FINDING OF NO SIGNIFICANT IMPACT AND
FLOODPLAIN STATEMENT OF FINDINGS
FOR THE CHROMIUM INTERIM MEASURE AND FINAL REMEDY
ENVIRONMENTAL ASSESSMENT
LOS ALAMOS, NEW MEXICO
June 2024

AGENCY: U.S. Department of Energy (DOE),
Environmental Management - Los Alamos Field Office (EM-LA)

ACTION: Finding of No Significant Impact (FONSI) and Floodplain Statement of Findings

SUMMARY: The U.S. Department of Energy (DOE), Environmental Management - Los Alamos Field Office (DOE EM-LA) completed the *Final Chromium Interim Measure and Final Remedy Environmental Assessment Los Alamos, New Mexico* (DOE/EA-2216). Based on analyses in the Environmental Assessment (EA), DOE EM-LA determined that its Proposed Action—to use adaptive site management (ASM) to select and implement options to remediate hexavalent chromium (Cr (VI)) contamination beneath Sandia and Mortandad Canyons—would not result in any significant adverse impacts. A detailed description of the Proposed Action and No Action Alternative, together with a discussion of the associated environmental consequences, are in the EA, which is incorporated by reference.

Proposed activities include activities in floodplain and wetlands areas. Consequently, the EA incorporates a Floodplain and Wetlands Assessment. In accordance with Executive Order 11988 and DOE's Compliance with Floodplain and Wetland Environmental Review Requirements (codified at 10 Code of Federal Regulations [CFR] 1022), DOE EM-LA is also issuing a Floodplain Statement of Findings, as Attachment A to this FONSI. In addition, DOE EM-LA commits to the mitigation measures described in the corresponding Mitigation Action Plan (MAP), included as Attachment B to this FONSI.

BACKGROUND: Los Alamos National Laboratory (LANL) is a multidisciplinary research facility, owned by DOE and managed and operated by Triad National Security, LLC (Triad). LANL is located in north-central New Mexico, approximately 60 miles northeast of Albuquerque and 20 miles northwest of Santa Fe, within the incorporated County of Los Alamos and Santa Fe County. Newport News Nuclear BWXT-Los Alamos, LLC (N3B) manages the Los Alamos Legacy Cleanup Contract for DOE EM-LA. In 2004, groundwater sampling data from monitoring wells at LANL indicated the presence of chromium contamination in the regional aquifer resulting from historical use (1956–1972) of potassium dichromate, a corrosion inhibitor, in cooling-tower water that was discharged from LANL's non-nuclear power plant to an outfall as part of operational maintenance activities. Concentrations of chromium within the groundwater plume beneath Mortandad Canyon exceed the New Mexico groundwater standard of 50 µg/L or parts per billion (ppb) near the property boundary between LANL and the Pueblo de San Ildefonso and are as high as 1,000 ppb in the plume center. In accordance with the Compliance Order on Consent (Consent Order) with the New Mexico Environment Department

(NMED), DOE EM-LA (and its contractor N3B) are required to assess, identify, clean up, and otherwise address contamination at LANL.

In 2015, DOE prepared the *Environmental Assessment for Chromium Plume Control Interim Measure and Plume-Center Characterization, Los Alamos National Laboratory* (referred to as the 2015 Interim Measure EA). The purpose of the 2015 Interim Measure EA was to analyze the environmental impacts associated with implementing the chromium interim measure for plume control and plume characterization.

DOE EM-LA initiated sustained operations of the southern portion of the interim measure in 2018 and the remaining portions of the interim measure were brought online at a later date, mostly toward the end of 2019. While the groundwater underlying Sandia and Mortandad Canyons is currently being treated as an interim measure, DOE EM-LA is evaluating alternatives for groundwater remediation with the primary goal of chromium mass removal or remediation to achieve compliance with groundwater quality standards.

PURPOSE AND NEED: The purpose of the Proposed Action is to remediate chromium-contaminated groundwater below Sandia and Mortandad Canyons. While the groundwater underlying Sandia and Mortandad Canyons was treated as an interim measure, DOE is evaluating corrective measures for a final remedy that achieves permanence, cost effectiveness, and cleanup requirements. Whereas the primary objective of the interim measure was to prevent migration of the chromium plume past the LANL boundary (hydraulic control), with the incidental benefit of removing chromium mass from the regional aquifer, DOE now needs to evaluate alternatives for groundwater remediation with the primary goal of chromium mass removal or remediation to achieve compliance with groundwater quality standards.

DESCRIPTION OF THE PROPOSED ACTION: DOE's Proposed Action for a final remedy is a combination of treatment options whereby EM-LA would use ASM to select, implement, and manage removal of Cr(VI) from source areas and the groundwater. The use of ASM helps develop effective cleanup strategies by ensuring continuous planning, implementation, and monitoring that accommodates new information and changing site conditions. The Proposed Action includes four options, noted below, that can be utilized individually or in combination to improve the effectiveness of remediating chromium-contaminated groundwater below Sandia and Mortandad Canyons, the cost of remediation, or minimize potential effects resulting from the Proposed Action. This approach will provide DOE the flexibility to make timely environmental cleanup decisions related to cost, impacts, and effectiveness as work progresses. The Proposed Action options are:

- **Option 1: Mass Removal via Expanded Treatment**—Under this option, additional extraction, injection, and monitoring wells would be added to raise the rate of groundwater extraction and increase the rate of mass removal, treatment, and injection.
- **Option 2: Mass Removal with Land Application**—This option would use land application of treated groundwater as a disposition method.

- **Option 3: Mass Removal via In-situ Treatment**—This option would use in-situ treatments to supplement treatment of the contaminated groundwater.
- **Option 4: Monitored Natural Attenuation**—Monitored natural attenuation (MNA) relies on natural physical, chemical, or biological processes to reduce concentrations, toxicity, or mobility of chromium and incorporates regular monitoring to verify that MNA is working. In the case of chromium, attenuation occurs via the reduction of mobile Cr(VI) to insoluble trivalent chromium (Cr(III)).

The Proposed Action would use infrastructure already in place as a result of ongoing investigations of the chromium plume and install new infrastructure. Existing infrastructure includes injection, extraction, and monitoring wells; piezometers; a water treatment system with portable storage tanks, storage basins, and associated connecting pipelines; unpaved access roads; power lines; and an irrigation system for land application of treated water. The Proposed Action would include installation of the following new infrastructure:

- Up to 15 injection wells in the regional aquifer: 70 gallons per minute (gpm) (1,000 gpm maximum total capacity).
- Up to 15 extraction wells in the regional aquifer: 70 gpm (1,000 gpm maximum total capacity).
- Up to 15 new monitoring wells in the regional aquifer. One existing well would be converted into a monitoring well in the regional aquifer, for a total of 16 monitoring wells.
- Up to 20 piezometers in the shallow zone (i.e., the alluvial aquifer) in Sandia Canyon Wetlands source area.
- Up to 10 piezometers in the deep vadose zone (i.e., the intermediate-perched aquifer) in Mortandad Canyon.
- A new 10,000-square-foot groundwater treatment facility.
- Well pads and infrastructure to support installation and operation of the wells, including well heads, shipping containers (or similar shelters), portable storage tanks, and piping.
- Spray irrigation/evaporation system.
- Buried piping.
- Unpaved access roads.

