LA-UR-01-2017

Title: Wildfire Hazard Reduction Project Plan

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Los Alamos
NATIONAL LABORATORY

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1.0 INTRODUCTION

On August 10, 2000, the Department of Energy (DOE) Los Alamos Area Office Manager issued a Finding of No Significant Impact (FONSI) (DOE 2000a) for the Wildfire Hazard Reduction and Forest Health Improvement Program Environmental Assessment (EA) (DOE 2000b) (both the FONSI and EA are reproduced in full as Appendix B of this plan). As part of this determination, a Wildfire Hazard Reduction Project Plan (WHRPP) was identified as needed for completion. This plan identifies planning areas and projects by priority on a three-phase implementation schedule. This plan has been prepared to provide the basis for directing programmatic and project-specific actions to reduce the risk of catastrophic wildfire at Los Alamos National Laboratory (LANL). It also provides the basis for consultation with the US Fish and Wildlife Service (USFWS) and the New Mexico State Historic Preservation Office as needed. Vegetation treatments have been developed for facility infrastructure protection and for fuel reduction and forest health purposes.

The initial sections of this plan contain background, describe existing conditions, and provide goals and objectives of the project. Then, a detailed implementation section follows and includes individual project planning measures, forest prescriptions, and environmental protection measures. A final section provides maps and project description tables. This plan is a "living document;" as time passes and work is performed, this plan is expected to evolve.

2.0 BACKGROUND

LANL is located in north-central New Mexico (Figure 1) in a region characterized by forested areas with mountains, canyons, and valleys, as well as diverse cultures and ecosystems. It is located on the Pajarito Plateau, a volcanic shelf on the eastern slope of the Jemez Mountains at an approximate elevation of 7,000 ft (2,100 m). Within the boundaries of LANL, the Pajarito Plateau is dissected by more than 13 canyons over the entire Plateau and have formed isolated finger-like mesas oriented in a west-to-east direction.

The long-term effect of area land management practices and climate on LANL area forests has been an increase in overall tree stand densities, lack of frequent low-intensity fires, and the unnatural buildup of fuels. Today's forested areas within and surrounding LANL are generally overgrown with dense stands of unhealthy trees and excessive amounts of standing and fallen dead tree material. Forested areas with these conditions, coupled with the joint probability of unfavorable weather conditions, present an extreme hazard to nearby communities and properties as the danger of high-intensity wildfires is greatly enhanced. Given the terrain of the Pajarito Plateau, namely numerous narrow, finger-like mesas separated by deep west-to-east oriented canyons, institutionalized fire suppression of high-intensity wildfires is very difficult, particularly within the canyon reaches. Additionally, these same conditions have limited the number of roadways that could be used by the area population as

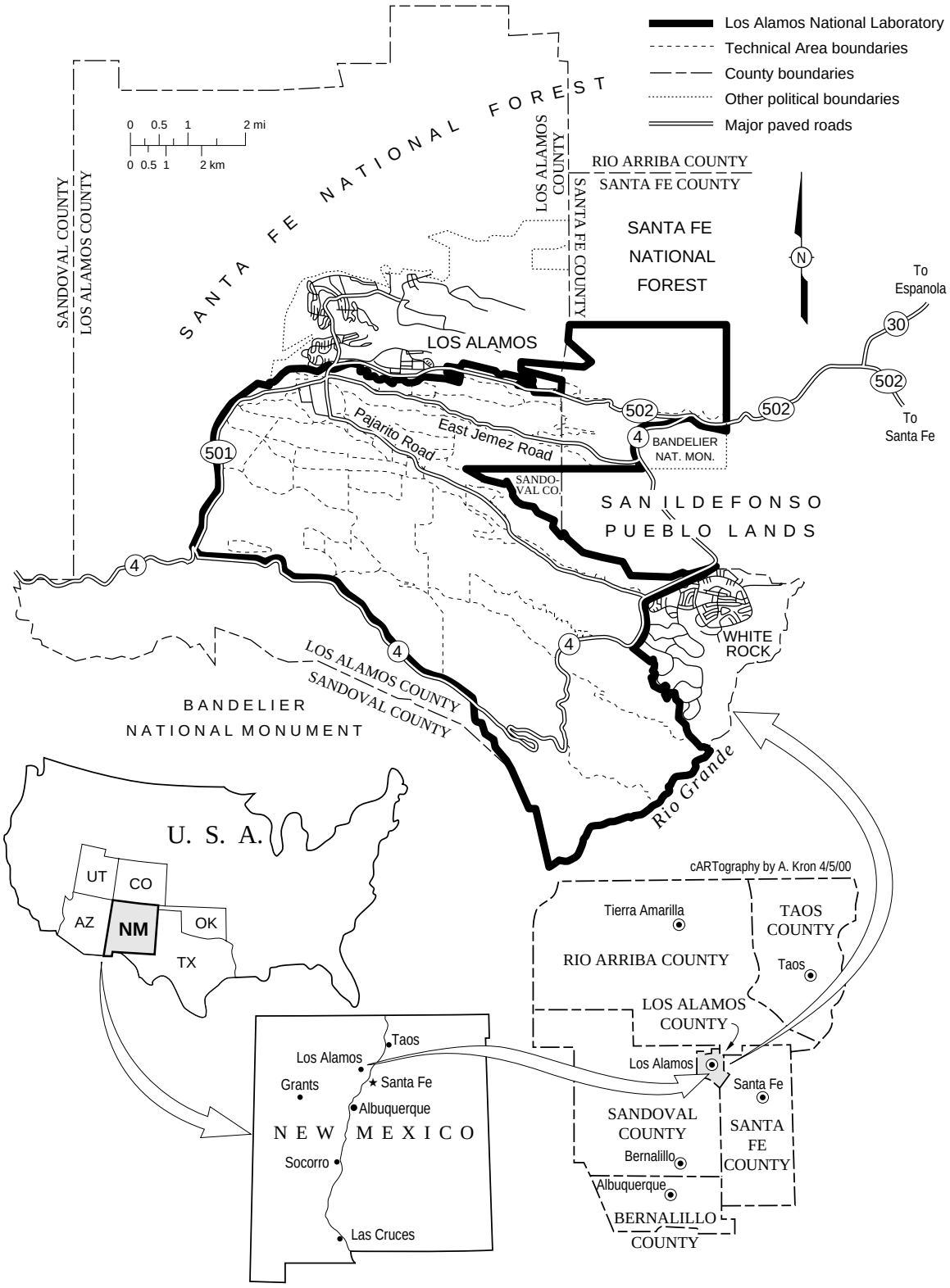


Figure 1. Location of Los Alamos National Laboratory

escape routes, which enhances the potential for increased harm to property and human life under extreme conditions.

The frequency and severity of wildfires in the LANL region over the past several decades have increased. In May 2000, the Cerro Grande Fire burned approximately 43,000 ac (17,200 ha) of land, of which about 7,650 ac (3,061 ha) were located within the boundaries of LANL (Figure 2). The remainder of burned land was located within Bandelier National Monument (BNM), the Santa Fe National Forest (SFNF), Los Alamos County, San Ildefonso and Santa Clara Pueblos, the Baca Ranch, and other small private holdings (BAER 2000). Over 230 private residences were burned in the Los Alamos townsite; and over 20,000 people evacuated their homes in the Los Alamos townsite, White Rock community, Santa Clara Pueblo, and the nearby town of Española.

Four other major wildfires and innumerable smaller wildfires have ignited within the local area of LANL over the past 50 years (Figure 2). In 1954, a wind-driven wildfire, known as the Water Canyon Fire, burned about 3,000 ac (1,200 ha) adjacent to the western boundary of LANL and raged over a period of several days. In the 1977 La Mesa Fire, about 15,300 ac (6,120 ha) of forest burned, including about 2,500 ac (1,000 ha) within LANL located near high explosives (HE) bunkers and other key facilities. Flame lengths exceeding 200 ft (60 m) and rates of spread over 2,300 ft per hour (690 m per hour) were observed in that wildfire, which was finally contained on the fifth day. In 1996, the Dome Fire exploded and grew from 300 ac (120 ha) consumed in the first day to over 6,000 ac (2,400 ha) on the second day. About 16,000 ac (6,400 ha) of forests near LANL were burned before this wildfire was finally contained. In 1998, the Oso Fire burned about 5,300 ac (2,120 ha) to the north of LANL and the Los Alamos townsite. In each of these fires, the weather changed to permit the fire to be controlled.

In conducting the analyses for the LANL Site-Wide Environmental Impact Statement (DOE 1999), DOE evaluated an accident scenario from a hypothetical catastrophic wildfire that was initiated on land adjacent to LANL and spread into LANL. The analysis, which closely mirrored the actual Cerro Grande Fire, concluded that a catastrophic wildfire engulfing buildings and materials used to perform operations was credible and likely to occur. The calculated probability for this scenario is in the order of 1 in every 10 years (0.1 per year); the conditions for occurrence exist at least once every year. While the Cerro Grande Fire and subsequent forest rehabilitation and flood control efforts have slightly reduced the probability of catastrophic wildfire at LANL over the next year or two, the amount of standing and downed fuel within the LANL boundaries has only slightly been decreased. Therefore, the current and future risks of catastrophic wildfires at LANL can only be lessened through purposeful environmental intervention and active changes to land management practices at LANL.

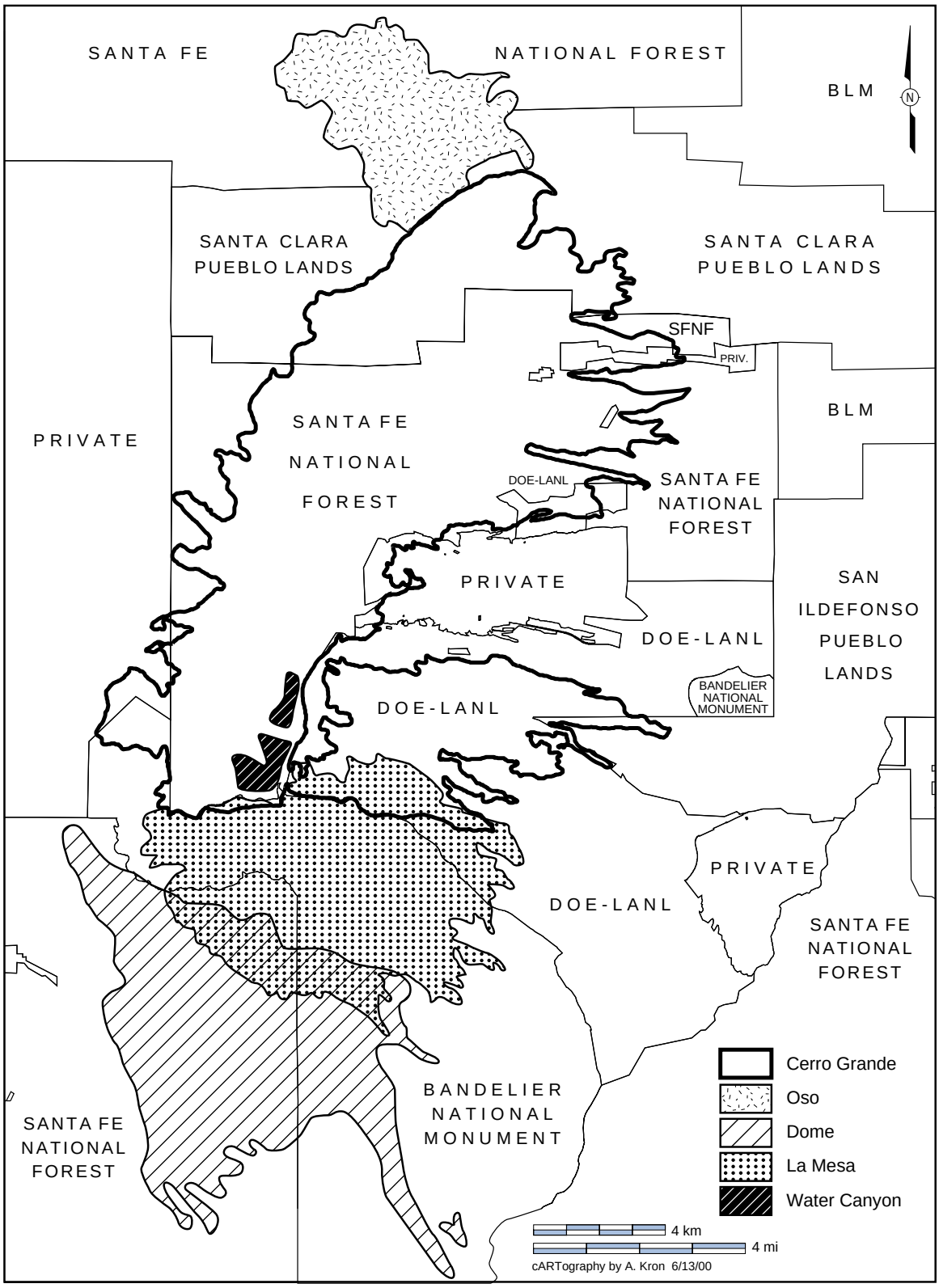


Figure 2. Locations of five major wildfires in the Los Alamos National Laboratory region in the past 50 years (locations and areas of fires on this map are approximate)

2.1 Wildfire Hazard Reduction Project

The Wildfire Hazard Reduction and Forest Health Improvement Program EA (DOE 2000b) addresses a program that will implement several different forest management elements including mechanical thinning of trees, the construction of new fire roads, upgrading of existing fire roads, and constructing new fuel breaks.

