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Mitigation Action Plan for Los Alamos National Laboratory

Los Alamos, New Mexico

National Nuclear Security Administration

Los Alamos
NATIONAL LABORATORY

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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.

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EXECUTIVE SUMMARY

A mitigation action plan (MAP) was prepared for the "Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico" (2008 SWEIS; DOE 2008a) in December 2008. The 2008 SWEIS MAP (DOE 2008c) has been revised as needed to

- address significant changes,
- incorporate new mitigations identified in other National Environmental Policy Act (NEPA) documents,
- provide recommendations for ongoing mitigations, and
- close completed mitigations.

Incorporating mitigations identified in other NEPA documents (such as environmental assessments [EAs] and supplement analyses) into one MAP provides a single and concise document for tracking all mitigations and reduces the redundancy of multiple annual reports. The 2008 SWEIS MAP has been revised in 2010, 2014, 2016, 2020, and 2021. The 2025 MAP revision (Revision 6) captures several administrative changes, revisions to monitoring, inspection modifications, and updates mitigation status of the fiber-optic and photovoltaic array EAs. Because most remaining mitigations are from other NEPA documents issued for Los Alamos National Laboratory, the 2008 SWEIS MAP is being renamed the "Mitigation Action Plan for Los Alamos National Laboratory Operations."

1 Background

The mitigation action plan (MAP) is a comprehensive plan for all current and ongoing mitigations identified in the "Final Site-Wide Environmental Impact Statement for Continued Operation of Los Alamos National Laboratory, Los Alamos, New Mexico" (2008 SWEIS; DOE 2008a) 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) and NEPA decisions or to meet objectives established in the 2008 SWEIS and other NEPA documents. The integration of MAPs from other NEPA documents into this MAP eliminates the need to track 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, or programs; or canceled, the MAP is revised to reflect those changes.

The evolution of the 2008 SWEIS began when the U.S. Department of Energy (DOE)/National Nuclear Security Administration (NNSA) issued the 2008 SWEIS (DOE 2008a) in May 2008 and issued a ROD on September 19, 2008 (DOE 2008b; Figure 1-1). 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" (Sanitary Effluent Reclamation Facility environmental assessment [EA]; DOE 2010a) and resulted in a 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 Los Alamos National Laboratory (LANL) programs.

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

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

The 2021 revision incorporated mitigations identified in the "Final Environmental Assessment for the Proposed Construction and Operation of a Solar Photovoltaic Array at Los Alamos National Laboratory, Los Alamos, New Mexico" (DOE 2019c).

This 2025 MAP revision (Revision 6) captures several administrative changes, revisions to monitoring, and inspection modifications and updates mitigation status of the fiber-optic and photovoltaic (PV) array EAs, respectively.

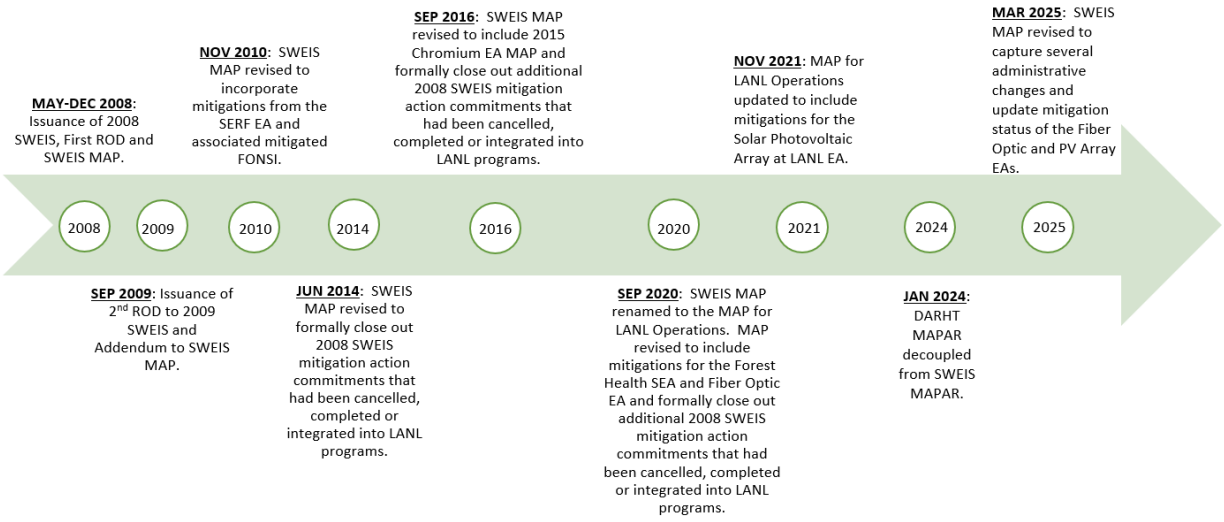

Figure 1-1. The evolution of the 2008 SWEIS MAP to the MAP for LANL Operations.

