Special Environmental Analysis for Actions Taken in Response to the Cerro Grande Fire Mitigation Action Plan Annual Report for 2002

April 14, 2003

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ACRONYMS

BMPs	best management practices
BRMP	Biological Resources Management Plan
DOE	U.S. Department of Energy
EA	environmental assessment

1.0 INTRODUCTION

This Mitigation Action Plan Annual Report has been prepared by the U.S. Department of Energy (DOE) National Nuclear Security Administration (NNSA) Los Alamos Site Office (LASO). It is part of the Special Environmental Analysis of Actions Taken in Response to the Cerro Grande Fire at Los Alamos National Laboratory, Los Alamos, New Mexico (SEA) (DOE 2000a) and must be completed in order to maintain compliance under the National Environmental Policy Act (NEPA). This Annual Report is made available upon request to the public as part of the implementation of the SEA Mitigation Action Plan (MAP).

1.1 Background

The DOE NNSA issued the SEA in September 2000. The SEA was prepared pursuant to the Council on Environmental Quality regulations implementing NEPA under emergency circumstances and DOE's NEPA regulatory requirements by providing an analysis of the Cerro Grande Fire emergency fire suppression, soil erosion, and flood control actions taken by DOE NNSA and the Los Alamos National Laboratory (LANL) from May through November 2000. As part of the SEA, DOE NNSA identified various mitigation measures that must be implemented under the MAP as an extension of the fire suppression, erosion, and flood control actions.

DOE NNSA assigned the implementation of specific mitigation measures to the LANL management and operations contractor, the University of California (UC), on December 18, 2000 (DOE 2000b). Monitoring results of the mitigation effectiveness and the environmental effects of the emergency actions recognized later are to be made available to the public through an annual mitigation tracking report issued by DOE with support from UC through LANL's Ecology Group (RRES-ECO). This second Annual Report describes mitigation implemented between October 1, 2001, and September 30, 2002.

1.2 MAP Purpose, Function, and Organization

The SEA MAP is a NNSA LASO document that identifies specific mitigation for the potential environmental impacts of Cerro Grande Fire emergency fire suppression, soil erosion, and flood control actions. The Annual Report documents actions taken to date and outlines actions to be taken over the next year that are necessary to ensure NNSA's commitments under the SEA MAP.

2.0 SEA MAP IMPLEMENTATION

The SEA MAP implementation process involves NNSA and several LANL organizations. The implementation process includes mitigation action management (task scoping and funding allocation), tracking, technical implementation, annual reporting, and closure.

The NNSA LASO is the federal agency responsible for implementing and tracking the SEA MAP. The daily coordination and management of MAP activities have been delegated by LASO to RRES-ECO. RRES-ECO is the LANL point of contact for the scope and schedule of technical issues regarding individual mitigation measures. RRES-ECO coordinates internal LANL projects and activities that have been selected to fulfill the individual mitigation measures identified in

the MAP. These projects and activities have been assigned to LANL organizations that have primary institutional responsibility for operations that the mitigation is designed to address.

2.1 Mitigation Measures and Status

2.1.1 Mitigation Action for Construction Disturbance

Mitigation Action Commitment

Monitoring, recontouring, and reseeding with site-specific seed mixtures at construction areas (that were previously seeded at the end of the construction activity) will be performed as needed until at least 90% revegetation is achieved at the construction sites or as determined appropriate through the implementation of institutional resource management plans in effect at the time.

Mitigation Status

The Water Quality and Hydrology Group (RRES-WQH) is responsible for carrying out this commitment. A Storm Water Pollution Prevention (SWPP) Plan was developed for all Cerro Grande Fire-related construction. Any new construction activities require an amendment, or a stand-alone plan, under the original SWPP Plan. Active construction sites are monitored bi-weekly or directly after a storm event resulting in at least one-half-inch rainfall.

2.1.2 Mitigation Action for Restored Burned Areas

Mitigation Action Commitment

Restored burned areas that have been reseeded, as well as undergone other erosion hazard reduction actions, will be monitored annually for the next five years (through 2005). Repair, replacement, or repetition of these actions will be undertaken as needed until at least 90% revegetation is achieved or until post-fire storm event water flows approximate pre-fire flow rates according to modeling and monitoring results or as determined necessary through the development and implementation of institutional resource management plans in effect at the time.