The Wildfire Hazard Reduction Project Plan is based on ecosystem management and is comprised of a series of individual, relatively small-scale projects using primarily mechanical thinning to be conducted through a three-phase basis. These carefully planned projects will be conducted to bring the forests at LANL to the desired end-state for wildfire risk followed by an on-going maintenance program to maintain the forests in this desired state with enhancements to improve overall forest health. Up to an estimated 35 percent, or approximately 10,000 ac (4,000 ha), of LANL will be treated under this program.

Wood materials generated by the treatment measures will be managed by the University of California (UC), which manages and operates LANL under contractual provisions; and Johnson Controls Northern New Mexico; this firm processes salvage materials for LANL under a sub-contract arrangement with UC. Usable materials, such as firewood, will be disposed of by donation or salvage. Waste wood materials (slash) would primarily be disposed of through chipping. Potentially contaminated wood would be disposed of according to a process described in Section 5.5.5 of this plan.

3.0 EXISTING CONDITIONS

Cerro Grande Fire

During the Cerro Grande Fire event, there were about 1,600 firefighters and 100 pieces of firefighting equipment present in the LANL vicinity performing fire suppression activities. The DOE actions taken in response to the Cerro Grande Fire event and shortly thereafter to address emergency post-fire circumstances have been documented in the September 2000 Special Environmental Analysis (SEA) (DOE 2000c). The SEA includes descriptions of the actions, the resulting impacts from the actions, mitigation measures taken for these actions that lessen the adverse effects, and an analysis of the cumulative impacts. The Cerro Grande Fire burned about 7,650 ac (3,061 ha) within the boundaries of LANL and about an additional 35,500 ac (14,200 ha) in neighboring areas.

3.1 Forest Fuels Hazard Areas Remaining Post Cerro Grande Fire

The 7,650-ac (3,061-ha) LANL burned area is comprised of 6,732 ac (2,724 ha) of low-burn intensity, 842 ac (340 ha) of moderate-burn intensity, and 76 ac (30 ha) of high-burn intensity. About 70 percent to 100 percent tree survival in the low- to moderate-burn intensity areas is anticipated. The unburned forested areas at LANL remain unchanged and still are rated generally as high fire hazard based on fuel accumulations and high tree densities. See Existing Conditions Map # 01-0123-07 in Section 6. High-burn intensity areas will experience natural tree falling of dead trees for the next 10 years adding fuel to the forest floor.

Vegetation

Six major vegetation zones are present over the Pajarito Plateau, and most of LANL is covered by ponderosa pine forest in the higher elevations and piñon-juniper woodland in the lower elevations, which, respectively, trend from the west to the east across the facility. Land to the west of LANL is administered by the U.S. Department of Agriculture, Forest Service, SFNF and is covered mostly by spruce-fir forest and mixed conifer forest. Land to the south is administered by the U.S. Department of the Interior (DOI), National Park Service, BNM and is covered mostly by piñon-juniper woodland and ponderosa pine forest. Most of the land to the east of LANL is administered by BNM, DOI (in trust for San Ildefonso Pueblo), and SFNF, and is covered mostly by piñon-juniper woodland and juniper savanna habitat. The community of White Rock is home to about 8,000 people and is located at the eastern end of LANL. Land to the north of LANL is occupied by the Los Alamos townsite, which is home to about 10,000 people and, beyond the townsite, lies more of SFNF (see Figure 1).

3.2 LANL Facilities and Infrastructure Risk

In general, many buildings, structures, and utilities at LANL are still susceptible to wildfire damage because of the high density of the existing tree stands. Since most of the acreage burned was at a low-burn intensity, tree survival is expected to be relatively high within the burned area, and the unburned areas have not changed from their high-fuel-dense tree status.

Before the Cerro Grande Fire, the LANL Facility Waste Operations Fire Protection Group prepared a list of wildfire risk assessments for each building at LANL. Since the fire, the Fire Protection Group has prepared a list of fire damaged facilities and is in the process of updating current wildfire risk assessments.

4.0 GOALS AND OBJECTIVES

4.1 Overall Goals

The overall goals of the WHRPP are to

1) Protect the public, LANL workers, facilities, and the environment from catastrophic wildfire.
2) Prevent interruptions of LANL operations from wildfire.
3) Minimize impacts to cultural and natural resources while conducting fire management activities.
4) Improve forest health and wildlife habitat at LANL and, indirectly, across the Pajarito Plateau.

The most important goal of wildfire management at LANL is to enhance the safety of human life and the protection of LANL facilities. This will be accomplished by reducing the fire hazard in the environments that are adjacent to developed and populated sections of LANL. Three additional priorities will be addressed by wildfire management activities at LANL. First, interruptions of

LANL operations will be lessened through the proactive coordination of management efforts so that the threat of uncontrolled wildland fires is minimized or eliminated. Second, new hazards associated with the effects of the Cerro Grande Fire will be addressed in coordination with other regional recovery efforts. Cultural and natural resources will be protected by altering vegetation structures, by implementing appropriate fire management activities, and by reducing the need for active fire suppression measures. Third, forest health will be improved by managing for uneven aged, more open forests, and removing diseased, malformed, or weakened trees. Some large-diameter trees will remain to form snags[1] for wildlife use.

4.2 Objectives

The above goals will be accomplished through the following specific objectives:

1) Reduce fuel loads within LANL forests to reduce wildfire hazards.
2) Reduce the risk of wildfire escapes at LANL designated firing sites by treating fuels.
3) Improve wildland fire suppression capability through fire road improvements.
4) Monitor the effectiveness of wildfire hazards reduction actions and modify management techniques as appropriate.
5) Conduct fire management activities in a manner that will comply with all applicable regulatory requirements.
6) Integrate WHRPP with other resource management plans including the Biological Resources Management Plan.

5.0 IMPLEMENTATION

This program would be composed of a series of strategically planned projects conducted over the next three years. These projects would be conducted to bring the forests at LANL to the desired end-state for wildfire risk and hazard reduction, followed by an on-going maintenance program to maintain the forests in this desired state with enhancements to improve overall forest health. An estimated 35 percent, approximately 10,000 ac (4,000 ha), of LANL would be treated under this program, including some portions of LANL burned during the Cerro Grande Fire.

Three phases of implementation have been developed according to wildfire hazard reduction priorities. They are:

- Phase 1: High priority strategic projects, primarily fuel breaks, in heavily forested urban interface areas to reduce the wildfire hazard to the public, LANL employees, and key facilities and infrastructure. Also included are firing site treatments to reduce the risk of wildfire ignition and escape. These projects are planned for FY01–FY02.
- Phase 2: Moderate priority, larger forest fuels reduction projects in heavily forested areas to reduce the general wildfire hazard and improve forest health. These projects are planned for FY02–FY03.

[1] Snags are dead, standing trees. These features of the forest are frequently used by birds and animals to perch and use in their food foraging practices.

- Phase 3: Lower priority, larger forest fuels reduction projects in more moderately forested and remote areas to reduce wildfire hazard in general and to improve forest health. These projects are planned for FY03.

Section 6 contains tables and maps that more fully describe planning areas and projects.

Initial and maintenance projects will be separately tailored to the specific needs and conditions of each forested area. All program projects and their related activities would be conducted in compliance with the current FONSI (DOE 2000a) and EA (DOE 2000b) guidelines.

The WHRPP actions will be conducted in a manner that complies with the LANL Integrated Safety Management (ISM) system. Under the ISM system, all planning, construction and operational activities must comply with the institutional process established under Laboratory Implementation Requirement (LIR) 404-30-02.0 – also known as the NEPA, Cultural Resources, and Biological Resources (NCB) LIR. The NCB LIR establishes the institutional requirements that are implemented to ensure that contractual work smart standards for NEPA, Cultural Resources, and Biological Resources are consistently met. These standards are measured by performance criteria contained in the Laboratory Performance Requirement 404-00-00 Appendix 3 (Environmental Protection – Ecological and Cultural Resources) and are the basis for all environmental protection measures implemented as part of this plan.

5.1 Individual Project Planning Measures

Each project, as it is developed and implemented, will follow the guidance of project planning found in EA Section 2.1.1 through 2.1.6 as appropriate. The first step in the implementation of each project will be to scope each project and prepare a LANL ESH-ID review in order to identify environmental issues. The second step will be to formulate a project plan by utilizing appropriate forest thinning standards described in Section 5.1.6.4 of this document and completing a wildfire project plan file (see an example wildfire project plan file Appendix A).

5.2 Treatment Measures

Initial and maintenance treatment measures will be identified for each project based on individual site conditions and the desired end-state results. Common to all projects will be the equipment, the use of qualified personnel, and the job performance involved.

In general, thinning will consist of mechanically and manually reducing the density of trees by selective cutting. Understory thinning removes select woody vegetation, fallen trees and limbs, and low-growing tree limbs that could act as so called “ladder fuel” to carry a surface fire upwards into the tree crowns. Tree thinning removes select trees to interrupt the continuity of the forest canopy and, consequently, the potential for a crown fire to spread. Trees selected for thinning

would be marked at least 6 in. (15 cm) above the ground and on the side away from trails or potential public viewing areas. Remaining tree stumps would be 6 in. (15 cm) or less. Large, fire-resistant species of trees, e.g., ponderosa pines, would be retained to increase the fire resistance of the forest.

Long-term maintenance projects will follow each initial program implementation project to maintain the desired end-state condition of the subject forest area. Long-term maintenance measures will be planned according to the previously stated planning measures when it is determined that maintenance is necessary. Project areas will be reviewed about every five years. In addition to measures utilized to initially treat an area, periodic mowing and grading of access roads will also be employed as treatments during the long-term maintenance of some project areas. Maintenance measures will include the implementation of environmental protection measures and forest product and waste disposal measures in a similar manner as employed by the initial project.

5.2.1 Equipment and Personnel Involved

A typical individual project will utilize from 6 to 20 qualified personnel, axes, chainsaws, chipping machines, one or two front-end loaders, one watering truck, one or two dump trucks, and possibly a small farm tractor. One or two logging trucks per project may also be required. Areas with greater than 30 percent slopes will not be treated using vehicular equipment, but hand-held equipment would be used to cut tree limbs or small-diameter trees on areas with slopes as great as 40 percent.

5.2.2 Job Performance

Treatment measures will likely be accomplished by UC personnel or their subcontractor's personnel. An additional possibility is that the treatment measures could be accomplished by other government agency personnel through an interagency agreement(s), although such an agreement has not yet been executed.

5.2.3 Construction or Reclamation of Access (Fire) Roads

New access roads will be constructed as part of treatment measures and for improved access to facilitate fire suppression efforts in the event of a wildfire (as in the case of the recent Cerro Grande Fire). As required, these roads will be constructed by blading an approximately 16-ft (4.8-m) wide swath. Bar ditches and turnouts will be integral to road construction as needed. Existing access roads may require improvement by such measures as grading and ditching. The planning process may demonstrate that some existing access roads as well as firebreaks are no longer necessary. In this case these existing access roads will be disced and revegetated with native plant species. See Fire Improvement Road Map 1 in the last chapter of this plan.

5.2.4 Facility and Forest Health Prescriptions

Facility Related Prescriptions

Fuel Breaks. LANL fuel breaks will be comprised of open forests and low surface fuel loads and can vary from 100 to 700 ft (30 to 213 m) in width. Trees should be spaced between10 to 25 ft (3 to 8 m), tree density should be about 50 trees per ac (124 trees/ha) or have about a 60-ft basal area, limbs could be removed from the lower 6 to 8 ft (2-2.5 m) on residual trees.

Firing Sites. LANL Firing Sites will be treated as fuel breaks as mentioned above except Firing Sites are treated out to 1200 ft (365 m), which is considered a "C" hazard circle.

