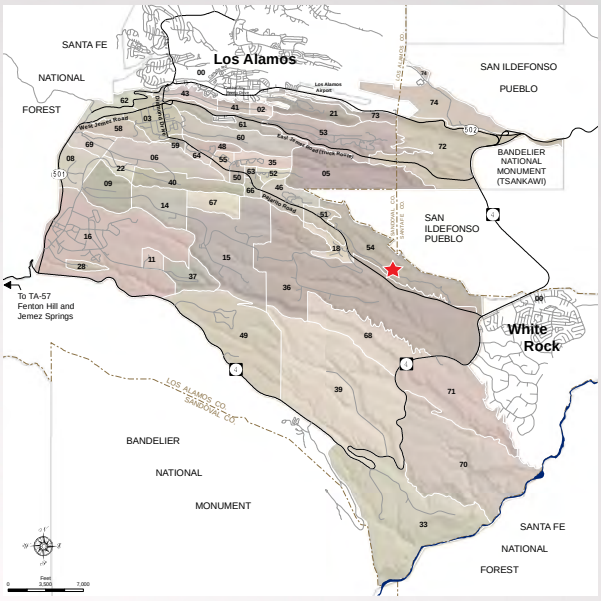
The Laboratory started operating both extraction units in January 2015 and periodically samples the units to monitor concentrations of VOCs and mass of VOCs removed.

During the first two months of operation, the units removed approximately 675 pounds of VOCs from the vadose zone.

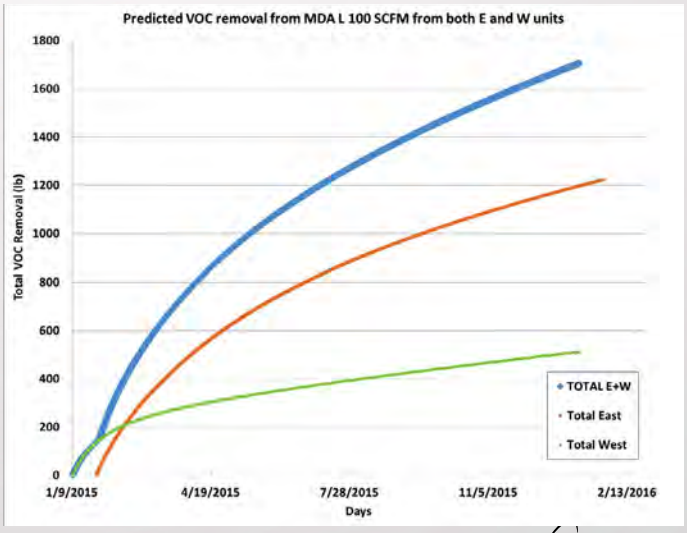
The Laboratory plans to operate the units for one year and report the data to NMED every six months to evaluate SVE as a potential remedy for the plume.

## Proposed Scope

- Continue operating SVE units
- Continue evaluating data to assess plume rebound and effectiveness of SVE operations
- Report quarterly sampling data from surrounding monitoring wells to NMED




*Crews conduct periodic sampling at both units using SUMMA canisters. After the samples are analyzed, technical experts use the data to determine concentrations of VOCs and mass of VOCs removed.*

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# FY17 Scope of Work
# Upper Los Alamos Canyon Aggregate Area Cleanups

## Background

Los Alamos National Laboratory is committed to reducing risk and its historical footprint by cleaning up remaining sites in the Upper Los Alamos Canyon Aggregate Area under the 2005 Compliance Order on Consent with the New Mexico Environment Department (NMED).

The sites are derived from legacy outfalls, wastelines, and surface disposal sites associated with Manhattan Project and early Cold War era operations. The Laboratory originally identified 119 sites located throughout private property, Los Alamos County property, and U.S. Department of Energy property along the slopes of Los Alamos Canyon and has completed necessary investigations and cleanups at all but 13 sites.

Although the remaining sites do not currently pose a health risk to the public, the sites are accessible to the public and unregulated disturbance could increase risks. In addition, some of the sites impact surface-water quality.