The Proposed Action would increase groundwater extraction and injection rates from 150,000,000 gallons per year (gpy) to a maximum rate of 550,000,000 gpy. EM-LA would avoid disturbing sensitive ecological and cultural resources. Water would be treated to verify all constituents meet NMED Ground Water Quality Bureau permit requirements before injection into the aquifer through the injection wells or land application. More detailed descriptions of

these options are included in Appendix B, *Description of Alternatives Supporting Information*, in the EA.

In addition to these options, other measures to achieve the final remedy through source removal could be instituted in the shallow and vadose zone groundwater. The discharge of treated waters could be released into Sandia Canyon or through LANL's National Pollutant Discharge Elimination System outfall for treated effluent. The details related to these other measures are shown in Appendix B, Table B-1.

The specifics of the ASM approach would be resolved through the Resource Conservation and Recovery Act decision-making process[1] enforced by NMED through the Consent Order. EM-LA will develop recommendations for a final remedy to be presented to NMED for agreement in accordance with the Corrective Measures Evaluation process, as described in the Consent Order. EM-LA will then prepare a Corrective Measures Implementation Plan (CMIP) explaining the design, construction, operation, maintenance, and monitoring of the corrective measure or measures. EM-LA will define the adaptive management approach (i.e., the monitoring protocols, desired outcomes, performance measures, interim objectives, and other factors) in the CMIP.

ALTERNATIVES CONSIDERED: In addition to the Proposed Action, DOE evaluated a No Action Alternative. The No Action Alternative is the continuation of the preferred alternative in the 2015 Interim Measures EA (DOE/EA-2005) and FONSI (December 2015), whereby EM-LA would control plume migration and maintain chromium contamination concentrations within the LANL boundary while continuing to evaluate long-term corrective action remedies, including options for chromium mass removal. EM-LA would continue conducting field-scale studies to further characterize the plume to evaluate the effectiveness and feasibility of implementing a final remedy.

ENVIRONMENTAL CONSEQUENCES: The EA evaluates the effects of the Proposed Action and No Action Alternative related to land use, geology and soils, water resources, air quality, ecological resources, cultural resources, utilities and infrastructure, traffic and transportation, hazardous materials and waste generation, noise, visual resources, human health and worker safety, socioeconomics, and environmental justice. The environmental effects of the Proposed Action would be as follows.

Land use—Activities would take place within the LANL boundary in an area of active groundwater investigation; activities would be compatible with existing land uses.

Geology and soils—Installation and operation of wells would have little to no impacts on geology. Some soil erosion by wind and stormwater would likely occur in disturbed areas. Soil erosion would be controlled by adherence to best management practices (BMPs) and would be minor.

Groundwater—Environmental consequences to groundwater and groundwater quality relate to well construction and the operation of the extraction/injection wells. Well construction would

[1] See https://www.epa.gov/hw/learn-about-corrective-action#theprocess for more information.

have minor impacts on water quality and minor temporary impacts on water levels. Operating extraction wells would alter the groundwater quality by reducing the chromium concentration in the well's vicinity. Similarly, injection wells would alter the groundwater quality by injecting treated water. The intent overall is to return the majority of extracted water back into the regional aquifer. Water injected into the aquifer through injection wells, land-applied, or evaporated would meet NMED Ground Water Quality Bureau permit standards. The Proposed Action would have positive environmental consequences from chromium mass reduction.

Surface water—Soil disturbance resulting from infrastructure development, operation, and maintenance activities associated with the Proposed Action could result in sedimentation to surface waters. With anticipated soil disturbance totaling approximately 75 acres and implementation of BMPs, potential environmental consequences to surface waters are expected to be minor.

Air quality—Implementing the Proposed Action would result in air emissions of criteria pollutants, hazardous air pollutants, and greenhouse gas emissions from road construction, installation of well pads, well development, pipeline installation, and construction of the treatment facility. The intermittent nature of operational emissions and emissions from installation activities, in combination with air quality mitigation measures, would not contribute to an exceedance of an ambient air quality standard at locations outside the LANL site. Impacts to air quality would be minimal.

Ecological resources—Impacts to ecological resources from the Proposed Action could include temporary and permanent disturbances; degradation or loss of habitat from land clearing activities; disturbance or displacement of wildlife due to an increase in noise and human activity; habitat fragmentation; and an increase in human-wildlife interactions. The Proposed Action would follow all BMPs, monitoring plans, and measures related to ecological resources established for LANL. Implementing the Proposed Action with identified controls would not result in significant impacts to these species or resources.

Cultural resources—Historic properties would be avoided to the maximum extent possible during Proposed Action activities. Erosion control measures would be incorporated to limit direct and indirect impacts to archaeological sites from stormwater runoff or erosion. Regular consultation with Pueblo de San Ildefonso would be implemented to discuss how to best limit impact. No significant impacts to archaeological or historic properties would be anticipated.

Utilities and infrastructure—The proposed chromium treatment facility would require a connection to the existing LANL electrical system. No new electrical lines would be required for connection. The potable water supply and existing water-supply infrastructure would accommodate project use. Impacts to electrical and water infrastructure would be minor. The project area is largely in a less frequently travelled area of LANL. Other than construction of access roads for new wells and piezometers, activities under the Proposed Action would not affect road infrastructure, and overall effects on the road infrastructure at LANL would be minimal.

Traffic and transportation—The Proposed Action would increase the number of personal commuter vehicles and number of truck deliveries for the construction of the groundwater

treatment facility, well pads, wells, and piezometers. Routine daily traffic volumes would be expected to decrease after construction of the proposed groundwater treatment facility is completed. Proposed traffic improvements (a new Pajarito Road roundabout and widening of Diamond Drive) would help alleviate congestion and traffic safety issues on Pajarito Road. As such, adverse traffic impacts are expected to be minor.

Hazardous materials and waste generation—Small quantities of industrial (i.e., construction debris) and hazardous wastes would be generated from the Proposed Action. Waste would be handled in accordance with LANL's waste management procedures. The waste quantities generated under the Proposed Action would be minimal, thus impacts to on-site waste operations or off-site disposal facilities are anticipated to be small.

Noise—The Proposed Action would generate noise from construction activities and from the use of equipment, machinery, and vehicles, which could affect noise-sensitive receptors. Elevated noise levels would generally be limited to the immediate area of the noise source and are expected to dissipate before reaching publicly accessible areas. Any adverse noise impacts would generally be minor.

Visual resources—There would be little to no substantial dominant visual change in Mortandad Canyon or Sandia Canyon as observed from outside vantage points, no substantial change in visibility caused by predicted air pollutant emissions, no conflict with Federal land management agency visual standards, and no long-term dominant visual interruption of existing or unique viewsheds.