Defensible Space Around Buildings. Protection measures will be based on "Urban-Wildland Interface Code 2000" (UWIC 2000). In extreme fire hazard areas, the first 50 ft (15 m) from a building would be cleared of combustible trees and brush. The next 50 ft (15 m) would be thinned to a fuel break specification. In high fire hazard areas, the first 25 ft (7.5 m) would be cleared of combustible trees and brush. The next 25 ft (7.5 m) would be thinned to a fuel break specification. In moderate fire hazard areas, the first 10 ft (3 m) and 20 ft (6 m) will be cleared and thinned respectively. Low fire hazard areas are cleared out to 10 ft (3 m) as a standard practice.

Utility Corridors. All above ground utilities would be cleared of trees within the easement corridor that potentially could interfere with the transmission of the utility. Power lines will be prioritized from most important to least important and cleared accordingly. Powerline corridors are usually cleared of trees depending on the size of the powerline (13.8-kv lines have a 50-ft (15-m) easement; 115-kv lines have a 100-ft (30-m) easement, and all lines are daylighted at a 45 degree angle from the edge of the corridor).

Forest Health and Fuel Reduction Prescriptions

Piñon-Juniper Woodlands. Proposed end-state conditions for piñon-juniper woodlands on LANL property will be a mix of open, savanna-like conditions with interspersed closed canopy woodland. The desired end-state conditions for thinned piñon-juniper woodlands will fall within the following parameters:

Wildfire Hazard Reduction:

- Individual tree crowns will be separated by a distance of no less than 25 ft (7.6 m).
- The crowns from a high-density cluster of trees will be isolated by at least 40 ft (12 m).
- Diseased, malformed, or weakened trees will be preferentially removed.
- The remaining trees should represent a mix of tree sizes and ages.

Thinning treatments should promote herbaceous plant response, reduce surface runoff of precipitation, and increase wildlife habitat quality. Areas appropriate for thinning will have the following characteristics:

- Woodland with less than 25 ft (7.6 m) between tree crowns.
- Relatively low slope (<40 percent).

Forest Health Considerations: Proposed end-state conditions and treatment measures for piñon-juniper woodland forest health treatments are essentially the same as those for wildfire hazard reduction. The major difference is that much of the slash generated during the thinning treatment will be left on site to help reduce soil erosion and promote herbaceous plant response. These specific areas will be isolated from adjoining woodlands to reduce the risk of wildfire spreading to other areas.

Ponderosa Pine Forests. The desired end-state conditions for thinned ponderosa pine forests will fall within the following parameters:

- Individual tree crowns (or in some cases groups of trees) will be separated by a distance of about 10 to 25 ft (3 to 7.5 m).
- The crowns from a group of trees will be separated by a distance of about 40 ft (12 m) from each other.
- Tree density will be about 50 to 150 trees per ac (124 to 370 trees per ha).
- Canopy cover will be between 40 percent to 60 percent of the project area.
- "Ladder" fuels that will allow fire to move from the ground into the tree crowns would be removed.
- The majority of trees to be removed will be approximately 9 in. (22.5 cm) in diameter breast height (dbh) or less.
- Some trees 12 to 16 in. (30 to 40 cm) dbh may be removed to achieve the desired spacings.
- Diseased, malformed, or weakened trees will be preferentially removed during thinning treatments.

Mixed Conifer Forests. The desired end-state conditions for thinned mixed conifer forests will fall within the following parameters:

- No more than 30 percent of mixed conifer habitat within a planning area will be treated in a 10-year period either manually or mechanically. This does not apply to prescribed burning.
- Retain all hardwoods and shrubs within the treatment area.
- Retain all large logs (12-in. diameter) for small mammal habitat.
- "Ladder" fuels that would allow fire to move from the ground into the tree crowns will be removed.
- The majority of trees to be removed will be approximately 9 in. (22.5 cm) dbh or less.
- Some trees 12 to 16 in. (30 to 40 cm) dbh may be removed to achieve the desired spacings.

- Diseased, malformed, or weakened trees will be preferentially removed during thinning treatments with the exception of a few wildlife snags.
- Treatment areas should be small (1 to 20 ac [.40 to 8 ha]), irregularly shaped, and designed in a mosaic pattern with untreated areas.
- The LANL Threatened and Endangered Species Habitat Management Plan Overview (HMP) guidelines will apply within Area of Environmental Interest (AEI) core areas (see further discussion in Section 5.3.5 of this plan).

5.2.5 Surface Fuels

Surface fuels will be managed according to disposal methods described in Section 5.5. When DOE finalizes its complex-wide policy on prescribed fire (in progress now), pile and broadcast burns will be considered as a means to reduce surface fuels. These types of burns were analyzed for potential environmental effects in the Wildfire Hazard Reduction and Forest Health Improvement EA (DOE 2000b). A decision to use these burn types would be reflected in later revisions of this Plan.

Forest treatment areas excluding fuel breaks, firing sites, and defensible space, will contain a few slash piles and logs at least 12 in. in diameter for small mammal habitat purposes and will be arranged so as not to create a fire hazard to surrounding trees.

5.3 Environmental Protection Measures

Integral to treatment measures will be complementary measures to protect public health and welfare and to protect and enhance cultural and natural resources. The various environmental protection measures are discussed in detail in the following sections. For any single project it will be unlikely that all the measures are employed at the same time, but a single project may well use multiple protective measures to complement the chosen treatment measure(s). All projects will include worker health and safety measures.

5.3.1 Worker Protection and Health and Safety Measures

Environmental protection measures that will be employed for the health and safety of involved workers, nearby employees, and the general public include the following:

- Workers will wear personal protective equipment appropriate to the project area site conditions.
- Workers will be appropriately trained when working in or near hazardous waste potential release sites (PRSs), radiological areas, and other hazardous areas.
- Areas potentially contaminated with HE materials or radioactive materials will be identified and no contaminated wood materials will be removed from LANL.
- Workers will be required to wear dosimeters, as appropriate.
- Access to treatment areas will be restricted to involved personnel.

- Treatment will take place at a safe distance from occupied buildings.
- Additional specific health and safety measures will be developed specific to site conditions as necessary.

5.3.2 Cultural Resources Protection Measures

The planning process will include the identification of cultural resources present within each site-specific project area. Protective measures that will be taken for thinning treatments and road construction include the following:

- Thinning within or near cultural resources will be avoided to the maximum extent practicable. The perimeter of identified features will be marked with flagging tape, or pin flags, or both. These sites will be field checked by trained archeologists with the tree thinning crews before thinning activities. If thinning is necessary within an identified cultural resource feature, tree thinning crews will be limited to cutting and removing branches by hand. No tree cutting, piling, or dragging of materials across the surface of a cultural site will be permitted.

- Road construction and ancillary drainage features will be planned to avoid cultural resources. Cultural resources located near road alignments will be identified with flagging tape, or pin flags, or both, to avoid inadvertent damage by equipment, personnel, etc. These resources may also be fenced. Identification and protection measures will be removed following treatment activities to prevent the identification of the cultural resource and potential for vandalism.

5.3.3 Air Quality Protection Measures

Environmental protection measures for maintaining air quality will include the following:

- Unpaved access roads will be treated to minimize dust generation during the treatment period by the use of standard dust suppression measures such as the use of water spray.

5.3.4 Water Quality Protection Measures

Environmental protection measures for avoiding potential adverse consequences on water quality are as follows:

- Silvicultural timber treatments are exempt from the National Pollutant Discharge Elimination System permit requirements.
- Areas severely disturbed or denuded will be revegetated.
- Water control structures will be constructed as needed.
- Channel stabilization measures will be employed as needed.
- Buffer zones along stream courses may be established for water quality and wildlife habitat purposes.
- Areas with slopes of greater than 30 percent will not be treated using vehicular equipment because of their high erosion potential; areas with

slopes of less than about 40 percent may be treated using hand-held equipment.

- Machinery will not be used during saturated soil conditions.
- New fire roads will be constructed on grades of less than 10 percent with bar ditches and turnouts, as appropriate.
- Slash/wood chips will not be placed in a water course.
- Any work that involves crossing a stream channel will require a 404 Dredge and Fill Permit and a 401 Water Quality Certification.

5.3.5 Threatened and Endangered Species Protection Measures

The presence of threatened and endangered species and their habitat will have prime planning considerations. There are two listed species that currently utilize the area at LANL as habitat – the bald eagle (*Haliaeetus leucocephalus*) and Mexican spotted owl (*Strix occidentalis lucida*). Potential habitat of the southwestern willow flycatcher (*Empidonax traillii extimus*) is present at LANL. All features of planned actions will be developed and implemented in accordance with guidance and restrictions contained in the LANL Threatened and Endangered Species Habitat Management Plan Overview (HMP) (LANL 1998a) or developed during further consultation with the USFWS. DOE determined that actions taken in accordance with the HMP would result in no affect or may affect but are not likely to adversely affect individuals of T&E species or their potential habitat at LANL; the USFWS has concurred with this determination.

Bald Eagle

The identified bald eagle area of environmental interest (AEI) is located primarily in piñon-juniper habitat. Trees that are located in this AEI, primarily along the Rio Grande and at the mouths of certain drainages, provide roosting and perching habitat. Consequently, no treatment involving the cutting of live or dead trees will be utilized within core and buffer areas. An exception to this provision is the treatment by thinning of ponderosa pines growing within 100 ft (30 m) of structures. Juniper and piñon trees and associated understory in the AEI buffer zone may be treated. Screening vegetation will be maintained at the edge of core areas.

For human health and safety reasons, any trees growing within 100 ft (30 m) of buildings but outside of a developed area will be thinned to achieve a 25-ft (7.5-m) spacing between tree crowns. The HMP does not restrict habitat alteration, including thinning, in developed areas. Nevertheless, live and dead trees along canyon rims will be retained if the rim is in a developed area. Any tree over 9 in. (22.5 cm) dbh that is within 1,200 ft (365 m) of an explosives testing firing site or a waste treatment area permitted under the Resource Conservation and Recovery Act (RCRA) or New Mexico Administrative Code 2.60 (NMAC) for burning explosives wastes will be delimbed to a height of 6 ft (1.8 m).

Mexican Spotted Owl (MSO)

The identified MSO AEIs are located primarily in ponderosa pine and mixed conifer forests. Wildfires can pose a serious threat to these forest types. USFWS's recovery plan for the MSO (USFWS 1995) lists high-intensity wildfires as a primary threat to spotted owl habitat and encourages land managers to reduce fuel levels and abate fire risks in ways compatible with spotted owl presence on the landscape (USFWS 1995). Several of the MSO AEIs at LANL burned with low to moderate intensity during the Cerro Grande Fire. All LANL AEIs are under revision to determine the effects of the fire on the quality and condition of the habitat areas. This information and other specific site conditions will be factored into project plans for treatments within AEIs. Within undeveloped core areas, on slopes greater than 40 percent, in the bottoms of steep canyons, and within 100 ft (30 m) of a canyon rim, thinning of trees less than 9 in. (22.5 cm) dbh and removal of fuels could be allowed. Exceptions allowing trees greater than 9 in. (22.5 cm) dbh to be thinned within 100 ft (30 m) of buildings will be made to protect facilities (see below). Large logs (12 in. [greater than 30 cm] midpoint diameter) at a minimum rate of 50 per ace and snags (large standing trees that are dead or diseased) should be retained at a minimum rate of 50 per ac. Thinning within core areas not meeting the characteristics listed above and in buffer areas may include trees of any size to achieve a 25-ft (7.5-m) spacing between tree crowns.

For human health and safety reasons, any trees growing within 100 ft (30 m) of buildings but outside of a developed area may be thinned to achieve a 25-ft (7.5-m) spacing between crowns. Habitat alterations including thinning will not be restricted in developed areas. However, trees and snags along canyon rims will be retained in a developed area. Because of the extreme fire danger associated with firing sites and the potential effect of a fire on MSO habitat (as in the Cerro Grande Fire), explosives testing and firing sites and waste treatment areas will be treated separately for the purpose of fuels management. Trees within 1,200 ft (365 m) of firing sites and burn areas in both core and buffer AEI areas may be thinned to a 50-ft (15-m) spacing between trees everywhere except on slopes greater than 40 percent or in the bottoms of steep canyons. Any tree over 9 in. (22.5 cm) dbh within 1,200 ft (365 m) of a firing site may have its lower limbs removed up to a height of 6 ft (1.8 m) above the ground to help prevent crown fires.

In historically occupied core areas, fuels treatments may not exceed 10 percent of the undeveloped core area and will not be allowed within 1,335 ft (400 m) of previously occupied nesting areas. In recently occupied core areas, forest management activities must occur during the nonbreeding season, which is from September 1st to the end of February (USFWS 1995).

Southwestern Willow Flycatcher

The identified southwestern willow flycatcher AEI is located primarily in drainage areas with willows and cottonwoods. Wildfires can pose a moderate to high

threat to these habitat types. Thinning within undeveloped buffer areas may include cutting trees of any size to achieve a 25-ft (7.5-m) spacing between tree crowns. No fuel management practices will be allowed in core areas. Habitat alterations including tree thinning will not be restricted in developed areas. Very little, if any, treatments are planned in these areas.

