

# **Mitigation Action Plan for Los Alamos National Laboratory Operations**

**Los Alamos, New Mexico**

**U.S. Department of Energy**



**September 2020**

The Mitigation Action Plan for Los Alamos National Laboratory Operations was formerly known as the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico (DOE/EIS-0380) Mitigation Action Plan.

Prepared by Environmental Stewardship Group, Environmental Protection and Compliance Division, Associate Directorate for Environment, Safety, Health, Quality, Safeguards and Security.

This report was prepared as an account of work sponsored by an agency of the U.S. Government. Neither Triad National Security, LLC, the U.S. Government, nor any agency thereof (nor any of their employees) make any warranty, express or implied, or assume any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed or represent that its use would not infringe upon privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by Triad National Security, LLC, the U.S. Government, or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of Triad National Security, LLC, the U.S. Government, or any agency thereof.



# CONTENTS

<b>ACRONYMS AND TERMS</b> .....	<b>V</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>VI</b>
<b>1.0 BACKGROUND</b> .....	<b>8</b>
<b>1.1 Purpose and Organization of the MAP</b> .....	<b>9</b>
<b>1.2 MAP Monitoring and Reporting</b> .....	<b>11</b>
1.2.1 SWEIS Yearbook .....	11
1.2.2 MAP Annual Report.....	11
<b>2.0 IMPLEMENTATION</b> .....	<b>11</b>
<b>2.1 Roles and Responsibilities</b> .....	<b>11</b>
<b>2.2 MAP Review and Revision</b> .....	<b>12</b>
<b>2.3 MAP Duration and Mitigation Closure</b> .....	<b>12</b>
<b>3.0 MITIGATIONS</b> .....	<b>12</b>
<b>3.1 On-going NEPA Mitigation Commitments for the Continued Operation of LANL</b> .....	<b>12</b>
3.1.1 Dual-Axis Radiographic Hydrodynamic Test (DARHT) Facility .....	13
3.1.2 LANL Trails Management Program .....	13
3.1.3 Special Environmental Analysis .....	14
3.1.4 Flood and Sediment Retention Structure .....	15
3.1.5 Expanded Operations of the Off-Site Sealed Source Recovery Project.....	15
3.1.6 Wildland Fire Management.....	16
3.1.7 Chromium Plume Control Interim Measure and Plume-Center Characterization.....	18
3.1.8 Commitments to Santa Clara Pueblo .....	18
<b>4.0 CLOSED, NEW, AND/OR REVISED MITIGATION COMMITMENTS</b> .....	<b>20</b>
<b>5.0 REFERENCES</b> .....	<b>24</b>

## **ACRONYMS AND TERMS**

DARHT	Dual-Axis Radiographic Hydrodynamic Test (Facility)
DOE	(U.S.) Department of Energy
Field Office	DOE/NNSA Los Alamos Field Office
EM-LA	(DOE) Office of Environmental Management Los Alamos
EPC	Environmental Protection and Compliance Division
FONSI	finding of no significant impact
LANL	Los Alamos National Laboratory
MAP	mitigation action plan
MAPAR	MAP Annual Report
NEPA	National Environmental Policy Act
NNSA	National Nuclear Security Administration
N3B	Newport News Nuclear BWXT Los Alamos
PDMP	Pesticide Discharge Management Plan
RLWTF	Radioactive Liquid Waste Treatment Facility
ROD	record of decision
SEA	Supplemental Environmental Assessment
SME	subject matter expert
SWEIS	Site-Wide Environmental Impact Statement
U.S.	United States

## EXECUTIVE SUMMARY

A mitigation action plan was prepared for the *Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico* (2008 SWEIS [DOE/EIS-0380]) in December 2008. The 2008 SWEIS mitigation action plan (2008 SWEIS MAP) has been revised as needed to address significant changes, to incorporate new mitigations identified in other NEPA documents, to provide recommendations for ongoing mitigations, and to close completed mitigations. Incorporating mitigations identified in other NEPA documents, such as environmental assessments and supplement analyses, into one mitigation action plan provides a single and concise document for tracking all mitigations and reduces the redundancy of multiple annual reports. The 2008 SWEIS MAP has previously been revised three times: in 2010, 2014, and 2016. The 2020 MAP revision (revision 4) reports that all but two of the mitigations identified in the 2008 SWEIS have been completed and addresses remaining mitigation commitments identified in other NEPA documents for the continued operation of Los Alamos National Laboratory (LANL). This 2020 MAP revision incorporates the new mitigations identified in the 2019 *Supplemental Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE/EA-1329-S1) and the *Final Environmental Assessment for the Proposed Construction and Operation of a Second Fiber Optic Line to Los Alamos National Laboratory* (DOE/EA-2122). Since the majority of remaining mitigations are from other NEPA documents issued for LANL, the 2008 SWEIS MAP is being renamed the Mitigation Action Plan for Los Alamos National Laboratory Operations. This revision also formally closes out mitigations that were completed or integrated into established programs at LANL.

This page intentionally left blank.

## 1.0 BACKGROUND

The mitigation action plan (MAP) is a comprehensive plan for all current and ongoing mitigations identified in the 2008 Site-Wide Environmental Impact Statement (SWEIS) and other National Environmental Policy Act (NEPA) documents. The MAP is a living document that is revised to incorporate additional mitigation requirements associated with records of decision (RODs), NEPA decisions, or to meet objectives set out in the 2008 SWEIS and other NEPA documents. The integration of MAPs from other NEPA documents into this MAP eliminates duplication of tracking documents separately and enhances transparency of reporting to the public regarding the implementation and effectiveness of mitigations applied. As mitigations are completed; incorporated into operating plans, procedures, and programs; or are cancelled, the MAP is revised to reflect those changes.