Mitigation Status

RRES-WQH is responsible for carrying out this commitment. Approximately 1,300 burned acres were treated on LANL property to minimize soil loss immediately after the Cerro Grande Fire. Almost all of the treatments were short-term best management practices (BMPs) to help stabilize soils on site until the native vegetation can reestablish. The Burned Area Rehabilitation Treatment Survey, a database monitoring and tracking system, has been developed to identify sites and generate reports of additional work needed. Field assessments of 600 acres of hand-treated burn area rehabilitation units completed between June and October 2002 concluded that restoration activities conducted in the year 2000 were successful in establishing ground cover on the burned areas (55% ground cover and 39% vegetative cover). However, the vegetative cover and effective ground cover had decreased from 2001 (60% ground cover and 44% vegetative cover in 2001). There are two likely explanations. The summer/fall of 2002 was very dry and little precipitation was recorded before October, leaving little time for herbaceous vegetation response. In addition, there have been extensive thinning activities on some of the rehab units to reduce the danger of wildfire. Monitoring and maintenance will continue as a component of long-term management of these sites.

2.1.3 Mitigation Action for Constructed Flood Control and Erosion Damage Reduction Features

Mitigation Action Commitment

Removal of the constructed flood control and erosion damage reduction features (such as low-head weirs, sediment detention basins, and articulated concrete mattresses) and the flood retention structure, along with other potential alternative actions, will be considered when storm event water flows have returned to pre-fire levels as denoted by vegetation recovery and modeling information. It is estimated that the storm event water flows will have returned to pre-fire levels over about the next 5 to 10 years; site conditions will be reviewed every two years to determine when post-fire storm event water flow levels have returned to pre-fire levels. Additional NEPA and other regulatory compliance would be necessary to facilitate making long-term DOE decisions regarding these structures when these actions become ripe for consideration. If the structures are removed, recontouring and reseeding of these areas with appropriate site-specific seed mixtures would be conducted until these construction sites have been at least 90% revegetated or as determined appropriate through the implementation of institutional resource management plans in effect at the time.

Mitigation Status

NNSA is responsible for carrying out this commitment. NNSA issued the Environmental Assessment (EA) on Proposed Future Disposition of Certain Flood and Sediment Retention Structures at Los Alamos National Laboratory (DOE 2002) and a Finding of No Significant Impact in August 2002. LANL subject matter experts will continue to monitor storm events to determine when flows have returned to pre-fire levels or equilibrium. This information will be considered by NNSA in determining the scope and timing of flood control and erosion damage reduction structure removal actions. The EA will also consider the effects of disposition of these structures after storm event water flow levels have returned to pre-fire levels or equilibrium. According to modeling and field information, there is no indication that post-fire storm water flows have returned to pre-fire status or approximately the pre-fire condition. Modeling of storm water flows will continue this fiscal year.

2.1.4 Mitigation Action for Water Pooling and Wetlands

Mitigation Action Commitment

Monitoring for development of water pooling and wetlands associated with the flood control structure and other erosion damage reduction features will be conducted for the lifetime of these structures. Evaluation of the form and function of these areas with respect to wildlife use, wildlife behavioral changes, habitat modification, and other ecological features will be performed. These areas will be managed as appropriate through the implementation of institutional resource management plans in effect at the time.

Mitigation Status

RRES-ECO is responsible for carrying out this commitment. A wetland is forming above the Los Alamos Canyon Weir (LANL 2001a) and will continue to be monitored. There is no long-term water pooling associated with the flood retention structure in Pajarito Canyon.

2.1.5 Mitigation Action for Prehistoric Cultural Resource Sites

Mitigation Action Commitment

Review, evaluation, and stabilization of prehistoric cultural resource sites within the LANL areas burned by the Cerro Grande Fire and within areas prone to flooding or soil erosion will continue until post-fire storm event water flows approximate pre-fire flow rates according to modeling information and monitoring results. Where site stabilization or protection measures are required, these measures will be performed. Ongoing consultation with the State Historic Preservation Officer, as well as local pueblos and tribes, may result in the identification of additional sites at LANL that require such action, and these sites will also undergo appropriate review, evaluation, and stabilization as needed. Generally, these measures would consist of the placement of sandbags, straw bales, jute matting, rock check dams, and other similar preventive measures.

Mitigation Status

RRES-ECO is responsible for carrying out this commitment. LANL has been surveyed to assess the range of impacts on prehistoric sites. A report on these data and analyses is in preparation for submission to NNSA in November 2002. Seventy-one sites have been identified to date that will require stabilization. LANL will begin consultation with representatives of the pueblos and tribes to plan the mitigation measures required for the sites that require stabilization.