5.4 Other Wildlife Habitat Recommendations

5.4.1 Ponderosa Pine: Wildlife Considerations

There are currently no federal or state listed species that depend primarily or solely on ponderosa pine habitat. Wildlife species vary widely in the specific structural characteristics they prefer in ponderosa pine habitats. Stands in a moderately closed condition provide habitat for Abert's squirrel, western flycatcher, hermit thrush, black-headed grosbeak, pygmy nuthatch, and mantled ground squirrel, and can provide required cover for deer and elk. Thinned areas, particularly with downed woody materials, provide habitat for deer mouse, brush mouse, Mexican wood rat, western wood pewee, and yellow-rumped warbler, as well as forage areas for deer and elk (Patton 1991). Before European settlement, ponderosa pine stands probably were a mosaic of open, grass savanna and clumps of large yellow-bark ponderosa pine interspersed with a few dense patches and stringers of small, blackjack pines (Dahms and Geils 1997). Because there are open areas resulting from old fields, utility lines, buildings, firing sites, road development, and recent fires, the need to create openings in LANL's remaining ponderosa pine stands will be evaluated by area.

These ponderosa pine wildlife recommendations apply to areas outside of fuel breaks, utility lines, firing sites, and defensible space around buildings.

Recommendations for enhancing wildlife values in ponderosa pine treatment areas include the following:

- Retain all large snags.
- Retain all shrubs and deciduous trees for browse, fruit production, and structure.
- Maintain 10 percent to 20 percent of the treatment area as moderately dense ponderosa pine (60 percent to 90 percent canopy cover) in patches of 1/2 to 2 ac [.20 to .80 ha].
- Design treatment areas to be irregularly shaped.
- Leave slash of any size either scattered or piled where possible.
- Retain large down woody material on site where possible.
- In long-range planning, define areas where ponderosa pine regeneration will be allowed to occur and prescriptions for regenerating stands.
- Thin trees in a naturalistic pattern including interspersed groups and individual trees with a varying range of tree densities and sizes.

5.4.2 Piñon-Juniper: Wildlife Considerations

In general, piñon-juniper thinning increases the available browse for large ungulates and increases the biomass and sometimes species diversity of small mammals. However, several guilds of birds, specifically foliage gleaners, live bark foragers, foliage nesters, and snag nesters, tend to decline or be absent from treated piñon-juniper stands. This includes species such as the black-throated gray warbler, solitary vireo, juniper titmouse, and gray flycatcher. In addition the pinyon mouse, which nests in juniper trees and eats juniper berries, is closely associated with relatively dense stands of piñon-juniper. Dense piñon-juniper stands also provide thermal cover for wintering ungulates (such as elk) during storm events. Gray vireos, which are listed by the State of New Mexico as threatened, have the potential to occur in Los Alamos County during spring, summer, and fall. This species selects arid juniper woodlands on foothills and mesas, frequently with associated shrubs such as oaks and a well-developed grass component. The gray vireo tolerates a wide range of canopy values, and is likely to either be not affected or to benefit from piñon-juniper thinning.

These piñon-juniper wildlife recommendations apply to areas outside of fuel breaks, utility lines, firing sites, and defensible space around buildings.

Recommendations for enhancing wildlife values in piñon-juniper treatment areas are as follows:

- Retain all large snags in the treatment area.
- Retain all shrubs in the treatment area (oaks, mountain mahogany,
- skunkbush sumac, etc.).
- Consider girdling rather than cutting some trees, especially larger piñon trees.
- Leave individual live trees and small clumps of live trees scattered throughout the treatment area.
- Design treatment areas to be irregularly shaped, relatively narrow, and maintain proximity to dense piñon-juniper stands.
- Leave 40 percent to 50 percent of the planning areas untreated.

5.4.3 Mixed Conifer Wildlife Considerations

Considerations for this forest type are the same as the mixed conifer general prescription (see Section 5.2.4).

5.5 *Removal of Generated Wood Materials and Disposal of Waste*

Logs, piles of cut small branches, and brush will result from thinning activities. Some of this material could be donated or salvaged for use by the surrounding communities. However, some of the smaller logs, branches, and brush (slash) will require disposal as waste. Proposed methods of removal of wood materials and waste disposal are described in the following paragraphs. One, all, or a combination of measures may be utilized. Additional measures may also be developed and incorporated in this Plan

5.5.1 Donation of Materials

Thinned wood materials that are free from contamination would be made available to the public and governmental agencies, including nearby pueblos, for use as mulch, fuel wood, latillas, vigas, ceremonial purposes, handicrafts, and other similar purposes. The extent of availability of material would depend on practical site issues such as accessibility, environmental protection, security, and associated costs.

5.5.2 Salvage of Timber

Commercial size timber (typically at least 9 in. [22.5 cm] in diameter) that is free of contamination may be salvaged and sols for consideration to offset the costs of treatment operations or, similarly, provided to the party(ies) contracted with to accomplish treatment operations to again offset costs. Logs will be removed from the place where they were cut by truck either directly to off-site facilities owned or operated by contracted parties or to on-site temporary storage locations within the project area. Logs stored on-site will then be donated or salvaged and removed by third parties.

5.5.3 Waste Disposal On-site or Off-site

Slash and other wood wastes could be disposed of on- or off-site as waste by chipping and used as mulch or burned at a permitted on- or off-site location. The presence or absence of contamination and type of contamination within the waste will dictate the method(s) of disposal.

5.5.3.1 Contaminant-Free Wastes

These materials could be mechanically reduced (chipped). Wood chips produced during cleanup activities from slash could be used as mulch in selected areas at LANL to foster soil stability and establishment of grasses and shrubs. The depth of wood chip mulch will not exceed 2 in. (5 cm) if used at LANL. If slash is used for erosion control at LANL in an unchipped state it will not exceed 6 in. (15 cm) in depth and will be used in such a manner so as not to pose an enhanced fire hazard. Additionally, a recently purchased wood chipper/burn unit featuring an enclosed burn chamber may also be used at LANL to dispose of wood wastes resulting from forest treatments. This unit is permitted with the State of New Mexico Environment Department.

5.5.3.2 Potentially Contaminated Wood Materials

Wood materials produced in an identified PRS or other suspect site such as canyon focus areas will be managed according to the respective LANL Division Standard Operating Procedure for Waste Management. LANL staff have begun a wood sampling program to ensure that contaminants in wood do not pose a risk to human health or to the environment. If wood materials contain HE or depleted uranium (DU) or both, they could be burned at any of the RCRA- or NMAC-permitted burning facilities within LANL's TAs 14, 15, 36, 39, and 40. Contaminated wood material generated within Engineering Sciences and Applications Division (ESA) technical areas will follow LANL's Safe Operating

Procedure WMM-SOP-1.8.1-RO (LANL 1998b). Contaminated wood material generated within DX technical areas will follow LANL's Standard Operating Procedure DX-DO:SOP 01 Rev. B (LANL 2000). HE contamination is consumed during burning and DU does not aerosolize at typical wood burning temperatures. In general, the quantities of wastes disposed of in this manner will be small.

5.5 End-State Conditions and Post-Treatment Assessment

A key element of the wildfire management program will be post-treatment assessments. Field assessments will be conducted to monitor the effectiveness of treatment measures in achieving the desired goals, to modify the treatment measures used, and to help develop future management strategies. The majority of post-treatment assessments will be conducted in the field. At a minimum, all projects will incorporate an end-state condition assessment. The following activities will compose the various post-treatment assessment options:

- End-state conditions assessment
- Forest fuel load inventories
- Ecological field studies
- Watershed assessment and monitoring
- Data analysis and modeling

5.5.1 End-State Conditions Assessment

The successful implementation of a Wildfire Hazard Reduction Project Plan at LANL will be determined by assessing the achievement of resource goals and objectives listed in Section 4. This program will be deemed successful when fuel loads are reduced to a moderate- or low-hazard rating, the forest canopy at most project sites is less continuous with small patchy openings, and most forest stands are maintained at tree densities consistent with prescriptions described in Section 5. In effect, the potential risk and damage from an uncontrolled and catastrophic wildfire within the boundaries of LANL will be drastically reduced or eliminated if the end-state conditions planned for a particular project area have successfully been met. Attributes to be measured include tree density, crown separation, and canopy cover.

5.5.2 Forest Fuel Load Inventories

Preliminary studies have been initiated to survey the wildfire fuels in forests and woodlands at LANL and for the surrounding region. These studies are being performed by DOE in cooperation and collaboration with SFNF, BNM, and Los Alamos County. The results of these studies will provide pre-treatment knowledge of the forest fuels. Study areas will be resampled after the application of program-treatment actions and the post-treatment results will be compared to the pre-treatment conditions to determine if the goals and objectives of the wildfire treatment measures have been met.

5.5.3 Ecological Field Studies

Ecological studies are important tools for assessing the effects of forestry treatments on local fauna and flora. Based on need and funding, post treatment

studies may be initiated for threatened and endangered species and their habitat, large and small mammals, arthropods, amphibians, bio-contaminant availability, contaminant movement, and vegetation changes.

Field surveys for topographic and vegetational characteristics of forests and woodlands are currently being conducted in the Los Alamos region. The results of these quantitative surveys are being used to develop plant community classifications and to relate these classes to their respective environmental and topographic conditions. The classification provides an analytical framework for comparing and contrasting the effects of treatment measures and for determining changes in plant community structures.

5.5.4 Watershed Assessment and Monitoring

Best management practices for monitoring and protecting watersheds will be identified during the LANL ESH-ID review process. Part of the monitoring program will be linked to the existing water-sediment discharge sampling station network located throughout the major drainages at LANL. Routine monitoring of this network will be done to evaluate the effects of the forest treatments.

5.5.5 Data Analysis and Modeling

A geographic information system and other site-specific data bases are used extensively by LANL for analyzing ecological information. Examples of models that are used include topographic-vegetation models for determining suitable threatened and endangered species habitat, soil loss models for determining soil movement, watershed-hydrology models for determining water runoff, and a fire behavior model that is used to predict fire intensities and growth.

Data pertaining to the topographic characteristics and fuel levels at selected sample sites in forests and woodlands of the Los Alamos region are being summarized and analyzed for changes in the fuel levels that result from the application of regional wildfire treatment measures. In particular, these data are being evaluated to determine if the wildfire treatment measures achieved the desired end-state conditions.

Site-specific data may be used to estimate the average fuel levels of plant community types at various topographic conditions. The data may also be used to predict the fuel levels in unsampled areas throughout the Los Alamos region and as inputs to wildfire behavior models that assess wildfire hazards to LANL facilities and residential areas.

All post-treatment assessment activities will be reviewed for potential environmental, safety, and health issues and applicable requirements will be addressed as part of the Wildfire Hazard Reduction and Forest Health Improvement Program before beginning the post-treatment assessment activities.

5.6 Implementation of Maintenance Measures

Once an area has been treated, routine maintenance projects will be performed at least once every five years (or as necessary) to maintain the desired end-state conditions. In addition to the use of the previously discussed treatment measures that may be utilized to initially treat an area and later to maintain it, periodic mowing and maintenance of access roads would be employed. Also, project planning and environmental protection measures will be included in the formulation and implementation of maintenance projects as applicable.

Prescribed fire as a treatment method is precluded from use at this time by a DOE complex-wide moratorium. When used appropriately, prescribed burns can be a very effective means to maintain mechanically treated areas. DOE is in the process of developing a complex-wide policy on prescribed fire. When this is completed, the use of this method at LANL may be revisited.

5.7 Implementation Roles and Responsibilities

In order to be successful, the Wildfire Hazard Reduction Project must have participation from many entities. The following describes some of these and their major roles and responsibilities in this effort.

5.8 Roles and Responsibilities

U.S. Department of Energy, National Nuclear Security Administration: The responsible agency that oversees the three research laboratories in the DOE nuclear weapons complex.

LANL ESH-20: The Ecology Group provides environmental support to LANL and the DOE, NNSA through its six teams which are comprised of Biology, Contaminant Monitoring, Cultural Resources, Natural Resources Management, National Environmental Policy Act, and Publications and Design.

LANL ESH-17: The Air Quality Group is responsible for environmental air quality issues including environmental surveillance.

LANL ESH-18: The Water Quality and Hydrology Group is responsible for environmental water quality and hydrology issues including environmental surveillance.

LANL Facility and Waste Operations – Fire Protection: The Fire Protection Group serves LANL, DOE-NNSA, and the surrounding community by providing fire protection services in order to minimize risk to acceptable levels in support of the LANL mission.