The evolution of the 2008 SWEIS began when the DOE/National Nuclear Security Administration (NNSA) issued the *Final Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico* (2008 SWEIS; (DOE 2008a) in May 2008 and issued a Record of Decision (ROD) on September 19, 2008 (DOE 2008b) (Figure 1). In December 2008, DOE issued the initial SWEIS MAP (DOE 2008c) that included commitments made in the September 2008 SWEIS ROD. The 2008 SWEIS MAP also included remaining mitigations identified in the 1999 SWEIS (DOE 1999) and commitments identified in other NEPA documents since the issuance of the 1999 SWEIS.

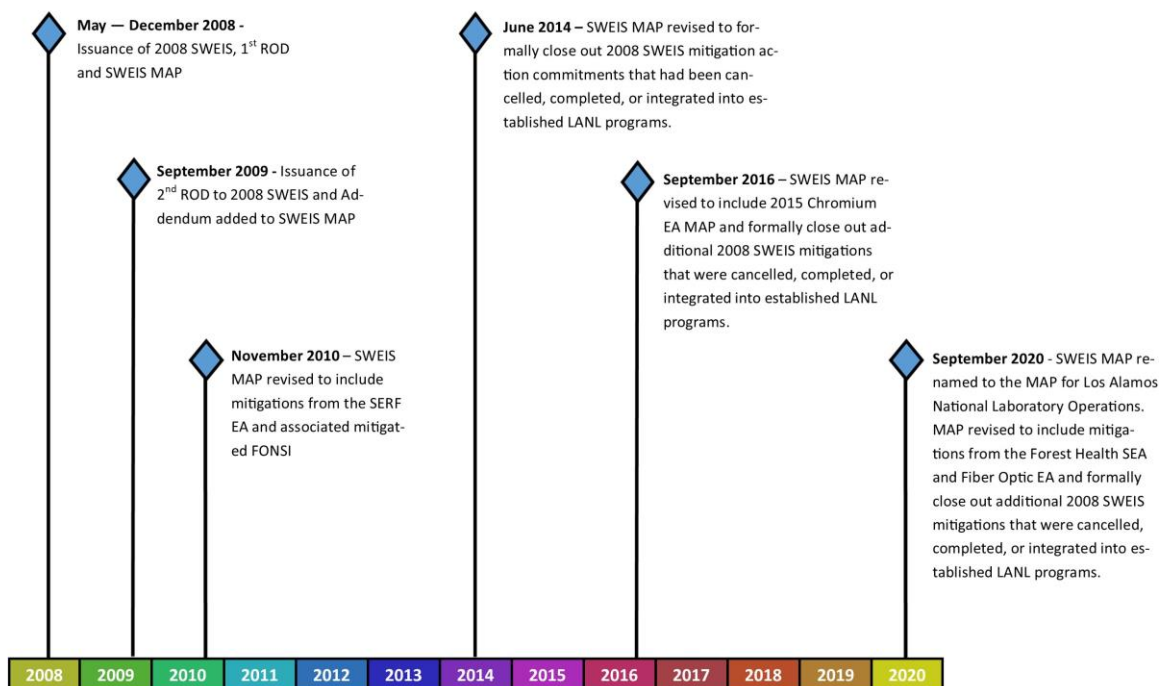
DOE issued a MAP Addendum in September 2009 that included objectives contained in the second ROD. The MAP was updated and revised in 2010 to incorporate the mitigations in the *2010 Final Environmental Assessment for the Expansion of the Sanitary Effluent Reclamation Facility and Environmental Restoration of Reach S-2 of Sandia Canyon at Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE 2010a) (SERF EA) and mitigated finding of no significant impact (FONSI) (DOE 2010b). The 2008 SWEIS MAP was again updated and revised in 2014 to formally close out 2008 SWEIS mitigation action commitments that had been cancelled, completed, or integrated into established LANL programs.

In 2016, the MAP was updated and revised to incorporate the *2015 Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico (DOE/EA-2005) Mitigation Action Plan* (DOE 2015a) (Chromium EA MAP) and formally closed out additional 2008 SWEIS mitigations that were cancelled, completed, or integrated into established LANL programs.

This 2020 MAP revision acknowledges that the majority of mitigations identified in the 2008 SWEIS have been cancelled, completed, or integrated into established LANL programs. The remaining mitigations in the MAP are those that have been integrated from other NEPA documents since the issuance of the 2008 SWEIS. Recognizing this MAP as the main MAP for Los Alamos National Laboratory operations allows for the integration of all mitigations identified in NEPA documents, not only those identified in the 2008 SWEIS. The title of this MAP is therefore changed to the MAP for Los Alamos National Laboratory Operations (LANL Operations) to better reflect the incorporated mitigations.



This revision also incorporates mitigations identified in the *Supplemental Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico (DOE/EA-1329-S1)* (DOE 2019a) (Wildfire SEA), and the *Final Environmental Assessment for the Construction and Operation of a Second Fiber Optic Line to Los Alamos National Laboratory (Fiber Optic EA) (DOE/EA-2122)* (DOE 2020). This revision also formally closes out additional mitigations that were cancelled, completed, or integrated into established LANL programs since the 2016 revision.



**Figure 1.** The Evolution of the 2008 SWEIS MAP to the MAP for LANL Operations.

The MAP is available on the DOE website (<http://www.energy.gov/nepa/office-nepa-policy-and-compliance>) and in appropriate DOE/NNSA public reading room(s) (<https://www.energy.gov/nnsa/nnsa-nepa-reading-room>). Additionally, copies of this MAP are available upon written request to the DOE/NNSA Los Alamos Field Office Manager.

## 1.1 Purpose and Organization of the MAP

NEPA was enacted, in part, to promote efforts that will prevent or eliminate damage to the environment. Throughout the environmental analysis process, DOE considers mitigation measures to avoid or minimize potential environmental harm. Mitigation measures can include avoiding the impact altogether, minimizing impacts by limiting the degree or magnitude of the action, rectifying the impact, reducing or eliminating the impact over time, or compensating for potential impacts by replacing or providing substitute resources or environments. Although DOE

may proceed with proposed actions without mitigating potential adverse environmental impacts, if a mitigation is selected or relied upon in a decision document, then the mitigations will be tracked in this MAP.