2.1.6 Mitigation Action for Historic Property Sites

Mitigation Action Commitment

Review, evaluation, and stabilization of historic property sites within the LANL areas burned by the Cerro Grande Fire and within areas prone to flooding or soil erosion will continue until post-fire storm event water flows approximate pre-fire flow rates according to modeling information and monitoring results. Ongoing consultation with the State Historic Preservation Officer may result in the identification of additional sites at LANL that require such action, and these sites will also undergo appropriate review, evaluation, and stabilization as needed. Generally, these measures would consist of the placement of sandbags, straw bales, jute matting, rock check dams, and other similar preventive measures.

Mitigation Status

RRES-ECO is responsible for carrying out this commitment. LANL property has been surveyed to assess the range of impacts on historic property sites. These data and assessments will be included in a report under preparation for submission to NNSA in November 2002.

2.1.7 Mitigation Action for Soil, Surface and Ground Water, and Biota

Mitigation Action Commitment

Environmental monitoring of soil, surface and ground water, and biota will be performed site-wide at LANL as needed through the ongoing implementation of the Institutional Monitoring and Sampling Plan for Evaluating Impacts of the Cerro Grande Fire, which has an established sampling regime. Areas of silt or water retention behind flood control structures, within silt retention basins, and within sediment traps will be sampled to determine if there is an increase in contaminant concentrations in these areas. Additionally, if contaminant concentrations are elevated in these areas, routine sampling of wildlife and game tissues will be conducted and

evaluated. If necessary, the sampling programs will be altered to better evaluate contaminant uptake by wildlife and game species in an effort to determine how the food chain is affected and what, if any, human health risks these contaminants may pose.

Mitigation Status

RRES-WQH, RRES-ECO, and the Environmental Geology and Risk Analysis Group are coordinating to carry out this commitment. Sediments above the Los Alamos Canyon Weir have been sampled. RRES-ECO has monitored the impacts of the Cerro Grande Fire on soil chemical properties, soil and crops downwind from LANL, and in conifer wood and bark and issued reports (LANL 2000, LANL 2001b, LANL 2001c, respectively).

2.1.8 Mitigation Action for Potential Release Sites

Mitigation Action Commitment

BMPs implemented at potential release sites (PRSs) as discussed in the SEA will be routinely inspected and repaired, enhanced, or replaced as needed. Periodic inspection of the BMPs will be undertaken as part of the existing LANL Environmental Restoration (ER) Project on a schedule deemed appropriate by ER Project management. If existing BMPs are determined to be ineffective, the site may undergo additional evaluation and the installation of engineered structures may be considered to provide protection to the PRS and the surrounding environment. Additional NEPA compliance review and consideration under other environmental laws and regulations may be required should this action become necessary.

Mitigation Status

RRES-WQH is responsible for carrying out this commitment. The Cerro Grande Fire put nearly 100 of the ER Project's PRSs at increased risk of contaminant release or transport, by virtue of either being directly burned or vulnerable to increased surface water runoff or erosion. Since the fire, these sites have had controls installed and are being inspected and maintained as part of the overall ER Project. A report providing an update for each of the PRSs affected by the fire was issued in November 2001 (LANL 2001d).

2.1.9 Mitigation Action for Resource Management Plans

Mitigation Action Commitment

Assessments and reevaluations of management plans for various natural and cultural resources within LANL will be undertaken and implemented as appropriate. These plans include the recently implemented LANL Threatened and Endangered Species Habitat Management Plan and other resource management plans under development.

Mitigation Status

RRES-ECO is responsible for carrying out this commitment. In 2001, RRES-ECO completed the Transitional Biological Resources Management Plan (BRMP; LANL 2001e). The Transitional BRMP evaluated the impacts associated with the fire and emergency response actions and identified actions needed to protect and promote the post-fire recovery of LANL's biological resources. This plan will be integrated with the ongoing effort to complete the Institutional BRMP. As part of this effort, surveys of LANL have been completed to determine which parts of threatened and endangered species habitat were damaged by the fire. These data have been

entered into a Geographic Information System and are being used for ongoing biological assessments. Research is in progress to further refine the boundaries of threatened and endangered species habitats.

Wetlands that were affected by the Cerro Grande Fire have been evaluated (LANL 2001a). These include wetlands in Pajarito Canyon and in Mortandad Canyon and one forming above the Los Alamos Canyon Weir. Vegetative sampling and quantitative habitat analysis will be conducted in the future.

3.0 CONCLUSION AND RECOMMENDATIONS

The implementation of the SEA MAP is appropriately scoped and on schedule. The SEA MAP will continue to be implemented as described in Section 2.0 of this report. In the next year (2003), any recommendations for modifications to mitigation tasks, schedules, or scope will be submitted with a technical rationale to NNSA LASO for consideration and authorization. A SEA Mitigation Action Plan Annual Report for 2003 will be made available to the public upon request January 31, 2004.

REFERENCES

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