LANL Emergency Management and Response (S-8, EM&R): EM&R is the Laboratory's core organization which provides LANL-wide emergency plans, preparedness programs, and oversight capability to respond to all LANL emergencies.

LANL Cerro Grande Recovery Project Office: This office is part of the Facility and Waste Operations Division, and is responsible for implementing Cerro Grande Recovery Project efforts.

LANL Facility Managers: LANL Facility Managers strive to provide world-class facilities to support LANL's mission. This is accomplished through the ISM process, readiness assessments, authorization basis, risk management, facility waste management, and monitoring.

Los Alamos Fire Department (LAFD): The LAFD is the primary UC subcontractor providing fire response to LANL.

Johnson Controls NNM: Support services subcontractor for UC at LANL.

Interagency Wildfire Management Team (IWMT): This is a DOE and UC sanctioned committee comprised of all adjoining land management agencies, including Los Alamos County. The IWMT routinely meets to coordinate and collaborate on wildfire related efforts.

6.0 PLANNING AREAS AND PROJECT DESCRIPTIONS

This section contains maps and tables that more fully describe the planning areas and projects that are part of the Wildfire Hazard Reduction Project.

Map 1 depicts various fire road improvements that are planned for the next three years. They consist of both new fire roads and upgrades, such as drainage improvements to existing fire roads. These projects are intended to provide improved access to remote areas for better suppression in the event of a wildfire.

Table 1, "Wildfire Hazard Reduction Project Descriptions" and the associated Map 2, describe the Phase 1 projects that are currently being planned in greater detail as per the requirements discussed in Section 5 of this document. Information provided includes project name, description-objectives, size, phase, comments, and status. These are high priority strategic projects, primarily fuel breaks, in heavily forested urban interface areas that reduce the wildfire hazard to the public, LANL employees, and key facilities and infrastructure. However, these projects are not necessarily listed in the order in which they will be performed. The Phase I projects are planned for completion in FY01-FY02.

Table 2, "Wildfire Hazard Reduction Planning Areas," and the associated Map 3, describe planning areas that will be planned in greater detail and treated in the future during Phases 2 and 3. Information provided includes description-objectives, size, (both total area and area planned for treatment), prescription, phase, and comments. According to this plan, individual projects will be developed and implemented in these areas during FY02-FY03. These individual projects will consist primarily of treatment of interior timber stands with the primary objective of general forest fuels reduction. These projects will be planned and implemented according to the process set out in Section 5 of this document. This detailed project planning has been scheduled for the future so as to allow for better integration with the Biological Resources Management Plan (BRMP) now under development and to take advantage of adaptive management concepts resulting from implementation of Phase 1. An update of the WHRPP will be issued when detailed planning has been completed.

Finally, Map 4, "Existing Conditions," depicts the related existing site conditions at LANL including land cover (forest type) and Cerro Grande burn severity information.

As already mentioned, Appendix A of this document provides the reader with a sample Wildfire Project Review form. Individual WPRFs are on file with DOE and ESH-20 for each of the projects conducted under this Plan and are available upon request. Please contact Pat Valerio at (505) 665-5716 for copies of these plans.

Table 1: Wildfire Hazard Reduction Project Descriptions.					
Project	**Description-Objectives, see map 2.**	**Acres/miles**	**Phase**	**Comments**	**Status**
Los Alamos Canyon (A)	Create a 200-300 ft wide fuelbreak below HRL, Medical Center, LAAO, and residences.	30	1	Follow HMP guidelines for core habitat.	Project is compliant with NCB LIR 404-30-02.0 and ESH-ID completed.
DP Canyon (TA-21) (B)	Create a 100-200 ft wide fuelbreak behind residences and businesses on both sides of canyon.	20	1	Coordination with LA County required, particularly regarding access issues.	Project is compliant with NCB LIR 404-30-02.0 and ESH-ID completed.
DARHT (Water and Valle Canyons, TA-15) (C)	Thinning treatment below DARHT facility at confluence of canyons to prevent wildfire starting from adjacent operations.	40	1	Follow HMP guidelines for core habitat. Less than 10% of core habitat to be treated.	Project is compliant with NCB LIR 404-30-02.0 and ESH-ID completed.
TA-16, Building 260, (O)	Create a 200 ft wide fuelbreak around facility.	5	1	Project started in FY00.	Project is compliant with NCB LIR 404-30-02.0 and ESH-ID completed.
TA-3 / TA-58, (E)	Create a 600 ft wide fuelbreak west of Vandegraff Bldg, SM-30, and Wellness Center Bldg to protect TA-3 area.	80	1	Project is underway.	Project is compliant with NCB LIR 404-30-02.0 and ESH-ID completed.
TA-48 Mortandad Canyon, (F)	Create a 100-200 ft wide fuelbreak in canyon and mesa top.	10	1	Project has not been planned in detail yet. Apply fuel break prescription.	Needs NCB LIR and ESH-ID review.

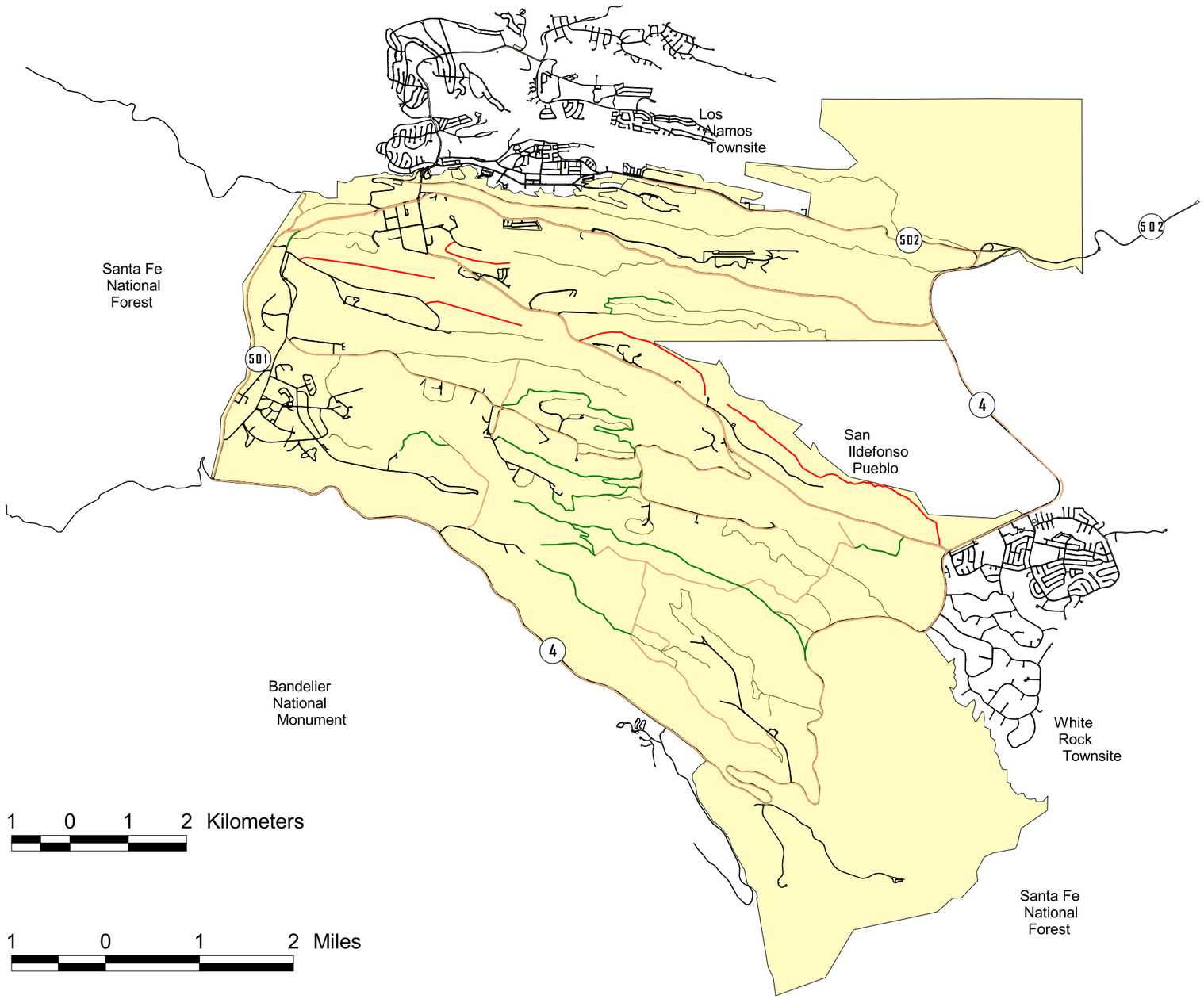
Table 1 Continued.					
TA-8, 9 and 16 Access Road, (G & O)	Create a 300 ft wide fuelbreak along access road to protect emergency ingress/egress in the event of a wildfire.	50	1	Project has not been planned in detail yet. Apply fuel break prescription.	Needs NCB LIR and ESH-ID review.
Rendija Canyon Land Transfer Tract. (H)	Create a 300 ft wide fuelbreak along the Baranca Mesa Subdivision and DOE boundary.	50	1-3	Project has not been planned in detail yet. Apply fuel break prescription.	Needs NCB LIR and ESH-ID review.
DOE/White Rock Urban Interface, (I)	Create a 250 ft wide fuelbreak along western, northern, and southern edge of DOE/White Rock urban interface including all powerlines.	100	1	Project has not been planned in detail yet. Apply fuel break prescription.	Needs NCB LIR and ESH-ID review.
Research Park Area, TA-3, (J)	Create a 250 ft wide fuelbreak along Highway 501 and all facilities within the Research Park footprint. Use Research Park Biological Assessment guidelines.	40	1	Project has not been planned in detail yet. Follow Research Park BA guidelines for thinning. Coordinate project with LAEDC and LAAO.	Needs NCB LIR and ESH-ID review.
Royal Crest Trailer Park, (L)	Thin along east side and chip ground fuels.	10	1	Project initiated in FY 00.	Project is compliant with NCB LIR 404-30-02.0 and ESH-ID completed.
TA-21 Los Alamos Canyon gas pipeline, (M)	Create a 250 ft wide fuelbreak along gas pipeline corridor to protect upper Los Alamos Canyon area.	8	1	Project has not been planned in detail yet. Apply HMP guidelines.	Needs NCB LIR and ESH-ID review.
TA-54, (Area G) (N)	Create a 250 ft wide fuelbreak along western edge (mesa top) of facility.	25	1	Project has not been planned in detail yet. Follow on to FY99 project.	Needs NCB LIR and ESH-ID review.

Table 1 Continued.					
DX and ESA Firing Sites (K).	Firing sites fuel mitigation within the hazard zone will be extended about 300 ft.	About 130 acres, total.	1-3	Project has not been planned in detail yet. HMP guidelines apply within certain firing sites.	Needs NCB LIR and ESH-ID review.
LANL wide facilities assessment and protection.	Create defensible space and fuelbreaks when appropriate at all facilities.	TBD	1-3	Follow Wildland-Urban Interface Code.	Needs NCB LIR and ESH-ID review.
LANL wide powerline vegetation maintenance.	Protect all powerlines per standard maintenance requirements.	Approximately 50 miles	1-3	Three year effort following utility corridor prescription. Follow HMP guidelines when appropriate for utility corridor maintenance.	Needs NCB LIR and ESH-ID review.
LANL wide fire road construction and improvements.	Construct new fire roads and improve existing fire roads (crossings, culverts, water bars, etc.) to increase accessibility and reduce maintenance. See Fire Road Map # 01-0123-04.	TBD	1-3	Three year project. See Fire Road Map # 01-0123-04.	Needs NCB LIR and ESH-ID review.
Treat interior timber stands according to Table 2 Planning Area descriptions.	Utilize approved wildfire EA treatment measures to reduce wildfire hazard and improve forest health in accordance with Biological Management Plan (BRMP) currently under development.	Up to 10,000 acres.	2-3	Phase 2 and 3 planning areas may be viewed on map # 01-0123-06.	Needs NCB LIR and ESH-ID review.
Conduct LANL wide routine maintenance on previously treated areas to control natural tree regeneration and natural fuel buildup.	Mowing, cutting, and chipping (along with prescribed burning asallowed by DOE) would be the preferred treatment methods.	TBD	FY04 and beyond	Treat every 5 years or when necessary.	Needs NCB LIR and ESH-ID review.