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 rooms (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.

In early 2025, NNSA published the draft SWEIS for LANL assessing current and future impacts of the Lab's operations. The SWEIS analyzes the potential environmental impacts of LANL operations for approximately the next 15 years. The Draft LANL SWEIS analyzes three alternatives: (1) the No-Action Alternative, (2) the Modernized Operations Alternative, and (3) the Expanded Operations Alternative. Under the No-Action Alternative, NNSA would continue current facility operations throughout LANL in support of assigned missions. The No-Action Alternative activities have previously completed NEPA reviews and include construction of new facilities; modernization, upgrade, and utility projects; and decontamination, decommissioning, and demolition (DD&D) of excess and aging facilities. The No-Action Alternative also includes the continued legacy cleanup and environmental remediation in accordance with the Consent Order.

In addition, in June 2025 DOE prepared new procedures for NEPA implementation, published on the DOE website outside of the Code of Federal Regulations. These new procedures were based on amendments to NEPA made by the Fiscal Responsibility Act in 2023, Executive Orders 14154 and 14301, the rescission by the Council on Environmental Quality (CEQ) of its NEPA implementing

regulations, and the recent Supreme Court ruling in Seven County Infrastructure Coalition et al. v. Eagle County, Colorado. DOE began implementing the new NEPA procedures on June 30, 2025.

The new SWEIS and new DOE NEPA procedures create opportunities to re-evaluate how LANL identifies, reports, and monitors mitigations going forward. This may include how mitigations are defined for effectiveness, driven by significance of impacts, the overall value of the mitigations and how they are tracked and reported. Opportunities for adaptive management of mitigation improvements may also be addressed, as well as measurable outcomes driven by specific compliance drivers. These opportunities will be identified in coordination with NALA stakeholders.

1.1 Purpose and Organization of the MAP

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. Although the 2008 SWEIS MAP initially focused on mitigation commitments adopted in associated RODs, most of those mitigations have been completed or incorporated into established LANL programs (LANL 2017a). Remaining mitigations included here were identified in other NEPA documents, listed as follows:

- "Dual Axis Radiographic Hydrodynamic Test Facility Final Environmental Impact Statement" (DARHT EIS; DOE 1995a)
- "Dual Axis Radiographic Hydrodynamic Test Facility Final Environmental Impact Statement Mitigation Action Plan," (DARHT MAP; DOE 1996)
- "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," (DOE 2000a)
- "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)
- "Expanded Operations of the Off-Site Sealed Source Recovery Project '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 2011)
- "Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory, Los Alamos, New Mexico" (DOE 2000b)
- "Mitigation Action Plan for Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico" (DOE 2015a)

- "Final Environmental Assessment for Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico" (DOE 2015b)
- "Final 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)

Each of these documents has an individual MAP 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*

The DOE/NNSA and LANL implemented a program called the Site-Wide Environmental Impact Statement (SWEIS) Yearbooks. The Yearbook compares LANL operational data collected for a calendar year with the 2008 SWEIS projections approved in the RODs. The Yearbook's purpose is not to present environmental impacts or environmental consequences but to provide data that could be used to develop an impact analysis. The Yearbooks are available to the public on the LANL electronic public reading room webpage (http://eprr.lanl.gov; LANL 2019b, LANL 2020).

1.2.2 *MAP Annual Report*

In compliance with DOE National Environmental Policy Regulations and 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 ROD. 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 during 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 Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT) MAPAR is included as an appendix to the SWEIS MAPAR each year to meet the specific requirements outlined in the DARHT EIS (DOE 1995a) and associated MAP (DOE 1996).

2 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; LANL management and operations contractor Triad National Security, LLC; and Environmental Management operations and management contractor Newport News Nuclear BWXT-Los Alamos (N3B).