The MAP for LANL Operations provides a comprehensive list (Section 3) of all current mitigations that have been identified in LANL NEPA documents. While the 2008 SWEIS MAP initially focused on mitigation commitments adopted in associated RODs, the majority of those mitigations have been completed or incorporated into established LANL programs (LANL 2017a). Remaining mitigations included here were identified in other NEPA documents. These other documents are

- *Dual-Axis Radiographic Hydrodynamic Test Facility Final Environmental Impact Statement (DARHT EIS) (DOE 1995a, 1996)*
- *Final Environmental Assessment for the Proposed Los Alamos National Laboratory Trails Management Program, MAP (DOE 2003a, b)*
- *Special Environmental Analysis for Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory (DOE 2000a)*
- *Final Environmental Assessment for Proposed Future Disposition of Certain Cerro Grande Fire Flood and Sediment Retention Structures at Los Alamos National Laboratory, Los Alamos, New Mexico (DOE 2002)*
- *Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico (DOE 2000b)*
- *Environmental Assessment for Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico (DOE 2015a, b)*

Recent NEPA documents with mitigations that are included in this MAP revision include

- *Supplemental Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico (Wildfire SEA) (DOE/EA-1329-S1) (DOE 2019a)*
- *Final Environmental Assessment for the Construction and Operation of a Second Optic Line to Los Alamos National Laboratory (Fiber Optic EA) (DOE/EA-2122) (DOE 2020)*

Each of these documents has an individual mitigation action plan or describes mitigation commitments to minimize potential environmental impacts. Incorporating mitigation commitments from other NEPA documents into this MAP provides a concise document for tracking all mitigations and reduces the redundancy of multiple annual reports.

Planning and implementation of the mitigation commitments and tracking and reporting requirements are included in Sections 1.2 and 2. Mitigation commitments identified in the individual NEPA documents are outlined in Section 3. Section 4 lists commitments that have been closed, revised, or incorporated into an existing LANL program.

## 1.2 MAP Monitoring and Reporting

### 1.2.1 SWEIS Yearbook

DOE publishes annual reports (yearbooks) to compare recent operational data with the projections identified in the 1999 SWEIS *Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory* (1999 SWEIS; (DOE 1999), and the 2008 SWEIS. Yearbooks provide data that can be used to identify trends and measure the adequacy of the 2008 SWEIS. They also can be used to develop impact analyses for future NEPA document. The MAP for LANL Operations complements the annual SWEIS yearbooks by tracking mitigation efforts associated with LANL operations. The yearbooks are prepared by the LANL NEPA team for DOE/NNSA Los Alamos Field Office (Field Office) through the NEPA Compliance Officer and are available to the public on the LANL electronic public reading room webpage (<http://epr.lanl.gov/oppie/service>) (LANL 2019b).

### 1.2.2 MAP Annual Report

In compliance with the United States (U.S.) Department of Energy (DOE) National Environmental Policy Regulations and National Nuclear Security Administration (NNSA) Policy 451.1B, the DOE/NNSA Los Alamos Field Office NEPA Compliance Officer is required to track and annually report progress in implementing a commitment for environmental impact mitigation that is essential to render the impacts of a proposed action not significant, or that is made in a record of decision. This requirement is achieved in an annual report, the Mitigation Action Plan Annual Report (MAPAR). The MAPAR serves as a status report on actions taken in the previous fiscal year and tracks the scope, schedule, interim milestones, deliverables, and closure of mitigation action commitments outlined in this MAP. The draft MAPAR is submitted to the Field Office annually for review and is finalized by the Field Office. The DARHT MAPAR is included as an appendix to the SWEIS MAPAR each year to meet the specific requirements outlined in the DARHT EIS and associated MAP (DOE 1996).

## 2.0 IMPLEMENTATION

The mitigation implementation process begins with well-defined mitigation requirements, managing those requirements, annual funding allocation, technical implementation, annual reporting, and finally mitigation action closure. NNSA is the lead agency for managing mitigations at LANL, but the MAP implementation process may involve the Field Office, DOE Office of Environmental Management Los Alamos (EM-LA), LANL management and operations contractor Triad, LLC, and EM operations and management contractor Newport News Nuclear BWXT-Los Alamos (N3B).

### 2.1 Roles and Responsibilities

Coordination and management of MAP activities are delegated by the Field Office to LANL subject matter experts (SMEs) in accordance with the management and operations contract. LANL's SMEs coordinate technical issues regarding the scope, schedule, and funding of individual mitigation measures of the MAP. These projects and activities are assigned to organizations that have primary institutional responsibility for operations that the mitigation actions address.

## 2.2 MAP Review and Revision

The MAP is reviewed annually as part of the MAPAR preparation to determine if the mitigation measures have been completed and need to be formally closed. The MAP is revised as needed to address significant changes, new mitigations, or deficiencies that have been identified in the MAPAR.

Additionally, the MAP is reviewed after a new ROD or NEPA decision is issued to determine if new mitigation measure commitments have been made or if mitigation measures previously identified need to be revised in a MAP revision.

## 2.3 MAP Duration and Mitigation Closure

The duration for specific mitigation action commitments is identified in the associated NEPA documents and reported in the annual MAPAR. The 2008 SWEIS MAP anticipated that all mitigation actions identified in the 2008 SWEIS were to be completed by the end of calendar year 2018. While many of the mitigations identified in the original 2008 SWEIS MAP have been completed, some have not yet been completed or they are mitigations that were subsequently rolled into the SWEIS MAP have not yet been completed. The *Supplement Analysis to the 2008 Site-Wide Environmental Impact Statement of the Continued Operation of Los Alamos National Laboratory* identified many of the remaining actions are anticipated to continue until 2022 (DOE 2018) or until otherwise directed by the Field Office.