Human health and worker safety—The Proposed Action would not involve direct hazards to the public. Chromium in public water supply wells is monitored by LANL and the Los Alamos County Department of Public Utilities, and there is no indication that the chromium plume has affected water supply wells. Access to the project area is restricted, thus noise-generating activities and air emissions would be unlikely to affect members of the public at the nearest publicly accessible points. Effects on human health would be negligible. Applicable safety and health training and monitoring, personal protective equipment, and work-site hazard controls would be required for workers; activities would not be expected to have any adverse health effects on workers.

Socioeconomics—The direct workforce requirements for the Proposed Action under any of the ASM options would be very small and comprise less than (<) 0.1 percent of the existing workforce in the region (0.02 percent). Potential adverse impacts from the Proposed Action options would be expected to be small on the housing market and community services within the region of influence (ROI) because the expected worker and population influx is expected to be very small. The small increase in employment (direct and indirect jobs) from both construction and operation would be expected to result in small and beneficial impacts on the local economy and ROI from the increase in jobs, income and salaries, as well as expenditures and revenue from state and local taxes.

Environmental justice—Implementation of the Proposed Action would not result in disproportionate and adverse impacts to communities with environmental justice concerns. In addition, the Proposed Action would not have lasting or irreversible adverse effects.

Representatives of Pueblo de San Ildefonso previously anticipated a direct, adverse impact from the proposed Chromium Plume Control Interim Measure and Plume-Center Characterization Project to Tribally important resources and practices associated with the Sacred Area. However, these representatives also understood that the currently proposed ASM implementing options would offset those concerns by reducing the chromium plume contamination.

Cumulative Effects—In general, impacts from the Proposed Action would be small and limited to the project area. Because impacts would be small, they would not substantially contribute to cumulative effects.

MITIGATION MEASURES: Implementation of specific resource mitigation commitments, as identified in the EA, Floodplain Assessment, and MAP, lessen the potential for adverse environmental effects. The attached MAP serves as a management document that explains how the mitigation measures identified in the EA will be planned and implemented through both construction and operational phases of the project. Specifically, the MAP describes existing programs, plans, and controls that will be applied during the course of the project, and lists other measures that will be employed to reduce the potential of project-specific effects identified in the EA, such as those related to visual resources, cultural resources and traditional cultural properties (including potential impacts to the Pueblo de San Ildefonso), biological resources, floodplains, land use, and surface water.

Mitigations related to the 2015 EA and FONSI, have been incorporated in the *Mitigation Action Plan for Los Alamos National Laboratory Operations Los Alamos, New Mexico* and are being tracked as part of the *Fiscal Year 2020 Mitigation Action Plan Annual Report for the Continued Operation of Los Alamos National Laboratory*. Implementation of specific resource mitigation commitments, as identified in this MAP, will be incorporated in the next version of the *Mitigation Action Plan for Los Alamos National Laboratory Operations Los Alamos, New Mexico,* and the next version of the *Mitigation Action Plan Annual Report for the Continued Operation of Los Alamos National Laboratory*.

DRAFT EA REVIEW AND COMMENT: In accordance with 10 CFR 1021.301 (Agency review and public participation), DOE EM-LA provided written notification of the determination to prepare this EA on April 28, 2023, to Jemez Pueblo, Pueblo de Cochiti, Pueblo de San Ildefonso, Santa Clara Pueblo, the State of New Mexico, Los Alamos County, and Santa Fe County. DOE also notified the public of this determination and an in-person scoping meeting was held on May 8, 2023, and a virtual meeting was held on May 9, 2023. The public scoping period closed on June 6, 2023. All comments were considered in preparing the Draft EA.

In accordance with 10 CFR 1021.301(d), DOE EM-LA provided the state and Tribes with an opportunity to review and comment on the Draft EA. DOE also provided the public with an opportunity to review and comment on the Draft EA. The public comment period for the Draft EA began December 14, 2023. DOE EM-LA sent e-mails to governments (including Tribal governments), organizations, and individuals from DOE' s stakeholders list. Additionally, newspaper announcements were published in the *Los Alamos Daily Post*, *The Albuquerque Journal*, *Santa Fe New Mexican*, and *The Rio Grande Sun*. The Draft EA was made available at the DOE National Environment Policy Act (NEPA) website (https://www.energy.gov/nepa/doe-

environmental-assessments). A public meeting was held on January 22, 2024, at the Cities of Gold Conference Center, Pojoaque, New Mexico, and a virtual public meeting was held on January 24, 2024. The public comment period for the Draft EA ended on March 13, 2024. All comments were considered in preparing the Final EA and this FONSI.

DETERMINATION: Based on the information in the EA, as summarized here, DOE EM-LA has determined that the Proposed Action is not a major Federal action significantly affecting the quality of the human environment within the meaning of NEPA (42 United States Code 4321 et seq.). Therefore, an Environmental Impact Statement will not be prepared, and DOE is issuing this FONSI for the Proposed Action.

Kristen G. Ellis

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Kristen G. Ellis

Associate Principal Deputy Assistant Secretary for Regulatory and Policy Affairs

FOR FURTHER INFORMATION CONTACT: For further information on this EA, contact NEPA Document Manager, U.S. Department of Energy, Office of Environmental Management, Los Alamos Field Office, 1200 Trinity Drive, Suite 400, Los Alamos, NM 87544; e-mail emla-nepa@em.doe.gov.

For further information on the DOE-Office of Environmental Management NEPA process, contact Mr. William Ostrum, NEPA Compliance Officer, U.S. Department of Energy, 100 Independence Avenue, SW, Washington DC 20585; e-mail william.ostrum@hq.doe.gov.

ATTACHMENT A

Floodplain Statement of Findings for Chromium Remediation in Sandia and Mortandad Canyons, Los Alamos National Laboratory

AGENCY

U.S. Department of Energy (DOE) Environmental Management Los Alamos Field Office (EM-LA)

ACTION

Floodplain Statement of Findings

PROPOSED ACTION

EM-LA is proposing to use adaptive site management (ASM) to select and implement options to further remediate hexavalent chromium [Cr(VI)] contamination in Sandia and Mortandad Canyons at Los Alamos National Laboratory (LANL). The goal of ASM is to create a framework of structured and continuous planning, implementation, and monitoring that accommodates new information and changing site conditions to develop effective and efficient cleanup strategies.

The following four remediation options were analyzed for implementation through ASM. Any combination of these options may ultimately be implemented.