Table 2: Wildfire Hazard Reduction Planning Areas.					
Planning Area	**Description/Objectives, see map 3.**	**Acres**	**Prescription may be found in text**	**Phase**	**Comments**
1	FMU 70. Reduce general wildfire hazard. Improve fire road system.	2300 total (about 1200 planned for treatment).	Ponderosa Pine, Mixed Conifer.	2	Area contains HMP core habitat and was impacted by the Cerro Grande Fire.
2	TA-49. Reduce wildfire hazard to key facilities. Improve fire road system.	1200 total (about 100 planned for treatment).	Ponderosa Pine, Mixed Conifer, Grassland, PJ.	2	Area contains HMP core habitat and was impacted by the Cerro Grande Fire.
3	Upper FMU 67. Reduce general wildfire hazard. Improve fire road system.	5700 total (about 3000 planned for treatment).	Ponderosa Pine, Mixed Conifer.	2	Area contains firing sites, powerlines, access roads, habitat for wildlife, and was impacted by the Cerro Grande Fire.
4	Lower FMU 67. Reduce general wildfire hazard, protect T&E species habitat, and reduce firing site ignition risk. Improve fire road system.	3300 total (about 1500 planned for treatment).	Pinyon Juniper woodlands.	3	Area contains firing sites, powerlines, access roads, habitat for wildlife, and was impacted by the Cerro Grande Fire.
5	TA-3 Administration Area. Reduce wildfire hazard to critical area of the Laboratory. Improve fire road system.	1000 total (about 500 planned for treatment).	Ponderosa Pine, Mixed Conifer.	2	Area contains high numbers of LANL personnel, powerlines, utilities, HMP core areas, and was impacted by the Cerro Grande Fire and is a key interface area with the townsite.
6	TA-21, 53, 55, 35, 48, 46, 54. Reduce general wildfire hazard including critical infrastructure. Improve fire road system.	5500 total (about 2000 planned for treatment).	Ponderosa Pine, Mixed Conifer, and Pinyon Juniper woodlands.	3	Area contains high numbers of LANL personnel, powerlines, utilities, MHP core areas, and was impacted by the Cerro Grande Fire and is a key interface area with White Rock and San Ildefonso Pueblo.

Table 2 Continued.					
Planning Area	**Description/Objectives, see map 3.**	**Acres**	**Prescription may be found in text**	**Phase**	**Comments**
7	TA-33, 70, 71. Reduce wildfire hazard to White Rock and LANL. Reduce erosion and improve forest health.	3700 total (about 1200 planned for treatment.)	Pinyon Juniper woodlands	3	Area contains powerlines, HMP core areas, and winter habitat for deer and elk.
8	White Rock Canyon Reserve. Protect reserve, improve forest health, reduce erosion, and remove exotic plant species.	1000 total (about 200 planned for treatment.)	Pinyon Juniper woodlands	3	Area contains powerlines, HMP core areas, hiking trails, winter habitat for deer and elk, and bald eagles. Treatments should conform to HMP guidelines and resource plans to be developed.
9	Land Transfer Tracts scheduled for eventual disposal. TA-74, Rendija Canyon, White Rock, TA-21 including the Airport Tract. Strategic fuel breaks will be completed to reduce wildfire hazard to adjacent areas.	4700 total (about 300 planned for treatment.)	Ponderosa Pine, Mixed Conifer, and Pinyon Juniper woodlands.	3	Area contains powerlines, utilities, airport, urban interface, winter habitat for deer and elk, and many cultural sites.

Map 1. Wildfire Hazard Reduction Project Plan - Fire Road Improvements



Legend

- Proposed new fire roads
- Proposed upgrades to existing fire roads
- Existing fire breaks
- Other existing fire roads
- Major roads
- LANL

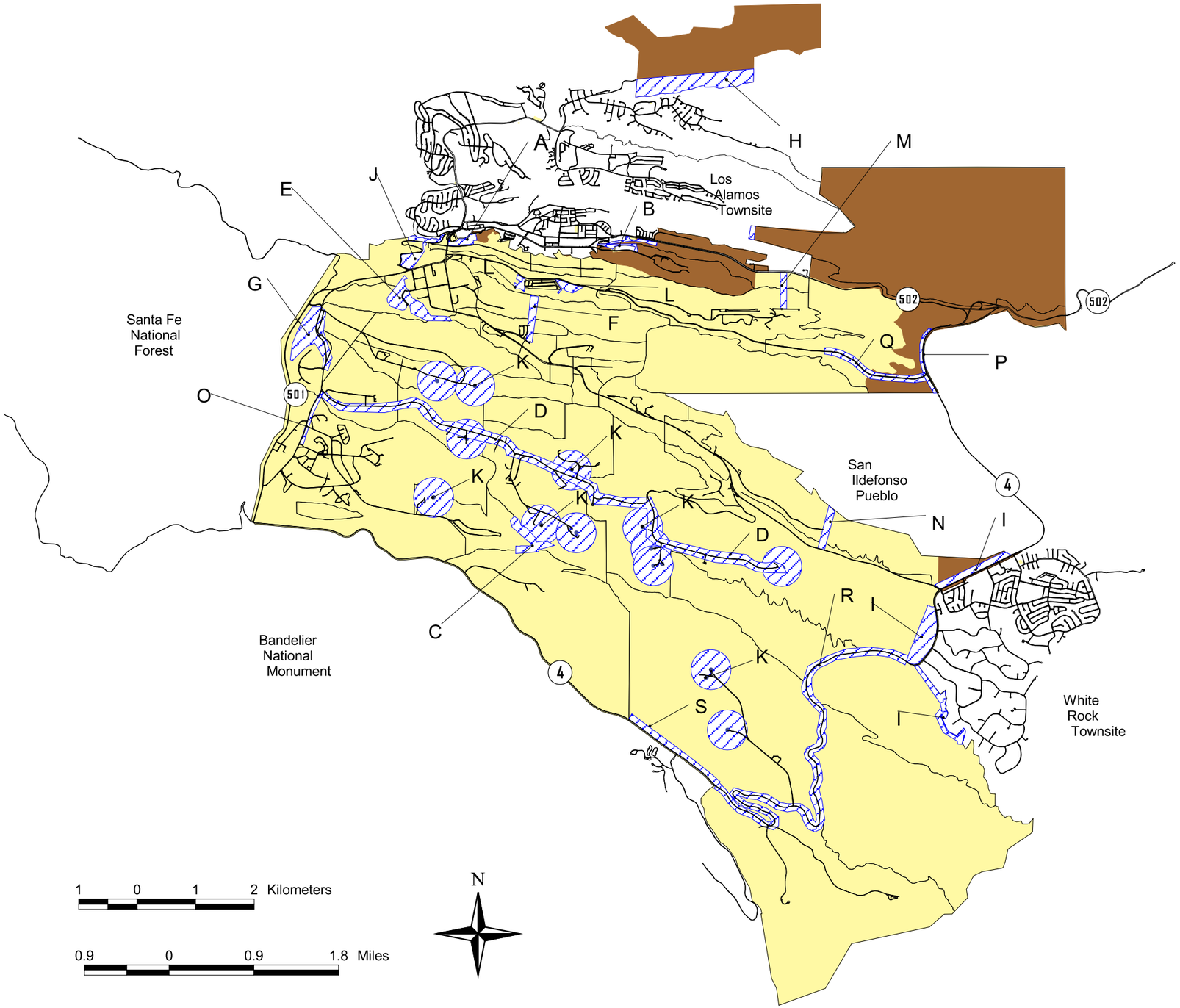
Data have not been field verified therefore subject to change. New Mexico State Plane, Central Zone, North American Datum of 1983.

Existing fire roads/fuel breaks data managed and provided by JCI Utility Mapping. Facilities data managed and provided by FIMAD.

Los Alamos National Laboratory — ECOLOGY GROUP — Environment, Safety and Health

Map produced by Marjorie Wright, ESH-20
Map number: 01-0123-04

Map 2. Wildfire Hazard Reduction Project Plan - Phase 1



Legend

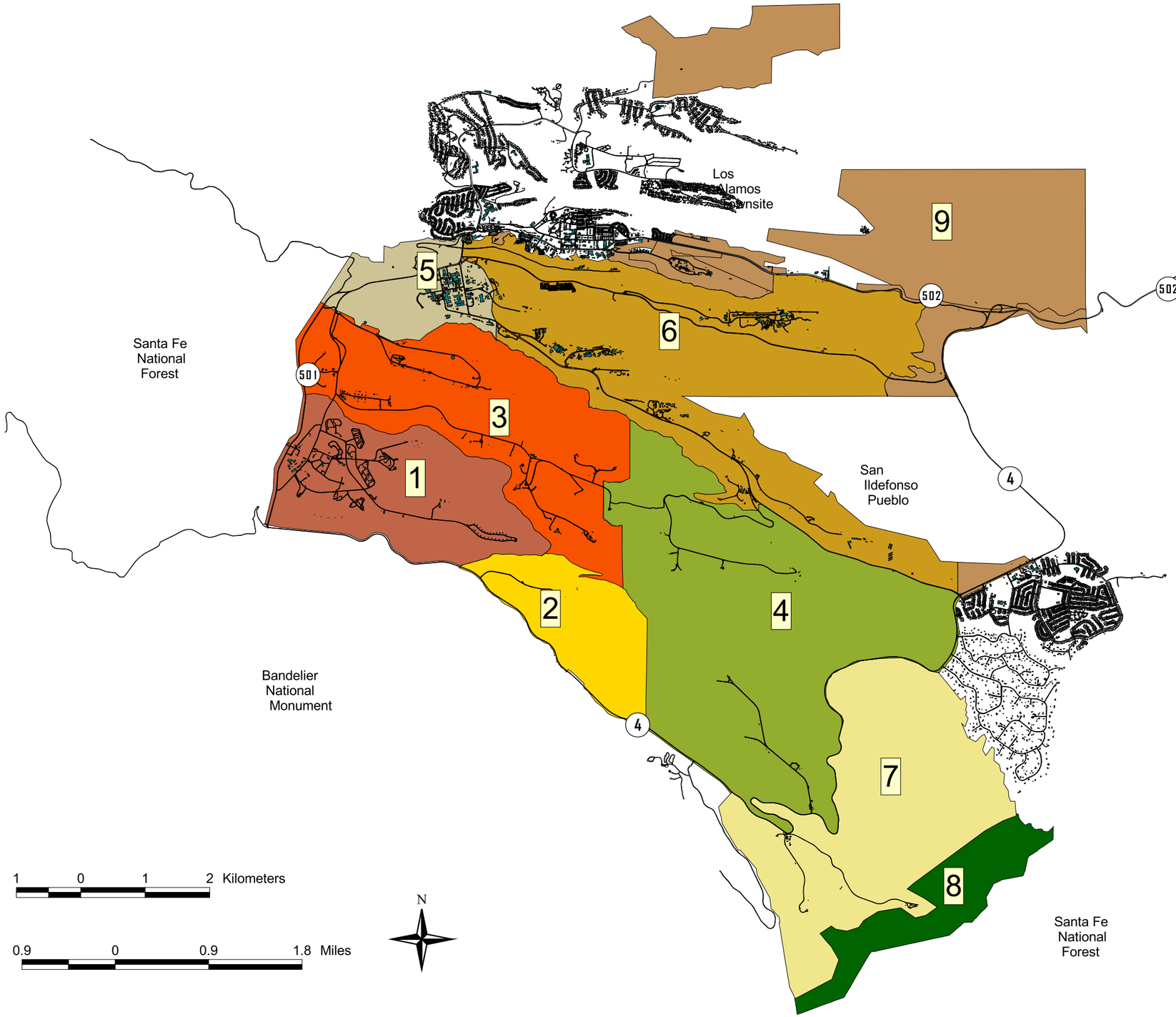
- Firing sites
- Proposed projects
- Proposed land transfer tracts
- LANL
- TA
- Major roads

Data have not been field verified, therefore subject to change. New Mexico State Plane, Central Zone, North American Datum of 1983.

Facilities data managed and provided by FIMAD.