As individual projects and activities that address specific mitigation measures are completed, Triad coordinates with all involved parties and provides DOE/NNSA with documentation and rationale for recommending mitigation action closure in the annual MAPAR. Mitigations that have a finite endpoint, such as reseeding a disturbed area, are identified as completed and no longer reported once the reseeding is completed and the disturbed area is stabilized. Other mitigations are considered complete upon being incorporated into an established process or program that continues the mitigation action on a regular basis. For example, the 2008 SWEIS MAP identified mitigations concerning biological resources management. With the establishment of the Biological Resources Management Plan, the Integrated Review Tool, and the Biological Resources Program, these mitigations are no longer reported in the MAPAR. They are considered completed as mitigations and are now part of established procedures and programs. The Field Office reviews the documentation and either authorizes closure or requests additional information. Final closure of mitigation actions authorized by the Field Office is reported in the MAPAR and in MAP revisions.

## 3.0 MITIGATIONS

Current mitigation action commitments for the continued operation of LANL are presented below. Each mitigation includes the NEPA document, or section of a NEPA document, where the mitigation is discussed, the mitigation measures, the driver and objective of the mitigations, the mitigation action commitments to achieve the objective, and a 2020 update.

### 3.1 On-going NEPA Mitigation Commitments for the Continued Operation of LANL

This section provides an overview of mitigation measures from the identified NEPA documents.

### 3.1.1 Dual-Axis Radiographic Hydrodynamic Test (DARHT) Facility

#### **NEPA Drivers**

DOE issued the final environmental impact statement on the DARHT Facility (DOE 1995a) in August 1995 and issued a ROD on October 16, 1995 (DOE 1995b). The DARHT ROD states that DOE decided to complete and operate the DARHT Facility while implementing a program to conduct most tests inside steel containment vessels, with containment to be phased in over 10 years (the Phased Containment Option of the Enhanced Containment Alternative). The ROD further states that DOE will develop and implement several mitigation measures to protect soil, water, and biological and cultural resources potentially affected by the DARHT Facility construction and operation (DOE 1995). The DARHT MAP elaborates upon those commitments (DOE 1996).

#### **Mitigation Objectives**

To protect soil, water, and biological and cultural resources potentially affected by the DARHT Facility construction and operation. To ensure the protection of resources of cultural, historic, or religious importance to the tribes (DOE 1995).

#### **Mitigation Action Commitments**

- Monitor contaminants by sampling soils, plants, mammals, birds, and road kills at the facility and surrounding areas and at a control site away from the DARHT Facility.
- Conduct site monitoring and evaluation of soil, and other environmental analyses for solid, hazardous, mixed, and radioactive wastes.
- Conduct Tribal tours of Nake'muu Pueblo and annual maintenance visits.

#### **2020 Update**

No revisions made.

### 3.1.2 LANL Trails Management Program

#### **NEPA Drivers**

DOE/NNSA published the *Final Environmental Assessment for the Proposed Los Alamos National Laboratory Trails Management Program* (DOE 2003a) and FONSI (DOE 2003c) on September 2, 2003. DOE/NNSA found no significant impact from implementing a LANL Trails Management Program. DOE/NNSA issued a MAP (DOE 2003b) for this environmental assessment on the same date. The MAP for the *Final Environmental Assessment for the Proposed Los Alamos National Laboratory Trails Management Program* states, "The (trails) MAP will be continued annually thereafter until all existing LANL trails have undergone review and associated actions have been completed and reported on; the mitigation may then be suspended until such time that new or follow-on actions are identified as being required and then the MAP may be resumed as needed."

#### **Mitigation Objectives**

Establish a trails management program to reduce the risk of damage and injury to human life and health, property, and sensitive natural and cultural resources from trail use at LANL while maintaining the security of LANL operations. The Trails Management Program works in compliance with federal laws and LANL operational constraints, adapting trail use to changing conditions and situations in a responsive manner. The Trails Management Program is to be

described in a trails management plan that will require the documentation of potential adverse environmental effects that could result from site activities as a result of implementing the Trails Management Program, to identify commitments made to mitigate those effects to establish Action Plans to carry out each commitment, and to identify responsible NNSA or LANL organizations.

### **Mitigation Action Commitments**

- Implement a management plan for trails at LANL.

### **2020 Update**

A LANL Trails Management Plan was finalized in 2015 (LANL 2015a). The 2015 Trails Management Plan incorporates the original MAP objectives and process for sustainable trails management through the Trails Management Program and Trails Working Group. In March 2020, NNSA directed Triad to continue to operate the Trails Management Program as currently stated in the LANL Trails Management Plan and incorporate new requirements to update public outreach surrounding potential unexploded ordinance. The program will be revisited approximately every two years. With a Trails Management Program in place, the mitigation is closed.

## **3.1.3 Special Environmental Analysis**

### **NEPA Drivers**

DOE/NNSA prepared and issued the *Special Environmental Analysis for Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory* in September 2000 (DOE 2000a). This document describes and analyzes actions taken in response to the Cerro Grande fire and identifies various mitigation measures that were implemented under the Special Environmental Analysis MAP as an extension of the fire suppression, erosion, and flood control actions.

### **Mitigation Objectives**

Continue to implement ongoing requirements of the *Special Environmental Analysis for Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory* MAP (DOE 2000c).

### **Mitigation Action Commitments**

- Monitor biota and sediment contamination behind the Los Alamos Canyon weir and the Pajarito Canyon flood retention structure until it is removed, and report results in the LANL Annual Site Environmental Report (see Section 3.1.4 for additional information on the flood retention structure).
- Periodically remove sediment from the Los Alamos Canyon weir as needed.