- *Mass removal via expanded treatment* – Under this option, EM-LA would extract contaminated water from the regional aquifer, pump the water to an ion exchange treatment facility, remove Cr(VI) from the water, pump the treated water to injection wells, and inject the treated water back into the regional aquifer. The efficacy of remediation efforts would be monitored via an array of wells and piezometers installed throughout the project area.
- *Mass removal with land application* – This option uses the same treatment facility, processes, and treatment options as the mass removal via expanded treatment option, except that treated water would be stored in existing synthetically lined storage basins in Mortandad Canyon, then conveyed through an existing system of basin pumps and piping for disposition by any of the following methods: (1) irrigation-type sprinklers using an array of sprinkler heads, (2) mechanical evaporators, or (3) 3000- to 10,000-gal. water trucks with high-pressure sprayers.
- *Mass removal via in-situ treatment* – This option involves injecting reducing agents into untreated water and relying on chemical processes (e.g., sodium dithionite amendments) to immobilize and detoxify contaminants within soil or groundwater without removing them from the ground. In-situ treatment would be used to target source-area contamination in Sandia Canyon as well as groundwater contamination beneath Mortandad Canyon.
- *Monitored natural attenuation (MNA)* – This option relies on natural physical, chemical, or biological processes to reduce concentrations, toxicity, or mobility of chromium, and incorporates regular monitoring to verify that MNA is working. In the case of chromium, attenuation occurs via the reduction of mobile Cr(VI) to insoluble trivalent chromium [Cr(III)]. EM-LA would consider MNA when contamination poses relatively low risks, the plume is stable or shrinking, and the natural attenuation processes are projected to achieve remedial objectives in a reasonable timeframe, compared with more active methods.

LOCATION WITHIN FLOODPLAIN EXPLANATION

Chromium contamination is located within Sandia Wetland and underlies Sandia and Mortandad Canyon floodplains, so remediation of the contamination will necessarily require project activities to be centered on these areas. Where practicable, disturbance to the floodplains and/or wetland in the project area will be avoided under the proposed action.

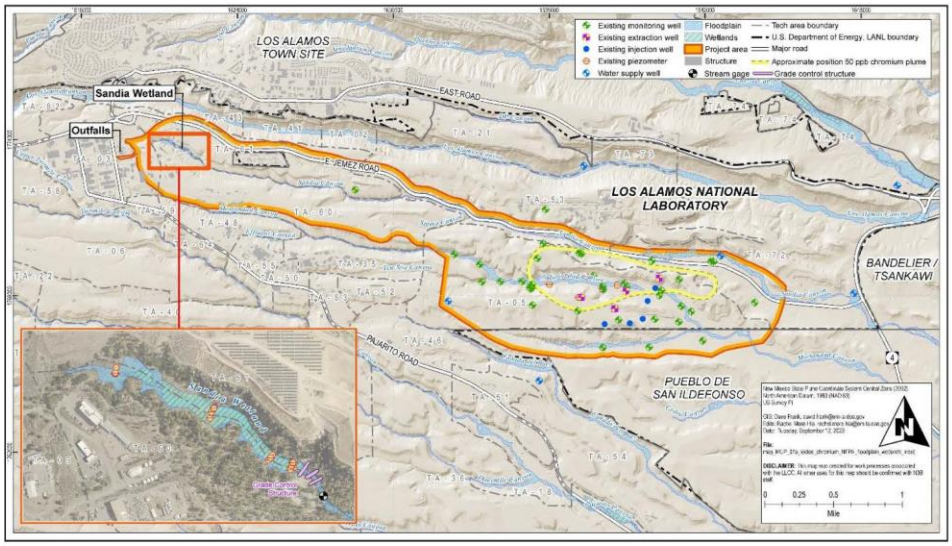

Figure 1 Proposed project area, including Sandia Wetland (inset), Sandia Canyon, and Mortandad Canyon

ALTERNATIVES CONSIDERED

The alternatives to the proposed actions that were considered but not evaluated were (1) alternative project locations and (2) alternative actions.

Alternative project locations were not practicable, since chromium contamination is located within Sandia Wetland and underlies Sandia and Mortandad Canyon floodplains.

EM-LA solicited public feedback on alternative actions during the National Environmental Policy Act scoping period during the summer of 2023. No alternative actions that meet the project objectives and do not impact the floodplains and wetland in the project area were identified.

A no-action alternative was previously evaluated during the planning of the chromium plume control interim measure. “No action” does not necessarily mean doing nothing; instead, it involves maintaining or continuing the existing status or condition. Under the no-action alternative, EM-LA would control plume migration and maintain chromium contamination concentrations within the LANL boundary while continuing to evaluate long-term corrective action remedies, including options for chromium mass removal. The no-action alternative was not selected because it would not meet the objectives of chromium mass removal and contaminant source control.

STEPS TO BE TAKEN TO MINIMIZE POTENTIAL HARM TO OR WITHIN FLOODPLAIN AND WETLAND

Best management practices will be implemented to minimize and mitigate any impacts to the floodplains and wetland. These include, but are not limited to, the following:

- Disturbed areas will be revegetated using an appropriate native seed mix.
- Erosion and sediment control measures will be installed during construction.
- Heavy equipment will not be used within the wetland.
- Permanent equipment staging areas will not be located within the floodplains or wetland.

- All equipment that can be efficiently moved will be refueled at least 100 ft from the floodplains or wetland. Equipment requiring refueling within the floodplain will be refueled only while within secondary containment to eliminate the risk of accidental discharge of fuel to the ground surface.
- Hazardous materials, chemicals, fuels, and oils will not be stored within the floodplains or wetland.
- In the event of a spill or release, any contaminated media will be remediated in compliance with all applicable EM-LA procedures and state and federal regulations.
- Portable generators, compressors, and other fuel-driven equipment will be staged on bermed plastic sheeting as a form of secondary containment. Construction equipment (e.g., graders, dozers, excavators, etc.) and light vehicles will not be subject to this restriction.
- Support structures, such as the treatment facility, personnel trailers, storage tanks, or permanent laydown yards, will not be installed within the floodplains or wetland.
- Project staff will remove all trash and debris (e.g., construction material) from the floodplains and wetland after project completion. All material will be disposed of at an EM-LA-authorized facility appropriate for the waste regulatory classification and disposal facility waste acceptance criteria.
- Well pads and roads will be reinforced to minimize erosion following project completion.

FLOODPLAIN PROTECTION STANDARDS

The proposed action will not result in a significant change to the natural and beneficial values served by the floodplains. Minor short-term impacts to the floodplains are expected as a consequence of ground disturbance from construction activities (e.g., wells, well pads, roads, piping). Long-term impacts will be avoided or minimized by limiting development within the floodplains and by revegetating temporarily disturbed areas. The proposed action, with implementation of best management practices, conforms to applicable floodplain protection standards.

SUPPLEMENTARY INFORMATION

This Floodplain Statement of Findings was prepared in accordance with DOE implementing regulations in 10 Code of Federal Regulations 1022, "Compliance with Floodplain and Wetland Environmental Review Requirements," and provides a summary of the assessment analysis and determination.

On January 22, 2024, EM-LA prepared, and released for public review and comment, the Notice of Proposed Floodplain and Wetland Action for Chromium Remediation in Sandia and Mortandad Canyons at Los Alamos National Laboratory and the associated floodplain and wetland assessment. The notification of the proposed action and request for comment was sent to appropriate government agencies, tribes, groups, and persons known to be interested in, or potentially affected by, the proposed floodplain action. The notification was also made available to the public on the Energy.gov website and in local newspapers. Four comment letters were received. Responses to those comments can be found in the Chromium Interim Measure and Final Remedy Environmental Assessment.

EM-LA will provide 15 days of public review after publication of this Floodplain Statement of Findings before implementing the proposed action.