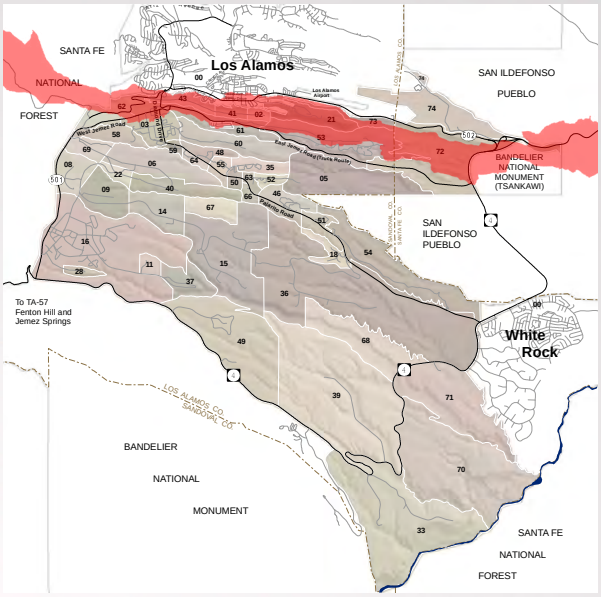
## Current Status

The Laboratory is currently preparing to complete the aggregate area work.

The Laboratory plans to complete a complex canyon-side soil cleanup at former TA-32 on DOE property near Smith's Marketplace in 2015. After completing work at TA-32, only 12 sites will remain.

## Proposed Scope

- Finalize negotiations with NMED to determine paths forward for administrative completion of each site after completing the cleanups in 2016
- Prepare and submit the final investigation report for the aggregate area
- Request certificates of completion for applicable sites




*Former TA-1 was the core of the original Laboratory during the Manhattan Project and early Cold War era. It was decontaminated and demolished in stages until the entire site was given to Los Alamos County or sold to private interests.*

*In 2013, crews completed confirmatory sampling at Ashley Pond within the Manhattan Project footprint in support of Los Alamos County's pond revitalization project.*

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# FY17 Scope of Work
# Aggregate Area Prioritized Cleanups

## Background

Los Alamos National Laboratory is committed to reducing risk and its historical footprint by cleaning up legacy sites throughout the Laboratory under the 2005 Compliance Order on Consent with the New Mexico Environment Department (NMED).

Previous investigations and risk assessments of sites within various aggregate areas throughout the Laboratory have identified 19 sites that require cleanup. The sites are derived from legacy septic tanks, wastelines, and surface disposal areas. Many of these sites impact storm-water quality and are also managed under the National Pollutant Discharge Elimination System Individual Permit (IP).

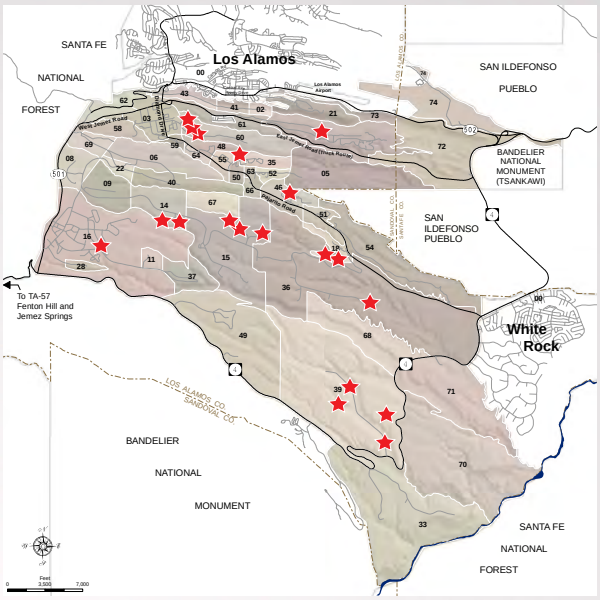
The prioritized cleanup initiative provides an opportunity to reduce risk to human health and the environment across Laboratory property as well as improve surface-water quality. The work will be efficiently executed in a single phase with a single procurement, while supporting completion of sites managed under the IP.

## Current Status

The Laboratory is currently in the process of completing final planning and procurement for the prioritized cleanup sites.

## Proposed Scope

- Excavate contaminated soil in 2016
- Complete remaining sites in 2017




*The Laboratory completes site cleanups by removing and disposing of contaminated soil in compliance with waste management requirements.*

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