### **2020 Update**

No revisions made.

### 3.1.4 Flood and Sediment Retention Structure

#### **NEPA Drivers**

In 2001, DOE constructed a flood retention structure in Pajarito Canyon to control flooding that resulted from post-Cerro Grande fire hydrologic conditions. In 2002, DOE prepared and issued the environmental assessment *Proposed Future Disposition of Certain Cerro Grande Fire Flood and Sediment Retention Structures at Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE 2002). Compliance with the environmental assessment requires the eventual removal of the Pajarito Canyon flood retention structure.

#### **Mitigation Objectives**

Annually monitor the Pajarito Canyon flood retention structure for safe operation until it is removed, and comply with NEPA commitments identified in the 2002 environmental assessment.

#### **Mitigation Action Commitments**

- Annually monitor the flood retention structure for structural integrity and safe operations until removed.
- Remove portions of the flood retention structure in accordance with DOE/EA-1408 (DOE 2002).
- Recycle demolition spoils from flood retention structure decontamination, demolition, and decommissioning as appropriate.
- Leave an above-ground portion of the flood retention structure equivalent to the dimensions of a low-head weir to retain potentially contaminated sediments on LANL land.
- Remove above-ground portions of the steel diversion wall below the flood retention structure.
- Contour and reseed disturbed areas to protect surface water quality in Pajarito Canyon after the flood retention structure is removed.

#### **2020 Update**

No revisions made.

### 3.1.5 Expanded Operations of the Off-Site Sealed Source Recovery Project

#### **NEPA and Other Drivers**

The Low-Level Radioactive Waste Policy Amendments Act (Public Law 99-240) of 1985 assigned DOE the responsibility for management of greater than Class C waste<sup>1</sup>. DOE's response to Congress stated that management of greater than Class C wastes was not feasible due to the lack of disposal facilities in the U.S. As a solution, a management approach was initiated that included DOE's commitment to the collection and storage of greater than Class C

---

<sup>1</sup> Greater than Class C wastes, as defined by 10 CFR 65, are those that are not acceptable for near-surface disposal, and must be disposed of in a geologic repository.

waste pending development of disposal facilities. In 1999, the DOE Waste Management Department and DOE's Albuquerque office consolidated three existing projects related to source recovery and management into the Off-Site Sealed Source Recovery Project and designated LANL as the DOE facility to operate the project.

The 2011 Amended ROD to the 2008 SWEIS (DOE 2011) states: "Consistent with the decisions announced in the amended ROD issued in 2011, NNSA will continue implementing the Global Threat Reduction Initiative Off-Site Source Recovery Project, including the recovery, storage, and disposition of high-activity beta/gamma sealed sources. This program includes the recovery of sealed sources from foreign countries, and NNSA has decided that transport of high-activity sealed sources through the global commons via commercial cargo aircraft may be utilized as part of the ongoing Off-Site Source Recovery Project."

### **Mitigation Objectives**

NNSA will use all practical means to avoid or minimize environmental harm when implementing the actions described in the amended ROD to ensure adequate controls on the quantities and storage of recovered sealed sources.

### **Mitigation Action Commitments**

- Institute controls on the quantities and methods of storing sealed sources containing cobalt-60, iridium-192, or cesium-137 to mitigate the effects of potential accidents.

### **2020 Update**

All mitigations continue to remain on hold until sealed sources containing cobalt-60, iridium-192, or cesium-137 are accepted at LANL.

## **3.1.6 Wildland Fire Management**

### **NEPA and Other Drivers**

Three FONSI (DOE 2000d, 2001, 2004) have been issued for the *Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE 2000b, d). However, several specific mitigation measures are included in the 2008 SWEIS selected alternatives, including direction that LANL will continue its wildfire management activities and further reduce risks by shipping legacy transuranic waste, currently stored in domes at Technical Area 54, to the Waste Isolation Pilot Plant. The DOE/NNSA Wildfire Management Policy (DOE 2003d) states that DOE sites are required to have wildland fire management plans in place that are consistent with DOE Order 450.1, *2001 Federal Wildland Fire Management Policy and Implementing Actions*. To fulfill the requirements of DOE Order 450.1 and address the findings of the Office of the Inspector General audit, a wildland fire management plan (LANL 2007) was developed in November 2007 and updated in 2016 (LANL 2016) and 2019 (LANL 2019a). The 2019 update included forest health and fire risk reduction efforts in the same plan (LANL 2019b).

A Supplemental Environmental Assessment (SEA) to the *Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico* (DOE 2019a) and associated FONSI (DOE 2019b) was published in 2019. This document addresses current conditions that have changed since 2000 when the original EA was published. Specific mitigations were identified in the Wildfire SEA and



included in this MAP revision. These mitigations will be tracked in MAP annual reports until mitigations are complete.

### **Mitigation Objectives**

Reduce the risk of a wildfire that may adversely impact the public, workers, facilities, operations, and the environment. Risk reduction occurs through performing wildland fire mitigations and shipping legacy transuranic waste from the Technical Area 54 domes to the Waste Isolation Pilot Plant. The Wildfire SEA identified that the unhealthy state of LANL's forests is a major contributor to wildfire risk. Mitigation efforts are needed to improve LANL's forest health.

### **Mitigation Action Commitments**

- Continue to further reduce risks due to wildfire by shipping legacy transuranic waste, currently stored in the Technical Area 54 domes, to the Waste Isolation Pilot Plant.