2.1 Roles and Responsibilities

The Field Office delegates coordination and management of MAP activities to LANL subject matter experts (SMEs) in accordance with the management and operations contract. LANL 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. Although 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 and have not yet been completed. The "Supplement Analysis of the 2008 Site-Wide Environmental Impact Statement for the Continued Operation of Los Alamos National Laboratory" (DOE 2018) identified many of the remaining actions that are anticipated to continue until 2022 or until otherwise directed by the Field Office.

As individual projects and activities that address specific mitigation measures are completed, Triad will coordinate with all involved parties and provide 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 that concerned 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 Mitigations

Current mitigation action commitments for the continued operation of LANL are presented in the following subsections. 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 2025 update.

3.1 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 Facility*

NEPA Drivers

DOE issued the final environmental impact statement on the DARHT (DOE 1995a) in August 1995 and issued a ROD (DOE 1995b) on October 16, 1995. 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 (DOE 1996) elaborates on those commitments.

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.

In 2021, the MAP was updated to reflect the results of the 9-year-long annual assessment of physical conditions at Nake'muu Pueblo (1998–2006) that led to the conclusion that yearly snowfall and wildlife activity—not the operations at the DARHT Facility—are responsible for the deterioration of the standing wall architecture.[1] As a result of this statistically quantitative study, additional annual monitoring at

[1] Vierra, B. J., and K. M. Schmidt. "A Current Assessment of the Nake'muu Monitoring Program," Los Alamos National Laboratory report LA-UR-06-8130 (2006).

Nake'muu Pueblo under the DARHT MAP was determined to not be required and was suspended in fiscal year 2007.[2]

2025 Update

In (calendar year) 2024, the DARHT MAPAR was decoupled from the SWEIS MAPAR, citing an opportunity to reduce paperwork and gain overall efficiency associated with data inclusion into LANL's annual site environmental reports (ASERs). The DARHT MAPAR formerly was an appendix to the SWEIS MAPAR and will be published as a single deliverable going forward. The DARHT MAPAR is reflective of the previous fiscal year than the SWEIS MAPAR.

3.1.2 *Special Environmental Analysis*

NEPA Drivers

In September 2000, DOE/NNSA prepared and issued the "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" (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 "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," (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.

2025 Update

The 2024 MAPAR recommended the cessation of biota monitoring at the Pajarito Canyon flood retention structure; it is no longer needed, citing that the majority of radionuclide and chemical concentrations are below regional statistical reference levels, all radionuclide and chemical concentrations are below levels that are associated with adverse effects, and most constituents are stable over time (LANL 2024b).

[2] In accordance with the LANL Cultural Resources Management Plan (LA-UR-19-21590), visits from Tribal members of the Pueblo de San Ildefonso to their ancestral village of Nake'muu in Technical Area 37 are planned through the Field Office and facilitated by the cultural resources program. In addition, cultural resources staff perform annual assessments and vegetation removal at Nake'muu to document any changes at the site (such as hazard trees).

Furthermore, the 2024 MAPAR recommend that that the Los Alamos Canyon weir remain operational and that biota monitoring there be reduced to small mammals only and on a triennial basis.

3.1.3 *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 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 2002). Compliance with the EA 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 EA.

Mitigation Action Commitments

- Annually monitor the flood retention structure for structural integrity and safe operations until it is 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 aboveground portion of the flood retention structure equivalent to the dimensions of a low-head weir to retain potentially contaminated sediments on LANL land.
- Remove aboveground 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.

2025 Update

The 2023 MAPAR recommended the frequency of the flood retention structure inspections be reduced to once every 2 years. FY2025 would be the next scheduled inspection, then FY2027, and so on.

3.1.4 *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. DOE's response to Congress stated that management of greater than Class C wastes is 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 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 that contain cobalt-60, iridium-192, or cesium-137 to mitigate the effects of potential accidents.

2025 Update

Mitigations continue to remain on hold until sealed sources that contain cobalt-60, iridium-192, or cesium-137 are accepted at LANL.

3.1.5 *Wildland Fire Management*

NEPA and Other Drivers

Three FONSIs (DOE 2000d, DOE 2001, DOE 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). 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 Wildland Fire 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 to 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 to the wildland fire management plan included forest health and fire risk reduction efforts in the same plan (LANL 2019b).