CONTACT INFORMATION

For further information on this proposed floodplain action, EM-LA can be reached at
EMLA-NEPA@em.doe.gov or
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ATTACHMENT B

DOE/EA-2216

Mitigation Action Plan

Chromium Interim Measure and Final Remedy Environmental Assessment

Los Alamos, New Mexico

June 2024

U.S. Department of Energy
Environmental Management
Los Alamos Field Office

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CONTENTS

FIGURES

TABLES

ACRONYMS AND TERMS

BMP	best management practice
CGP	NPDES General Permit for Stormwater Discharges from Construction Activities
CRMP	Cultural Resources Management Plan
DOE	U.S. Department of Energy
EA	Environmental Assessment
EM-LA	Office of Environmental Management, Los Alamos Field Office
EMS	Environmental Management System
ENV-ES	Environmental Stewardship Services Group
EPA	Environmental Protection Agency
FONSI	finding of no significant impact
HMP	Habitat Management Plan
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security, LLC
MAP	Mitigation Action Plan
MAPAR	MAP Annual Report
NNSA	National Nuclear Security Administration
NPDES	National Pollutant Discharge Elimination System
SME	subject matter expert
SWEIS	Site-Wide Environmental Impact Statement
Triad	Triad National Security, LLC

1.0 EXECUTIVE SUMMARY

The U.S. Department of Energy (DOE) Office of Environmental Management, Los Alamos Field Office (EM-LA) has issued a finding of no significant impact (FONSI) for the Chromium Interim Measure and Final Remedy Environmental Assessment (EA), Los Alamos, New Mexico, referred to in this document as the Chromium EA (DOE/EA-2216) (DOE, 2024). This Mitigation Action Plan (MAP) is part of the FONSI. This proposed project addresses chromium contamination in the groundwater beneath Sandia and Mortandad Canyons in Technical Area 5 at Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico.

Groundwater sampling data show the presence of chromium contamination in the regional aquifer resulting from historical use of potassium dichromate, a corrosion inhibitor, in non-nuclear cooling-tower water that was discharged to an outfall as part of operational maintenance activities from the 1950s through the 1970s. The DOE EM-LA Proposed Action would implement a final remedy that would control offsite migration of the chromium groundwater plume and remediate the chromium plume. Based on the analysis of potential environmental impacts presented in the Chromium EA, the Proposed Action will not have significant environmental impacts. This conclusion is explained in the FONSI issued with the EA.

The Chromium EA identified potential environmental impacts resulting from implementation of the preferred alternative and discussed measures to mitigate those effects. This MAP is a DOE EM-LA management document that explains how the mitigation measures identified in the Chromium EA will be planned and implemented.

1.1 FUNCTION OF THE MITIGATION ACTION PLAN

This MAP contains mitigation and monitoring commitments related to both the construction activities and operation of the proposed remedial activities, as approved by the New Mexico Environment Department and to be implemented by DOE EM-LA. The commitments made in this MAP are designed to mitigate any adverse environmental effects associated with this project as they are implemented, and as direct, indirect, and cumulative impacts from these actions occur over time to the resources in Sandia and Mortandad Canyons.

1.2 MITIGATION ACTION PLAN ANNUAL REPORT

After issuance, the mitigation measures committed to in this MAP will be incorporated into the overarching *Mitigation Action Plan for Los Alamos National Laboratory Operations Los Alamos, New Mexico* (SWEIS MAP) (DOE, 2020). Annual reporting of the mitigation activities and their implementation status will be included in the SWEIS MAP Annual Report (MAPAR) (LANL, 2021). In the MAPAR, DOE provides a summary of mitigation work conducted in the previous fiscal year.

The MAP commitments documented will be reviewed annually (during the preparation of the MAPAR) to determine if the mitigation measures are effective and if mitigation measures have been completed. The MAP may be revised to address substantial changes, new mitigations, or deficiencies as the project is implemented.

2.0 IMPLEMENTATION

The MAP implementation process involves DOE EM-LA, NNSA Los Alamos Field Office (NA-LA), Triad National Security, LLC (Triad), Newport News Nuclear BWXT-Los Alamos (N3B), and several other organizations. DOE EM-LA and cleanup contractor N3B are responsible for implementing the mitigation measures during all phases of project construction and operations. Relevant portions of this MAP will be included in construction contract specifications to obligate the contractor to implement the mitigation measures identified in the MAP that relate to contractor responsibilities during and after construction. The implementation process includes mitigation action management, task scoping, funding allocation, tracking, technical implementation, annual reporting, and mitigation closure.

2.1 RESPONSIBLE PARTIES

The National Nuclear Security Administration (NNSA) is the overall lead agency for managing mitigations at LANL, but the MAP implementation process may involve NA-LA, DOE EM-LA, LANL management and operations contractor Triad, and DOE EM-LA's cleanup contractor N3B. DOE EM-LA managers will have the overall responsibility for ensuring the adequate and timely completion of all activities associated with this MAP for the Chromium EA. N3B representatives will be responsible for the overall work assignments and subcontract requirements, and for conducting the mitigation measures performed by N3B personnel or subcontractors and project-specific activities. This responsibility includes data collection, monitoring activities, and other actions that may be split between various N3B organizations. The NNSA Environmental Stewardship Group, Environmental Protection and Compliance Division, Associate Directorate for Environment, Safety, Health, Quality, Safeguards and Security (ENV-ES) is responsible for reporting on the MAP. ENV-ES will work with EM-LA to coordinate technical issues regarding the scope and schedule of individual mitigation measures.

Coordination and management of MAP activities are delegated by NA-LA to LANL subject matter experts (SMEs) in accordance with the management and operations contract. LANL's SMEs coordinate technical issues regarding the scoping, scheduling, and funding of individual mitigation measures of the MAP.

2.2 MITIGATION TRACKING

ENV-ES will maintain a log to track the scope, schedule, interim milestones, deliverables, and closure of mitigation action commitments outlined in this MAP. A copy of the tracking log will be transmitted quarterly to the DOE EM-LA National Environmental Policy Act Compliance Officer as part of the quarterly SWEIS MAP report. Any issues in meeting the commitments will be identified in these reports.

2.3 MAP DURATION AND MITIGATION CLOSURE

As individual mitigation action commitments are completed, ENV-ES will provide formal documentation and rationale for recommending mitigation action closure to DOE EM-LA. DOE EM-LA will review the documentation and provide authorization of closure or direction for further action. Closure of mitigation actions will be reported as part of the MAPAR.

3.0 MITIGATIONS

3.1 EXISTING PROGRAMS, PLANS, AND CONTROLS

Activities undertaken at LANL are performed in compliance with applicable Federal and state regulations, DOE orders, and contractual requirements. DOE and Triad have policies, procedures, and programs in place to review projects for potentially adverse environmental effects. It is understood that these, or similar policies and procedures, will be implemented as part of the Proposed Action in addition to the specific mitigations identified in Chapter 3 of the Chromium EA. These policies, procedures, and programs include, but are not limited to, the following:

- Policies that ensure environmental requirements and issues are identified.
- Procedures that institute integrated safety management to control work.
- Policies reflected in agreements with other entities, specifically including memoranda of agreement with the Pueblo de San Ildefonso and agreements made with the other Accord Pueblos, with protocols regarding consultations and other discussions.
- Projects, like the Proposed Action, to remediate contamination from previous LANL activities.