### **2020 Update**

Update mitigations to include those identified in the Wildfire SEA:

- Fire Road Stabilization
  - Update the LANL Engineering Standards to include standards for new unpaved roads to be more resilient to damage from storm water.
  - Inspect fire roads, and propose and prioritize improvements to reduce stormwater erosion. Prioritized projects would be incorporated into existing stormwater work planning. If necessary, recommend the closure or replacement of fire and other unimproved roads.
  - Develop a procedure for monitoring cultural resource sites near fire roads and firebreaks. Include additional monitoring requirements and treatments as needed.
- Integration of Forest Health Objectives
  - Develop and implement an Annual Operating Plan for fuels mitigation and forest health actions.
- Jemez Mountains Salamander Habitat Protection
  - Update the LANL Pesticide Discharge Management Plan to prohibit broadcast herbicide use in floodplains or Jemez Mountains Salamander habitat.
- Fuels Mastication Adaptive Management
  - Develop a LANL invasive species best management practices document.
  - Prepare a cost-benefit analysis on fuels reduction options for LANL, including mastication treatments.
  - Incorporate experiments, monitoring, and adaptive management into mastication treatments, as feasible, and contribute to scientific literature on mastication.

### 3.1.7 Chromium Plume Control Interim Measure and Plume-Center Characterization

#### **NEPA Driver**

The mitigations in the 2015 *Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico (DOE/EA-2005) Mitigation Action Plan* (DOE 2015a) were incorporated into the 2008 SWEIS MAP in the third revision (DOE 2016).

#### **Mitigation Objective**

Mitigate adverse environmental effects, including direct, indirect, and cumulative impacts associated with implementation of the Chromium Plume Control Interim Measure and Plume Center Characterization Project in Mortandad Canyon (Technical Area 05).

#### **Mitigation Action Commitments**

- Mitigate potential noise and light impacts to the Mexican spotted owl during construction, drilling, and pumping activities by planning activities outside the breeding season, preferentially selecting equipment with lower noise levels, and using noise barriers where appropriate. Direct all lighting away from the canyon or habitat areas.
- Paint infrastructure so it blends in with the landscape to minimize potential visual impacts.
- Comply with the LANL Cultural Resources Management Plan.
- Comply with the Endangered Species Act by adhering to restrictions outlined in the LANL Threatened and Endangered Species Habitat Management Plan (LANL 2017b).
- Implement required best management practices detailed in the “Floodplain Assessment of the Chromium Plume Control Interim Measure and Plume-Center Characterization in Mortandad Canyon” (LANL 2015b) to minimize short-term negative impacts.
- Limit well pad footprints to the smallest size necessary to minimize land use impacts.
- Revegetate with native perennial vegetation to restore the area as infrastructure is downsized or no longer needed.
- Implement Environmental Protection Agency-regulated National Pollutant Discharge Elimination System General Permit for discharges from construction activities requirements to minimize the discharge of potential pollutants to watercourses.
- Require best management practices that will minimize short-term negative impacts associated with the Discharge Permit 1793.

#### **2020 Update**

No revisions made.

### 3.1.8 Commitments to Santa Clara Pueblo

NNSA recognizes that the operation of LANL over the last 75 years has affected the people of neighboring communities in northern New Mexico, including Tribal communities. These effects, which vary in nature across communities, include alterations of lifestyles, community, and individual practices. While the analysis conducted by DOE/NNSA found no disproportionately high or adverse impacts to minority or low-income populations, based on comments from the Santa Clara Pueblo, the 2008 SWEIS ROD stated that

“...NNSA will undertake implementation of the decisions announced in this ROD in conjunction with a MAP. The MAP will be updated as the need arises to identify actions that would address specific concerns and issues raised by the Santa Clara Pueblo as well as those of other tribal entities in the area of LANL.”

The SWEIS ROD also stated

“...with respect to the concerns raised by the Santa Clara Pueblo, the NNSA will continue its efforts to support the Pueblo and other tribal entities in matters of human health and will participate in various intergovernmental cooperative efforts to protect indigenous practices and locations of concerns. NNSA will conduct government-to-government consultation with the Pueblo and other tribal entities to incorporate these matters into the MAP.”

To this end, the Field Office consulted with Santa Clara Pueblo and agreed to provide one-time funding to the Pueblo to develop a mutually acceptable plan to address specific environmental justice and human health concerns and issues identified by the Santa Clara Pueblo during the SWEIS process. The “Work Plan for Santa Clara Traditional Human Health Risk Assessment Scenario and Reasonable Maximum Exposure” was developed to include specific tasks and timelines, and would identify the necessary NNSA and Pueblo resources to help ensure implementation of the plan. In consultation with Santa Clara Pueblo, the Field Office shall then update the MAP to incorporate these actions or close out the mitigation.

### **2020 Update**

The NNSA issued a Notice of Federal Financial Assistance Award to Santa Clara Pueblo during the fourth quarter of FY 2018. The cooperative agreement will allow DOE/NNSA to collaborate with the Pueblo to complete tasks outlined in the “Work Plan for Santa Clara Traditional Human Health Risk Assessment Scenario and Reasonable Maximum Exposure,” which was concurred upon by NNSA. With the implementation of the work plan, this mitigation action is formally closed.

## **3.2 New Mitigations to be Incorporated into this Mitigation Action Plan**

### **3.2.1 Final Environmental Assessment for the Proposed Construction and Operation of a Second Fiber Optic Line to Los Alamos National Laboratory (DOE/EA-2122)**

#### **NEPA Driver**

The mitigations in the 2020 *Final Environmental Assessment for the Proposed Construction and Operation of a Second Fiber Optic Line to Los Alamos National Laboratory (Fiber Optic EA) (DOE/EA-2122)* are being incorporated into the MAP for LANL Operations, for reporting and tracking purposes. Although the project occurs mostly on the land managed by the Santa Fe National Forest, DOE/NNSA will track and report the status of mitigation measures as part of the requirements identified in the Fiber Optic EA. The majority of mitigations will be carried out by the construction contractor and will be closed following construction. The mitigations will be identified in this MAP and tracked in the annual MAPAR until they are complete. At that time, this MAP will be revised and the mitigations closed.

#### **Mitigation Objectives**

The objectives of mitigation measure employed during the design, construction, and operations

of the second fiber optic line are to minimize short-term and long-term adverse impacts.