Map produced by Marjorie Wright, ESH-20
Map number 01-0123-05

Map 3. Wildfire Hazard Reduction Project Plan - Phases 2 & 3



Legend

- Major roads
- Buildings/structures

Planning area

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

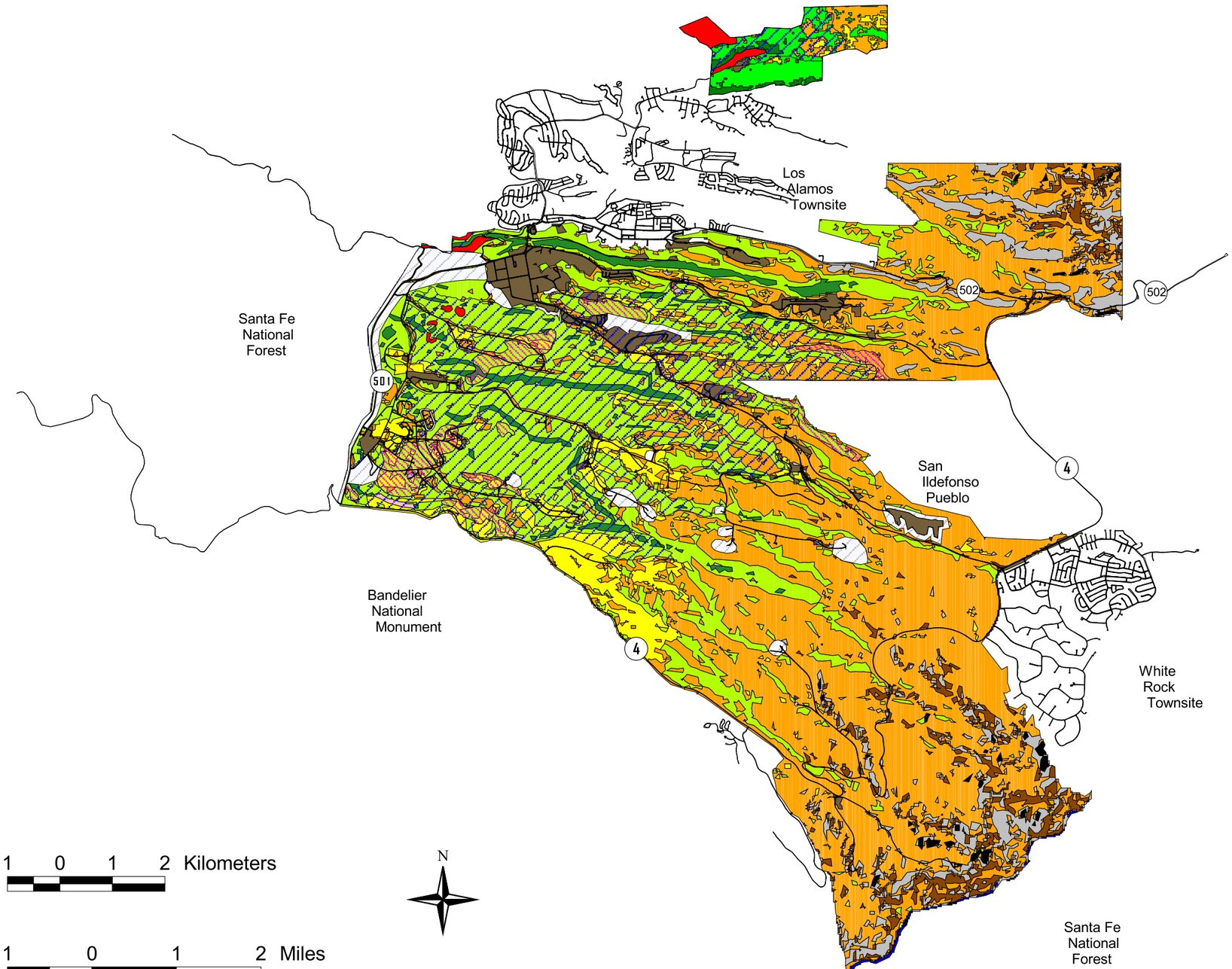
Data have not been field verified, therefore subject to change. New Mexico State Plane, Central Zone, North American Datum of 1983

Facilities data managed and provided by FIMAD.

Los Alamos National Laboratory — ECOLOGY GROUP — Environment, Safety and Health

Map Produced by Marjorie Wright, ESH-20
Map number: 01-0123-06

Map 4. Wildfire Hazard Reduction Project Plan - Existing Conditions



Legend

Major roads

Burn severity class
- High
- Low/Unburned
- Moderate

Past treatment areas

Buildings/structures

Vegetation type
- Water
- Unvegetated Land
- Mixed Conifer
- Aspen/Other Decidous
- Ponderosa Pine
- Pinon-Juniper
- Juniper Savannah
- Grassland
- Developed
- Unclassified

1 0 1 2 Kilometers

1 0 1 2 Miles

Data have not been field verified, therefore subject to change. New Mexico State Plane, Central Zone, North American Datum of 1983.

Facilities data managed and provided by FIMAD

Los Alamos National Laboratory — ECOLOGY GROUP — Environment, Safety and Health

Map produced by Marjorie Wright, ESH-20.
Map number:01-0123-07

7.0 REFERENCES

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Dahms and Geils 1997 Dahms, Cathy W. and Brian W. Geils, tech eds. 1997. An assessment of forest ecosystem health in the Southwest. General Technical Report RM-GTR-295. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado. 97pp.

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DOE 2000b U.S. Department of Energy, Environmental Assessment for the Wildfire Hazard Reduction and Forest Health Improvement Program at LANL, DOE-EA-1329, Los Alamos Area Office, Los Alamos, New Mexico, September 2000.

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LANL 1998b Los Alamos National Laboratory, Safe Operating Procedure, Explosives Decontamination, WMM-SOP-1.8.1-RO, June 1998.

LANL 2000 Los Alamos National Laboratory, DX-DO Standard Operating Procedure for Waste Management and Generator Waste Certification Program, DX-DO: SOP 01 Rev. B, February 2000.

Patton 1991 Patton, David R., The ponderosa pine forest as wildlife habitat, Pages 361-410 in Aregai Tecle and W. Wallace Covington, tech. eds. Multiresource management of southwestern ponderosa pine forests: the status of knowledge. U.S. Department of Agriculture, Forest Service, Southwestern Region. 410pp.

USFWS 1995 U.S. Fish and Wildlife Service, “Mexican spotted owl recovery plan,” Albuquerque, New Mexico. 1995.

UWIC 2000 Urban-Wildland Interface Code, International Fire Code Institute, Whittier, California. January 2000.

APPENDIX A: Wildfire Project Review Form

LANL Wildfire Project Review Form

In accordance with DOE-EA-1329, Wildfire Hazard Reduction and Forest Health Improvement Program (WHRFHIP), the following planning measures are for the "Los Alamos Canyon Urban Interface Wildfire Hazard Reduction Project".

1. Individual Project Planning

☐Routine Maintenance Project.
☒Forest Thinning Project.
☒ESH-ID Complete.
The ESH-ID# for this project is 00-0133 and was submitted for review on 4/24/00 and completed on 5/10/00.
Facility and Forest Fire Hazard Assessment was rated as *moderate.*
The cultural resource survey for this area was completed on September 12, 2000 and no effect on historical cultural resources was determined.
The Clean Water Act exempts the NPDES permitting of Silvicultural activities including fuel mitigation, thinning, and forest rehabilitation, and no NPDES permit will be required.
This project was developed in cooperation with the IWMT committee.
The Forest Fire Hazard Assessment for this project was rated at a moderate level.
End-state conditions for this project are consistent and comply with those identified in WHRFHIP EA page 16, third paragraph.

2. Treatment Measures

☒Forest Thinning.
☒Fuel Break Construction.
☐Fuel Break Maintenance.
☐Fire Road Construction.
☐Fire Road Improvements.

3. Environmental Protection Measures

☒Worker Protection and Health and Safety Measures Addressed in SOPs, HCPs, LIRs
☒Cultural Resource Survey Completed
☒Air Quality Reviewed
☒Water Quality Reviewed
Threatened and Endangered Species Issues:
This area is within the core zone of the Los Alamos Canyon AEI and forest treatment measures contained in the HMP apply. The US Fish and Wildlife Service concurred with DOE's determination of affects associated with this project on 12/1/00. Letter attached.

4. Removal of Generated Wood Materials.

☒Wood Material Cleared for Public Release.
☐Wood Material Suspect Contaminated. All wood material to remain on LANL.

5. End-State Conditions and Post-Treatment Assessment.

☐End-State Conditions Assessment Planned.
☐Forest Fuel Load Assessment Planned.
☒Ecological Field Studies Planned.
☐Watershed Assessment Planned.
☐Fire Behavior Modeling Planned.

Reviewed and approved by:

_____Date_____
Carey Bare,
Ecology Group, ESH-20
Natural Resource Management Team Leader.

Los Alamos Canyon Urban Interface Wildfire Hazard Reduction Project Plan.
(Identified as "A" on Table 1 and on map 2.)

Project Objective. The objective of this project is to create a 200 to 300 ft fuel break between the edge of the forest and the Health Research Laboratory Building (HRL)-Los Alamos Medical Center-DOE LAAO complex and the Fairway Street areas. See map 2 for exact location.

Thinning Prescription.
Because the project is located within a T&E AEI, the guidelines found within the Habitat Management Plan apply regarding tree removal. For health and safety reasons, any size tree growing within 100 ft (30 m) of a building may be removed to achieve a 25-ft spacing between crowns. Outside of the 100 ft area, trees 9 inches in diameter or less may be thinned to achieve a 25-ft spacing and any size tree may be limbed up to 6-ft.

Access, and Staging Areas.
Wood materials that are not salvaged will be chipped or piled on site. The project will be accessible to the contractor from the top of the canyon adjacent to the HRL and LAAO Buildings.

Environmental Issues.
Avoid disturbing the bottom of Los Alamos Canyon that contains a watercourse. NMED must approve necessary permits before watercourses may be disturbed. No tree felling may occur from March 1 through May 15 in order to complete T&E wildlife surveys.

ESH-ID Review
Based on the scope of work for this project, the following LANL ESH-ID Subject Matter Experts provided the following comments for this project:

ESH-17, Air Quality: "Tree thinning activities may generate some particulate emissions, however, tree thinning activities for wildfire protection are considered maintenance. Therefore, any emissions generated are exempt from permitting under Title 20 of the New Mexico Administrative Codes, Sections 2.72 and 2.70. Mechanical equipment including cranes, forklifts, backhoes, and chippers are also exempt (Section 202 A.3.) from permitting under NMAC 2.72."

ESH-18, Water Quality and Hydrology: "Do not place any wood debris in or near drainage swales or storm drains. All debris will need to be properly disposed of so that it does not contaminate storm water runoff. All disturbed areas will need to be re-vegetated and permanently stabilized after completion of the project." "The Clean Water Act exempts the NPDES Storm Water permitting of Silvicultural activities so a NPDES permit will not be required."

ESH-19, Hazardous and Solid Waste: "The project description shows that only wood debris will be generated which will be recycled or chipped onsite. Based on this waste stream and location, this waste does not have the potential to be hazardous."

ESH-20, Ecology: “For health and safety reasons, any tree within 30 m of buildings but outside a developed area, may be thinned to achieve a 7.6-m spacing between crowns.” No thinning may occur between March 1 to May 15 in order to conduct T&E surveys. “The proposed tree-thinning project will have no effect on historic cultural resources.” “The proposed work is within the scope of the FONSI for the Wildfire Risk Reduction and Forest Health Improvement EA(DOE/EA-1329). The NEPA review is complete.”

S-8, Emergency Management and Response: “EM&R fully supports this activity to reduce the fuel load. No additional requirements are applicable to the project.”

To: Patrick Valerio <valeriop@lanl.gov>
Subject: Re: LA Medical Center Project

The proposed work is within the scope of the FONSI for the Wildfire Risk Reduction And Forest Health Improvement EA (DOE/EA-1329). The NEPA Review is complete.

At 03:56 PM 12/5/2000 -0700, you wrote:
> Peggy, we received a letter from US Fish and Wildlife Service on 12/4/00 whereby they concurred with our actions. This was the last approval we were waiting for before our NEPA approval. Thanks

Peggy Powers
505-665-5717
505-667-0731 (fax)
peggy.powers@lanl.gov

ESH-20, MS M887
Los Alamos National Laboratory
Box 1663
Los Alamos, NM 87545

X-Sender: wbmasse@esh-mail.lanl.gov
X-Mailer: QUALCOMM Windows Eudora Pro Version 4.1
Date: Tue, 12 Sep 2000 14:16:47 -0600
To: valeriop@lanl.gov
From: "W. Bruce Masse" <wbmasse@lanl.gov>
Subject: ESH-ID 00-0133 (Los Alamos Medical Center-DOE Wildfire Fuel Reduction): ESH-20 Cultural Resources concluding review
Cc: bennettk@lanl.gov, manzk@lanl.gov, peggy.powers@lanl.gov, hth@lanl.gov, gonzales_g@lanl.gov, aparagon@lanl.gov, dckeller@lanl.gov

CULTURAL RESOURCES: The proposed tree-thinning project will have no effect on historic cultural resources. This review and determination concludes the requirements for cultural resources under the existing project scope of work.