There are also policies, procedures, programs, plans, and projects in place at LANL to (1) reduce potentially adverse environmental impacts by providing a heightened understanding of the resources that could be impacted; (2) avoid impacts where mechanisms for impacts to specific resources are known and avoidable; and (3) provide beneficial opportunities to avoid impacts to biological, cultural, and sensitive resources. It is understood that the Proposed Action will continue to comply with these policies, procedures, programs, plans, and projects. Examples include the following:

- The Threatened and Endangered Species Habitat Management Plan for Los Alamos National Laboratory (HMP) (LANL, 2022) documents requirements to ensure the protection of Federally listed threatened and endangered species and their habitat.
- A Plan for the Management of the Cultural Heritage at Los Alamos National Laboratory, New Mexico, LA-UR-19-21590 (the Cultural Resources Management Plan, or CRMP) (LANL, 2017) provides the requirements for compliance with the *National Historic Preservation Act* and other relevant Federal laws and DOE orders.

The mitigations associated with the Proposed Action will be aligned with the LANL Environmental Management System (EMS). Mitigations and best management practices (BMPs) implemented as part of the Proposed Action will be included in one or more organization's EMS Action Plans. BMPs include, but are not limited to, the following:

- Nonradioactive air emissions (e.g., from construction equipment) would be controlled by proper maintenance of equipment.
- Noise impacts on the Mexican Spotted Owl during construction, drilling, and pumping activities will be mitigated by following requirements in the HMP.
- Particulate matter (fugitive dust) emissions from exposed soil and roadways during construction activities will be controlled using routine dust suppression watering and stabilization of disturbed soil as appropriate.

- Air emissions that result from operations, construction, demolition, and remediation activities will be controlled. In accordance with the *Clean Air Act* Title V (42 U.S.C § 7661 et seq.) site-wide permit, LANL is required to meet the U.S. Environmental Protection Agency's (EPA) National Ambient Air Quality Standards. The annual Title V Permit requires adherence to all air quality requirements to ensure that appropriate controls, permits, and operational procedures are in place and projects are reviewed for air quality regulation applicability prior to initiation of work.

3.2 PROJECT-SPECIFIC POTENTIAL ENVIRONMENTAL EFFECTS

The impact analysis provided in the Chromium EA indicates that potential beneficial or adverse environmental effects of the Proposed Action and any environmental restoration actions would be minimal under normal conditions. The Chromium EA description of alternatives and the analysis of environmental effects includes mitigations to prevent potential adverse environmental effects resulting directly, indirectly, or cumulatively from implementing the Proposed Action. The Proposed Action is to be undertaken in Sandia and Mortandad Canyons, a relatively undeveloped area that contains minimal buildings and/or facilities (Figure 1). This area is adjacent to the Pueblo de San Ildefonso Sacred Area and contains many important cultural resources. Efforts to eliminate or reduce any impacts associated with the Proposed Action will be implemented by DOE EM-LA and N3B.

Possible adverse environmental effects on resources present in and near the Chromium Project in Sandia and Mortandad Canyons include:

- Potential effects associated with visual and noise impacts;
- Potential effects on cultural resources or traditional cultural properties located in or near the project or environmental restoration work sites;
- Potential effects on Mexican Spotted Owls and their habitat;
- Potential effects on migratory birds protected by the *Migratory Bird Treaty Act*;
- Potential effects on other wildlife and game animal use of the canyon areas;
- Potential effects on the 100-year floodplain and associated wetlands;
- Potential effects on land use;
- Potential effects on air quality; and/or
- Potential effects on surface water, watercourses, etc.

3.3 MITIGATIONS ASSOCIATED WITH POTENTIAL VISUAL AND NOISE IMPACTS

Infrastructure will be painted so that it blends in with the landscape more effectively to minimize potential visual impacts. In addition, directional lighting and noise diminishing equipment will be used whenever possible.