### **Mitigation Action Commitments**

- Transportation
  - Develop a traffic safety plan to ensure public transportation safety and minimize traffic disruption during construction activities.
  - Restore Forest Service Rd 24 to pre-construction topographic contours.
  - Maintain Forest Service Rd 24 in a manner as to protect fiber optic cable from impacts associated with erosion and vehicle use.
- Erosion and Sedimentation Control
  - Use erosion and sediment control BMPs during construction activities. To the maximum extent possible, vegetation removal and trimming would be limited for safe construction, fire control purposes, and electrical safety requirements.
- Site Restoration
  - Restore disturbed areas, including temporary material storage areas, to a natural appearance such that the construction-scarred areas will be difficult to detect upon site restoration and successful re-vegetation.
- Special Wildlife Considerations
  - Construction operations would be conducted to minimize potential disturbance to wildlife, including construction activities limited to daylight hours, construction vehicle traffic restricted to approved areas and roadways, maintaining a vehicle speed limit to 25 mph, observing *Migratory Bird Treaty Act* restrictions, not leaving open trenches or boring pits, and using BMPs to limit wildlife entanglement.
  - Design structures to reduce visual impact, reflection, and glare. Use bird diversion devices to prevent or minimize bird impacts with the fiber optic cable.
- Cultural Resources
  - An archaeological monitor would be required to monitor excavation during installation or stringing of the fiber optic line to ensure that unknown subsurface cultural deposits are not mistreated.
- Housekeeping
  - Construction sites and access roads would be kept in an orderly condition through the construction period.

### **2020 Update**

Incorporate into the MAP for LANL Operations and track in annual reports. Begin tracking action commitments when project schedule becomes available.

## **4.0 CLOSED, NEW, AND/OR REVISED MITIGATION COMMITMENTS**

Many of the mitigations listed in the original 2008 SWEIS MAP and its subsequent revisions are complete or the actions are now integrated into well-established LANL programs. These commitments are no longer tracked as mitigations. As the MAP is reviewed and updated, DOE

revises or creates new mitigations to be tracked annually. Table 1 provides a summary of mitigations from the MAP that have been completed or are being implemented through other programs and new and/or revised mitigations since the last MAP revision in 2016.

**Table 1.** Closed, New, and/or Revised Mitigation Action Commitments

Topic	Mitigation Action Commitment	NEPA Driver	Status	Responsible Party	Comment
<b>Trails MAP</b>	Implement the Trails Management Plan (LANL 2015a)	DOE/EA-1431 (Aug. 2003) and FONSI (Sept. 2003) (DOE 2003a, c)	Complete	LANL Environmental Protection and Compliance Division (EPC), Field Office: NEPA Compliance Officer and Landlord Program Manager	Trails Management Plan complete and implemented (LANL 2015a)
<b>Wildland Fire Management Plan</b>	Revise LANL Engineering Standards to include standards for new unpaved roads	DOE/EA-1329-S1 (DOE 2019a)	New mitigation	LANL Utilities and Institutional Facilities	Complete when new engineering standards document is complete
	Inspect, propose, and prioritize improvements to fire roads that would reduce stormwater erosion		New mitigation	LANL EPC	Ongoing
	For cultural sites adjacent to fire roads and firebreaks, identify additional monitoring requirements and treatments as needed, and develop a specific procedure to address cultural site monitoring		New mitigation	LANL EPC	Complete when procedure is complete or incorporated into the Cultural Resources Management Plan
	Development and implementation of an Annual Operating Plan for fuels mitigation and forest health actions		New mitigation	LANL Emergency Management Division-Wildland Fire Program	Ongoing

Topic	Mitigation Action Commitment	NEPA Driver	Status	Responsible Party	Comment
<b>Wildland Fire Management Plan (cont.).</b>	Update Pesticide Discharge Management Plan (PDMP) to prohibit broadcast herbicide use in floodplains or Jemez Mountains Salamander habitat	DOE/EA-1329-S1 (DOE 2019a)	New mitigation	LANL EPC	Complete when new PDMP is complete
	Development or adoption of a LANL invasive species best management practices document		New mitigation	LANL EPC	Complete when a LANL invasive species best management practices document is complete
	Prepare a cost-benefit white paper on fuels reduction options for LANL. Incorporate experiments, monitoring, and adaptive management into mastication treatments as feasible, and contribute to scientific literature on mastication.		New mitigation	LANL EPC	Complete when cost-benefit analysis is complete
<b>Commitments to Santa Clara Pueblo</b>	The DOE/NNSA Field Office shall develop a work plan jointly with Santa Clara Pueblo to address environmental justice, human health concerns, and issues identified by Santa Clara Pueblo during the SWEIS process. The work plan will include specific tasks and timelines, and it will identify the necessary NNSA and Pueblo resources to help ensure implementation of the plan. In consultation with Santa Clara Pueblo, Field Office will update the MAP to incorporate these actions.	2008 SWEIS ROD (DOE 2008b)	Complete	DOE/NNSA and DOE EM-LA in conjunction with Santa Clara Pueblo	Funding was awarded FY18. With the implementation of the work plan, it is recommended this mitigation action be formally closed following consultation with the Santa Clara Pueblo.
<b>EA for Second Fiber Optic Line</b>	The construction contractor will implement mitigation measures for transportation, erosion and sediment controls, site restoration, wildlife, cultural resources, and housekeeping as required and appropriate during the design, construction, and operation of the Second Fiber Optic Line.	DOE/EA-2122 (DOE 2020)	New mitigations	The Construction Contractor for the Fiber Optic Second Line	Actions and tracking will begin when construction schedule is available