In 2019, a supplemental environmental assessment (SEA) to the "Final 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. 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 were included in this MAP revision. These mitigations will be tracked in MAP annual reports until mitigations are complete.

Mitigation Objectives

Reduce the risk of wildfire that may adversely impact the public, workers, facilities, operations, and 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.
- Update mitigations to include those identified in the Wildfire SEA:
  - Fire Road Stabilization
    - Update 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.

2025 Update

The 2024 MAPAR recommended closure of the mitigation, "Jemez Mountains Salamander Habitat Protection: Update the LANL Pesticide Discharge Management Plan to prohibit broadcast herbicide use in floodplains or Jemez Mountains Salamander habitat." The LANL Pesticide Discharge Management Plan requires consultation with stormwater and biological resources SMEs before herbicide applications. No additional revisions to the plan are necessary.

In early 2025, the Forest Health Program was reorganized into the Forest Monitoring Program.

3.1.6 *Chromium Plume Control Interim Measure and Plume-Center Characterization*

NEPA Driver

The mitigations in the 2015 "Mitigation Action Plan for Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory, Los Alamos, New Mexico" (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 "Threatened and Endangered Species Habitat Management Plan for Los Alamos National Laboratory" (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, Los Alamos National Laboratory" (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.

2025 Update

No updates for 2025.

4 Closed and/or Revised Mitigation Commitments

Many of the mitigations listed in the original 2008 SWEIS MAP and its subsequent revisions are complete, the actions are now integrated into well-established LANL programs, or the actions are no longer viable. These commitments are no longer tracked as mitigations or are on an indefinite hold, meaning the project has been cancelled or made redundant. Table 4-1 provides a summary of mitigations from the MAP that have been completed or are new and/or revised mitigations since the last MAP revision in 2020.

Table 4-1. Closed and/or Revised Mitigation Commitments

Topic	Mitigation Action Commitment	NEPA Driver	Status	Responsible Party	Comment
Photovoltaic (PV) Array	• Conduct a long-term, avian-monitoring study at the proposed PV array site and adjacent habitat • Conduct post-PV-panel installation bird point count surveys for a minimum of 10 years • Conduct carcass surveys to monitor for birds that could have struck PV panels and died	"Final Environmental Assessment for the Proposed Construction and Operation of a Solar Photovoltaic Array at Los Alamos National Laboratory, Los Alamos, New Mexico" (DOE 2019c)	Mitigation is on indefinite hold	LANL EPC	Project cancelled; mitigation on indefinite hold
Construction and Operation of a Second Fiber-Optic Line to LANL	• Transportation: – Develop a traffic safety plan for use during construction activities – Restore Forest Service Road 24 to preconstruction conditions – Maintain Forest Service Road 24 to protect from erosion and vehicle impacts • Erosion and Sediment Control: – Use erosion and sediment control best management practices during construction activities • Site Restoration: – Restore disturbed areas to a natural appearance and revegetate • Special Wildlife Considerations: – Conduct construction operations to minimize potential disturbance to wildlife – Design structures to reduce visual impact, reflection and glare • Housekeeping: – Keep construction sites and access roads in an orderly condition	Fiber-Optic EA (DOE/EA-2122) (DOE 2020)	Mitigation is on indefinite hold	NA	The construction of the second fiber-optic to LANL is unlikely to happen. San Ildefonso Services has received funding to place a fiber-optic line from White Rock down Hwy 4/NM 503. LANL is likely to use this line instead of building a second line. Mitigation is on indefinite hold.

5 Acronyms and Abbreviations

Acronym/Abbreviation	Definition
DARHT	Dual-Axis Radiographic Hydrodynamic Test (Facility)
DOE	(U.S.) Department of Energy
EA	environmental assessment
EPC	Environmental Protection and Compliance Division
Field Office	DOE/NNSA Los Alamos Field Office
FONSI	finding of no significant impact
LANL	Los Alamos National Laboratory
MAP	mitigation action plan
MAPAR	mitigation action plan annual report
NEPA	National Environmental Policy Act
NNSA	National Nuclear Security Administration
ROD	record of decision
SEA	supplemental environmental assessment
SME	subject matter expert
SWEIS	Site-Wide Environmental Impact Statement

6 References

DOE 1995a. "Dual Axis Radiographic Hydrodynamic Test Facility Final Environmental Impact Statement," Department of Energy, DOE/EA-0228, August 1995.

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