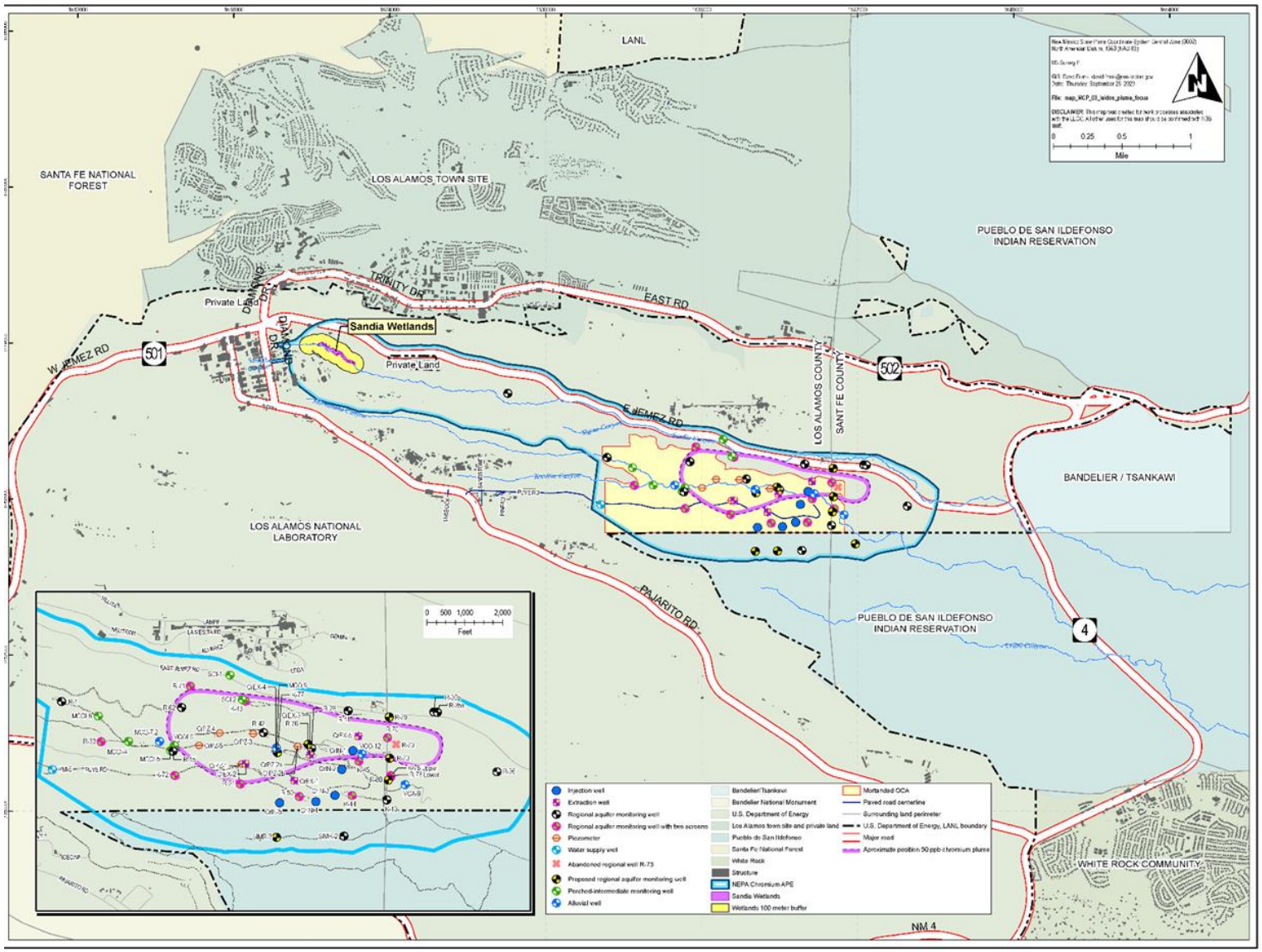

Figure 1. Location of Proposed Action

3.4 MITIGATIONS ASSOCIATED WITH WORKER HEALTH AND SAFETY

To minimize the potential of serious injuries, workers will be required to adhere to a health and safety plan while performing project activities. Adherence to an approved health and safety plan, use of personal protective equipment and engineered controls, and completion of appropriate hazards training would be expected to help prevent adverse acute or chronic health effects to workers.

3.5 MITIGATIONS ASSOCIATED WITH POTENTIAL CULTURAL RESOURCE AND TRADITIONAL CULTURAL PROPERTIES IMPACTS

The Proposed Action will comply with the LANL CRMP and project activities will be planned and sited to avoid impacts to cultural resources. ENV-ES cultural resources staff will monitor vegetation removal, construction activities, and cultural resources will be marked for avoidance. If needed, erosion control measures will be implemented at archaeological sites near proposed well pads or pipelines to manage changes in erosional patterns resulting from vegetation clearing and/or construction. Actions associated with perceived impacts to the Pueblo de San Ildefonso will be coordinated with the Pueblo. DOE will continue to engage in proactive government-to-government consultations with the Pueblo de San Ildefonso and any work will be aligned with the established protocols between the Pueblo and DOE.

Land applied treated water will not be sprayed within the boundaries of archaeological sites, even those that are bisected by existing roads. Road maintenance within the boundaries of cultural resources will be limited and cultural resources staff will monitor all road maintenance activities.

3.6 MITIGATIONS ASSOCIATED WITH POTENTIAL BIOLOGICAL RESOURCE IMPACTS

In areas adjacent to or within buffer and core habitat for the Mexican Spotted Owl, workers will be required to comply with the restrictions outlined in the HMP to comply with the *Endangered Species Act*. Work associated with the Proposed Action will also comply with the annual noise and tree cutting restrictions imposed by the HMP and the EA for Wildfire Reduction and Forest Health Improvement (DOE, 2000).

Potential noise and light impacts to the Mexican Spotted Owl will be mitigated 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. All lighting will be directed away from habitat areas.

3.7 MITIGATIONS ASSOCIATED WITH POTENTIAL FLOODPLAIN AND WETLANDS IMPACTS

Required BMPs for work in floodplains detailed in the floodplain assessment (DOE, 2024) will be implemented during all project activities. These protection standards will minimize short-term negative impacts and include:

- Installing support structures (e.g., personnel trailers, storage tanks, or permanent laydown yards) outside the floodplain;

- Providing revegetation of areas following soil disturbances using an appropriate native perennial seed mix or plants;
- Removing all trash and debris (e.g., construction material) from the floodplain after completion;
- Implementing erosion and sediment control measures during construction;
- Locating permanent equipment staging areas outside the floodplain;
- Storing hazardous materials, chemicals, fuels, and oils outside the floodplain; and
- All equipment that can be efficiently moved will be refueled at least 100 ft from the floodplains or wetland. Equipment requiring refueling within the floodplain will be refueled only while within secondary containment to eliminate the risk of accidental discharge of fuel to the ground surface.

3.8 MITIGATIONS ASSOCIATED WITH ENVIRONMENTAL JUSTICE

Drilling work and other construction activities will be scheduled to the extent practicable so as not to occur during elk and deer hunting, breeding, and calving seasons to avoid conflicts with hunts on the adjacent Pueblo de San Ildefonso Sacred Area property. Additionally, these activities, to the extent practicable, will be scheduled so as not to occur during ceremonial activities on the adjacent Pueblo de San Ildefonso Sacred Area property. In addition, consultations will continue to address noise and artificial lighting concerns and visual impacts on the viewshed over the Sacred Area. In addition, consultations will continue to address noise and artificial lighting concerns and visual impacts on the viewshed over the Sacred Area.

3.9 MITIGATIONS ASSOCIATED WITH POTENTIAL LAND USE IMPACTS

As infrastructure is installed, well pad footprints will be limited to the smallest size necessary, minimizing the land use impacts from the proposed action. As infrastructure is downsized or no longer needed, revegetation with native perennial vegetation will contribute to the restoration of the area.

3.10 MITIGATIONS ASSOCIATED WITH POTENTIAL AIR QUALITY IMPACTS

To minimize project air quality impacts within the Bandelier National Monument, the Proposed Action will implement the following mitigation measures:

- Where feasible, electrify fossil fuel-powered well development generators and stationary engines;
- Use only ultra-low sulfur diesel fuel in equipment and vehicles;
- Provide economic incentives to drilling contractors to use equipment with engines that meet EPA nonroad Tier 4 emission standards; and
- Designate personnel to monitor the dust control program and to increase control measures, as necessary, to prevent the transport of project dust emissions beyond the LANL boundary.

Implementing these mitigation measures will ensure that the Proposed Action would negligibly affect air quality-related values within the Bandelier National Monument pristine Class I area.

3.11 MITIGATIONS ASSOCIATED WITH SOILS

Some soil erosion by wind and stormwater will likely occur in disturbed areas. Soil erosion would be mitigated by adherence to BMPs and not be expected to be significant. BMPs could include installation of ground cover, straw wattles, or silt fencing, and dust suppression by soil watering.

3.12 MITIGATIONS ASSOCIATED WITH POTENTIAL EFFECTS ON SURFACE WATER, WATERCOURSES, ETC.

Activities associated with construction and operations of the Proposed Action will comply with the requirements of all applicable permits. Requirements of the EPA regulated National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Construction Activities (CGP) will be implemented to minimize the discharge of potential pollutants to watercourses. This includes:

- Implementation of storm water management as well as sediment and erosion controls specified in construction project Storm Water Pollution Prevention Plans;
- Site inspections conducted weekly and following storm events producing 0.25 inches of precipitation;
- Proper management of construction activity materials, equipment, and waste;
- Implementation of controls to manage runoff velocity and sediment yield from disturbed areas to pre-development values; and
- Stabilization of disturbed areas with native perennial vegetation of other permanent features.

Required BMPs for work under the discharge permit DP-1793 will be implemented as well. These protection standards will minimize short-term negative impacts. They include the following guidelines for land application:

- Sites cannot be located in a watercourse;
- Cannot result in runoff to a watercourse;
- Cannot create ponds or pools;
- Must be conducted in a manner that maximizes infiltration and evaporation;
- Restricted to daylight hours and for a maximum of 10 hours per day;
- Must be supervised at all times; and
- Prohibited while precipitation is occurring.