## 5.0 REFERENCES

- DOE 1995a. "Dual Axis Radiographic Hydrodynamic Test Facility Final Environmental Impact Statement," Department of Energy, DOE/EA-0228, August 1995.
- DOE 1995b. "Record of Decision Dual Axis Radiographic Hydrodynamic Test Facility," Department of Energy, 60 FR 53588, October 16, 1995.
- DOE 1996. "Dual Axis Radiographic Hydrodynamic Test Facility Final Environmental Impact Statement Mitigation Action Plan," Los Alamos, NM, DOE/EIS-0228, 1996.
- DOE 1999. "Site-Wide Environmental Impact Statement for the Continued Operation of the Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, NNSA, DOE/EIS-0238, January 1999.
- DOE 2000a. "Special Environmental Analysis for the Department of Energy, National Nuclear Security Administration, Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, Washington, D.C, DOE/SEA-03, September 2000.
- DOE 2000b. "Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, Washington, DC, DOE/EA-1329, August 2000.
- DOE 2000c. "Mitigation Action Plan for the Special Environmental Analysis for Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, DOE/SEA-03, September 2000.
- DOE 2000d. "Finding of No Significant Impact for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, DOE/EA-1329, August 2000.
- DOE 2001. "Finding of No Significant Impact for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, Washington, DC, DOE/EA-1329, May 2001.
- DOE 2002. "Environmental Assessment for the Proposed Future Disposition of Certain Cerro Grande Fire Flood and Sediment Retention Structures at Los Alamos National Laboratory, Los Alamos, New Mexico," DOE/EA-1408, August 8, 2002.
- DOE 2003a. "Environmental Assessment for the Proposed Los Alamos National Laboratory Trails Management Program, Los Alamos, New Mexico," Department of Energy, DOE/EA-1431, September 2, 2003.
- DOE 2003b. "Mitigation Action Plan for the Environmental Assessment for the Proposed Los



---

Alamos National Laboratory Trails Management Program, Los Alamos, New Mexico," Department of Energy, DOE/EA-1431, September 2003.

DOE 2003c. "Finding of No Significant Impact for the Environmental Assessment for the Proposed Los Alamos National Laboratory Trails Management Program, Los Alamos, New Mexico," Department of Energy, DOE/EA-1431, September 2003.

DOE 2003d. "Memo from DOE Secretary to Undersecretary for Energy, Science, and Environment. Subject: Department of Energy Wildland Fire Management Policy," Department of Energy, 2002-019296, February 2003.

DOE 2004. "Finding of No Significant Impact for the Wildfire Hazard Reduction and Forest Helath Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, Washington, DC, DOE/EA-1329, October 2004.

DOE 2008a. "Final Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, NNSA, Albuquerque, New Mexico, DOE/EIS-0380, May 2008.

DOE 2008b. "Record of Decision: Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, NNSA, DOE/EIS-0380, 73 FR 55833, September 26, 2008.

DOE 2008c. "Mitigation Action Plan for the Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory," Department of Energy, NNSA, DOE/EIS-0380-MAP, December 2008.

DOE 2010a. "Final Environmental Assessment for the Expansion of the Sanitary Effluent Reclamation Facility and Environmental Restoration of Reach S-2 of Sandia Canyon at Los Alamos National Laboratory Los Alamos, New Mexico," Department of Energy, DOE/EA-1736, August 24, 2010.

DOE 2010b. "Finding of No Significant Impact for the Proposed Expansion of the Sanitary Effluent Reclamation Facility and Environmental Restoration of Reach S-2 of Sandia Canyon at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, DOE/EA-1736 E9 16343, July 10, 2009.

DOE 2011. "Amended Record of Decision: Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, DOE/EIS-0380, 76 FR 131, July 8, 2011.

DOE 2015a. "Mitigation Action Plan for Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, DOE/EA-2005, December 2015.

DOE 2015b. "Final Environmental Assessment for Chromium Plume Control Interim Measure

- 
- and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, DOE/EA-2005, December 2015.
- DOE 2016. "Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico, Mitigation Action Plan, Revision 3," Department of Energy, Los Alamos Area Office, Los Alamos, NM, DOE/EIS-0380,
- DOE 2018. "Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory," Department of Energy, NNSA, Washington, DC, DOE/EIS-0380-SA-05, April 2018.
- DOE 2019a. "Final Supplemental Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, NNSA, DOE/EA-1329-S1, July 2019.
- DOE 2019b. "Finding of No Significant Impact for the Final Supplemental Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico," Department of Energy, NNSA, DOE/EA-1329-S1, July 2019.
- DOE 2020. "Environmental Assessment: Construction and Operation of a Second Fiber Optic Line to Los Alamos National Laboratory," Department of Energy, DOE/EA-2122, May 2020.
- LANL 2007. "Los Alamos National Laboratory Wildland Fire Management Plan," Los Alamos National Laboratory, Los Alamos, NM, LA-UR-07-6478,
- LANL 2015a. "Trails Management Plan," Los Alamos National Laboratory, LA-UR-15-20807, November 2015.
- LANL 2015b. "Floodplain Assessment of the Chromium Plume Control Interim Measure and Plume-Center Characterization in Mortandad Canyon, Los Alamos National Laboratory," Los Alamos National Laboratory, LA-UR-15-28814, November 2015.
- LANL 2016. "LANL Five-Year Wildland Fire Management Plan (2016–2020)," LA-UR-16-20979, February 18, 2016.
- LANL 2017a. "A Plan for the Management of the Cultural Heritage at Los Alamos National Laboratory, New Mexico," Los Alamos National Laboratory, LA-UR-15-27624, March 2017.
- LANL 2017b. "Threatened and Endangered Species Habitat Management Plan for Los Alamos National Laboratory," Los Alamos National Laboratory, LA-UR-17-29454, October 2017.
- LANL 2019a. "Los Alamos National Laboratory's Wildfire Mitigation and Forest Health Plan," LA-UR-18-30013

---

LANL 2019b. "SWEIS Yearbook 2017," Los Alamos National Laboratory, LA-UR-19-20119, February 2019.