3.13 MITIGATION SUMMARY

The BMPs and mitigation activities discussed are summarized in Table 1 and address all phases of the project, from planning to design, construction, and operation as appropriate. Some mitigation activities are applicable to more than one phase of the project; tasks associated with each activity may be implemented in an iterative fashion over time at the discretion of the responsible parties.

DOE EM-LA may initiate certain mitigation measures or required permitting actions in advance of the project or environmental restoration action measures, as appropriate. As project activities progress from planning to construction, operations, and closeout activities, additional laws and

mitigation measures may be triggered during any phase of the work. Examples of such measures include cultural resources encountered during ground disturbing activities, if Federally protected threatened or endangered species move into the work site area, or if species become listed for protection and must, therefore, be taken into consideration.

DOE EM-LA recognizes the obligation to comply with all Federal laws and other requirements, although they may not specifically be referenced in Table 1.

Table 1. Affected Environment and Mitigation Actions

Affected Environment	Mitigation Actions	Purpose	Responsible Party	Status
Threatened and endangered species habitat	All requirements in the HMP will be implemented for all aspects of the project. These requirements may include: timing restrictions on noise producing activities during the Mexican Spotted Owl breeding season, tree removal restrictions, and lighting requirements. Surveys for the Mexican Spotted Owl in Sandia, Mortandad, and surrounding canyons will be implemented annually. Surveys for sensitive plants will be performed within suitable habitat areas prior to activities.	The Federal law, the *Endangered Species Act*, prohibits disturbance of Federally listed species and their habitats. This mitigation and on-going Mexican Spotted Owl surveys are required by the HMP.	ENV-ES, DOE EM-LA	Open
Migratory birds	Site-specific requirements for migratory bird protections will be detailed in the ENV-ES integrated review tool. On-going migratory bird research in Sandia Canyon will be continued under the MAP to continue monitoring for changes in bird diversity.	The Federal law, the *Migratory Bird Treaty Act*, prohibits killing migratory birds and their nestlings and eggs. This mitigation will minimize impacts to migratory birds and continued research will monitor for impacts to migratory birds from LANL operations.	ENV-ES, DOE EM-LA	Open
Game animals and other wildlife	Implement actions to improve habitat for large game and other wildlife. Habitat improvements may include planting native vegetation to supplement food resources and installation of supplemental water sources. Drilling work and other construction activities along the boundary will be scheduled to the extent practicable so as not to occur during elk and deer hunting seasons. After soil disturbing activities have been completed, disturbed sites will be restored with re-contouring and planted with a native seed mix or native vegetation plantings. When available, native seed stock should include species identified in the “Pollinator-Friendly Best Management Practices for Federal Lands” document, as directed by the Secretary of Energy on October 19, 2015, regarding the Presidential Initiative on Pollinator Health.	Re-establish habitat suitable for large game and other wildlife quickly to minimize disturbance to migration and use patterns.	ENV-ES, DOE EM-LA	Open

Affected Environment	Mitigation Actions	Purpose	Responsible Party	Status
Surface water quality	Develop and use BMPs, and comply with the requirements of the NPDES CGP, to prevent or minimize the transport of sediment or other potential pollutants from disturbed areas during construction and implementation of the project.	Minimize impacts to the environment associated with stormwater runoff or run-on and comply with the NPDES (*Clean Water Act*) CGP for Stormwater Discharge.	ENV-ES, DOE EM-LA	Open
Cultural resources, *Native American Graves Protection and Repatriation Act*, and Traditional Cultural Properties	CRMP provisions will be followed and may be augmented to address specific site issues as the project is implemented. If buried archeological resources, remains, or items of cultural significance are encountered during construction, site activities will cease until items are evaluated by ENV-ES and DOE EM-LA cultural resources staff and appropriate actions are taken. If traditional cultural properties are identified during construction, site activities will cease until appropriate mitigation measures are determined through consultation with the State Historic Preservation Officer and the involved Tribal government.	Comply with Section 106 of the *National Historic Preservation Act*, which requires Federal agencies to take into account the effects Federally funded activities have on cultural and archaeological resources and traditional cultural properties and practices.	ENV-ES, DOE EM-LA (Consultation with Tribal governments and the State Historic Preservation Officer)	Open
Visual	Use directional lighting whenever possible. Infrastructure may be painted so that it blends in with the landscape more effectively.	Minimize potential visual impacts.	ENV-ES, DOE EM-LA	Open
Noise	Noise diminishing equipment will be used whenever possible.	Minimize potential noise impacts.	LANS, DOE EM-LA	Open
Worker Health and Safety	Adherence to an approved health and safety plan, use of personal protective equipment and engineered controls, and completion of appropriate hazards training would be expected to help prevent adverse acute or chronic health effects to workers.	Minimize the potential for injuries to workers.	LANS, DOE EM-LA	Open
Environmental Justice	Consult with the Pueblo de San Ildefonso to schedule drilling work and other construction activities to avoid hunting and calving seasons and conflicts with ceremonial observances on Pueblo de San Ildefonso property. Continue consultations to address noise and artificial lighting concerns and visual impacts on	Minimize impacts to activities conducted by members of the Pueblo de San Ildefonso in the Sacred Area.	DOE EM-LA (Consultation with Pueblo de San Ildefonso)	Open

Affected Environment	Mitigation Actions	Purpose	Responsible Party	Status
	viewshed over the Sacred Area. Also see cultural resources.			
Land Use	Remove all trash and debris after construction, well pad footprints will be limited to what is necessary to minimize the visual impact from the proposed action. As infrastructure is downsized or no longer needed, revegetate with native grasses and trees to contribute to restoration of the area.	Minimize permanent project footprint.	ENV-ES, DOE EM-LA	Open
Air Quality	Actively control air emissions that result from construction, demolition, and operations activities.	Comply with the *Clean Air Act* Title V site-wide permit by meeting the Environmental Protection Agency's National Ambient Air Quality Standards.	ENV-ES, DOE EM-LA	Open
Soil	Soil erosion would be mitigated by adherence to BMPs, including installation of ground cover, straw wattles, silt fencing, and dust suppression by soil watering.	Minimize soil erosion.	ENV-ES, DOE EM-LA	Open
Water	Water use is an important issue in northern New Mexico. For this project, injection would offset extraction by returning water directly back to the aquifer.	Maximize expedient return of water to the aquifer.	ENV-ES, DOE EM-LA	Open

Key: BMPs = best management practices; CGP = Construction General Permit; CRMP = Cultural Resources Management Plan; DOE = U.S. Department of Energy; EM-LA = Office of Environmental Management, Los Alamos Field Office; ENV-ES = Environmental Stewardship Services Group; HMP = Habitat Management Plan; LANS = Los Alamos National Security, LLC; MAP = Mitigation Action Plan; NPDES = National Pollutant Discharge Elimination System

4.0 REFERENCES

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