W. Bruce Masse
Cultural Resources Team
ESH-20 Ecology Group
Mail Stop M887
Los Alamos National Laboratory
Los Alamos, NM 87545

Telephone: (505) 665-9149
Fax: (505) 665-4693
Email: wbmasse@lanl.gov

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New Mexico Ecological Services Field Office
2105 Osuna NE
Albuquerque, New Mexico 87113
Phone: (505) 346-2525 Fax: (505) 346-2542

Cons. #2-22-01-I-065

David A. Gurulé, P.E., Area Manager
Albuquerque Operations Office
Los Alamos Area Office
Los Alamos, New Mexico 87544

Dear Mr. Gurulé:

This letter acknowledges the U.S. Fish and Wildlife Service's (Service) receipt of your November 27, 2000, letter requesting concurrence under section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. § 1531 *et seq.*). This consultation concerns the effects of implementing two forest treatment projects on the Mexican spotted (*Strix occidentalis lucida*). It is our understanding that the project proposes to thin 60 acres near Los Alamos to reduce fuels, maintain visual quality, and protect nearby developed and historic areas from potential fires. Areas proposed to be thinned include: 1) 35 acres of ponderosa pine forest within the canyon bottom (Water Canyon/Cañon de Valle project); and 2) 25 acres of ponderosa pine forest within the canyon bottom and along the canyon sides (Los Alamos Canyon project). The proposed project would begin in December 2000 and be completed by February 28, 2001. You determined in the BA/letter that this project "may affect, but is not likely to adversely affect" the spotted owl.

The U.S. Fish and Wildlife Service (Service) strongly supports the U.S. Department of Energy in fire abatement projects, such as this, especially in areas of wildland-urban interface. Protecting human life and property should be the highest priority. In addition, threats of wide-scale habitat loss due to fire are real and immediate in some areas. Reducing fuels in these areas also may help to protect habitat for other threatened and endangered species.

The BA/letter states that the project is not expected to change stands meeting or those needed to maintain threshold conditions, because trees over 9 inches diameter basal height (dbh) will not be cut. The Water Canon and Cañon de Valle project is within historically occupied Mexican spotted owl habitat. The Los Alamos Canyon project is within potential Mexican spotted owl habitat that has not historically been occupied. The removal of trees will occur only during the nonbreeding season (September 1 - February 28). This type of project is consistent with the fire abatement recommendations in the recovery plan (USDI 1995) and will not appreciably alter the structure of spotted owl habitat. The breeding season restriction also will minimize any potential adverse affects on the owl.

The implementation of this project will: 1) be limited to those trees less than 9 inches dbh; 2) reduce the potential for catastrophic fire; 3) improve habitat conditions for spotted owl prey; 4) not affect stands meeting threshold conditions; and 5) follow the recommendations set forth in the recovery plan for the spotted owl (United States Department of Interior 1995). Therefore, we concur with your finding that the project "may affect, but is not likely to adversely affect" the critical habitat of the spotted owl.

Please contact the Service to verify the above determinations and concurrence is still valid if: 1) future surveys find threatened or endangered species in areas where they have not been previously observed; 2) the project is changed or new information reveals effects of the actions to the listed species or their habitat to an extent not considered in the BE; or 3) a new species is listed that may be affected by these projects.

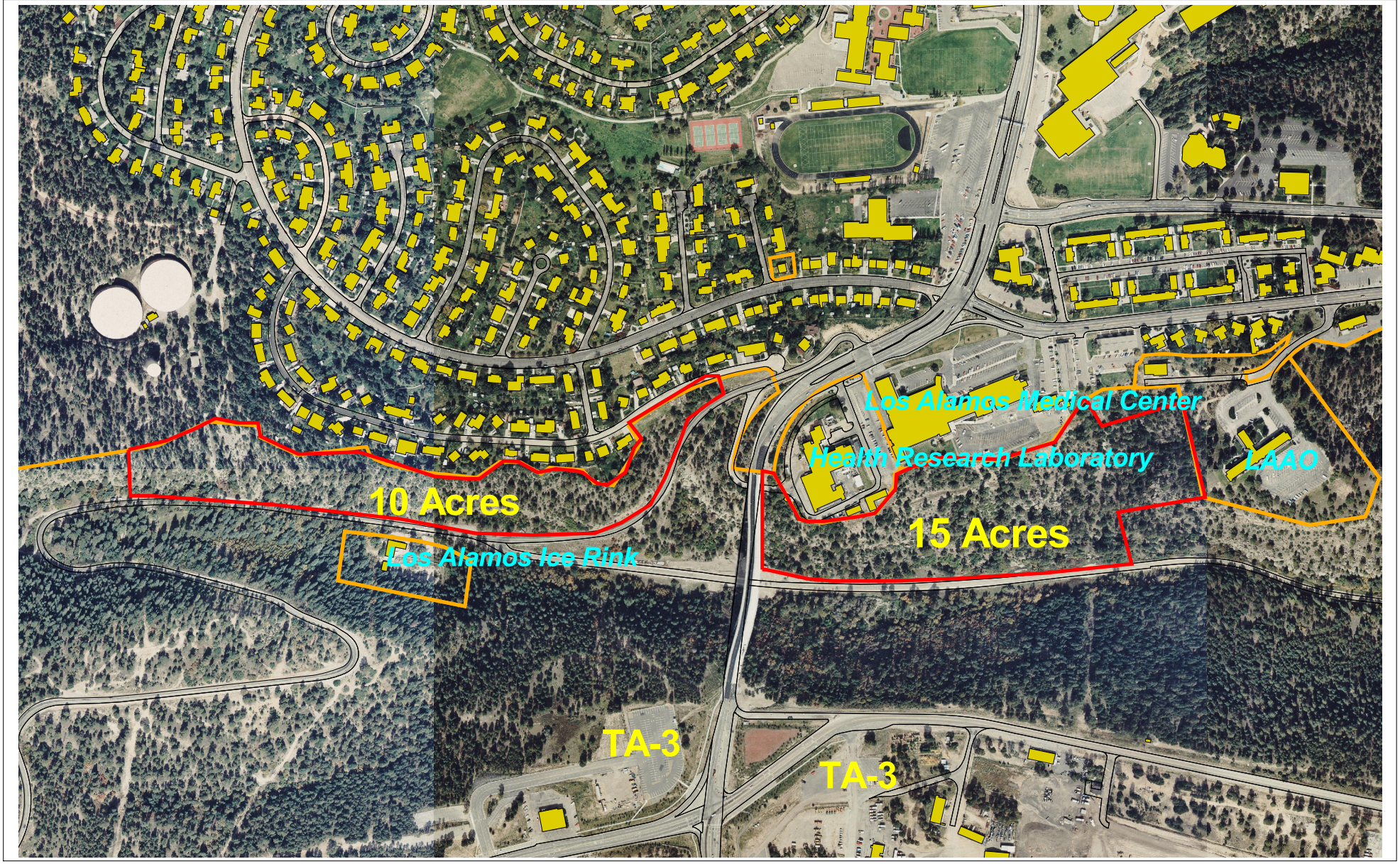
Thank you for your concern for endangered species and New Mexico's wildlife habitats. If we can be of further assistance, please contact Lyle Lewis of my staff at the letterhead address or at (505) 346-2525, extension 114.

Sincerely,

Joy E. Nicholopoulos

Joy E. Nicholopoulos
Field Supervisor

Los Alamos Canyon Site



0.04 0 0.04 0.08 0.12 Kilometers

0.02 0 0.02 0.04 0.06 Miles

N

Legend

- Thinning area
- Buildings/structures
- Roads
- LANL

Data have not been field verified, therefore subject to change. New Mexico State Plane, Central Zone, North American Datum of 1983.

Facilities data managed and provided by FIMAD

Map produced by Marjorie Wright, ESH-20
Map number: 01-0123-08

APPENDIX B: DOE FONSI for the Wildfire Hazard Reduction and Forest Health Improvement Program at LANL and the EA for the Wildfire Hazard Reduction and Forest Health Improvement Program at LANL

Department of Energy
Finding of No Significant Impact
for the
Wildfire Hazard Reduction and Forest Health Improvement Program
at
Los Alamos National Laboratory,
Los Alamos, New Mexico

U. S. Department of Energy
Los Alamos Area Office
528 35th Street
Los Alamos, NM 87544

DEPARTMENT OF ENERGY
FINDING OF NO SIGNIFICANT IMPACT

Wildfire Hazard Reduction and Forest Health Improvement Program

at Los Alamos National Laboratory,

Los Alamos, New Mexico

FINAL ENVIRONMENTAL ASSESSMENT: The Environmental Assessment (EA) for *Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory (DOE/EA-1329)* (attached) provides sufficient evidence and analysis to determine that a Finding Of No Significant Impact (FONSI) is appropriate for the Proposed Action (the No Burn Alternative). The EA documents the evidence and analysis in the following chapters: 1. Purpose and Need for Agency Action; 2. Description of the Proposed Action and Associated Alternatives; 3. Affected Environment; and 4. Environmental Consequences.

Analyses performed in the EA conclude that potential adverse effects of the Proposed Action, under normal conditions, would be minimal. No short-term or long-term adverse effects are expected to occur to air quality, visual resources, water quality, soil erosion, cultural resources, waste management, human health, socioeconomics, or utilities and infrastructure. Only biological resources would be affected long-term; beneficial effects to a variety of resources including biological are expected. Engineering and administrative controls or considerations that serve to lessen any potential for adverse environmental effects have been incorporated as integral features of the Proposed Action. Examples of this type of mitigating feature include: the careful planning that must go into each project before it is implemented, including a Facility and Forest Fire Hazard Assessment, Identification of Resource Issues, coordination with neighboring land management agencies and land owners, development of end-state conditions, formulation of treatment and environmental protection measures; the use of worker protection and health and safety measures tailored to each project; the use of hand tools to remove vegetation from cultural resource sites; the use of non-sparking equipment during periods of extreme fire danger; and the use of Best Management

Practices to prevent surface soil erosion and sediment migration controls where soil disturbances are unavoidable.

The Environmental Assessment (EA) has analyzed the potential environmental consequences of three additional alternatives besides the Proposed Action. These other alternatives are the: Limited Burn (waste only), Burn (both treatment and forest waste) and No Action. Presently DOE has a moratorium that will likely be in effect until the December 2000 time frame when the DOE plans to issue its new policy on the use of prescribed burning. This policy development effort will be coordinated with the U.S. Department of the Interior and the U.S. Department of Agriculture. Accordingly, DOE will not make a decision on the appropriateness of issuing a FONSI on either the Limited Burn Alternative or the Burn Alternative until after this policy has been issued.

The EA considered the cumulative effects of the Proposed Action with past, present and reasonably foreseeable future actions. The Wildfire Hazard Reduction and Forest Health Improvement Program would enhance the forest recovery efforts associated with the Cerro Grande Fire within LANL boundaries. Future foreseeable non-Department of Energy activities on land administered by neighboring land- owners and agencies are likely to be of a similar nature to the forest thinning proposed. The impacts from implementation of this management program and associated activities over about 10,000 acres (4,000 ha) would be a minor contribution to the overall cumulative adverse and positive impacts due to forest management practices and the implementation of other projects within the region of concern along the Pajarito Plateau in the East Jemez Mountains.

PREDECISIONAL DRAFT REVIEW & COMMENT: On July 6, 2000, the Department of Energy invited review and comment on the predecisional draft EA from the State of New Mexico; four nearby American Indian Tribes: Cochiti, Jemez, Santa Clara and San Ildefonso (sometimes referred to as the four accord pueblos because each tribe has entered into an accord with the Department of Energy); and the Mescalero Apache Tribe. In addition, the Department of Energy made the predecisional draft EA available to the general public at the same time it was provided to the State and Tribes. The availability of the EA to the public was accomplished by placing it in the Department of Energy Public Reading Rooms located within the Los Alamos National Laboratory's Community Outreach Center and Reading Room, and in the University of New Mexico's Zimmerman Library in Albuquerque. A notice was placed in three local newspapers announcing the availability of the draft EA for review, and the availability of the

document was also announced during a public meeting sponsored by DOE that was broadcast live by the KRSN AM radio station on July 7,2000. The predecisional draft EA was also placed on the World Wide Web Computer Internet System. Additionally, over 50 local stakeholder groups and individuals, which have identified themselves as interested parties with regards to LANL activities, were notified by letter of the availability of the predecisional draft on July 6, 2000. Copies of the EA were provided to all interested parties for their review upon their requests. The review and comment period was 22 days long and ended on July 28, 2000, although comments received after that time period had lapsed were considered. Six separate parties provided comments to the draft EA. Comments were received from: the Department of Agriculture, Forest Service, Santa Fe National Forest; Mr. Terrell Johnson; the Rio Grande Chapter of the Sierra Club; the State of New Mexico, Environment Department; the Department of the Interior, Fish and Wildlife Service, New Mexico Ecological Services Field Office and Mr. Raymond Tell, P.E. These sets of comments were addressed in the Final EA, individual responses to the comments were prepared by DOE, and these responses were sent to the respondents together with copies of the Final EA.

AGENCY CONSULTATIONS: No likely adverse effects to Federally-listed threatened and endangered species or their habitat are anticipated during the implementation of projects conducted under the Wildfire Hazard Reduction and Forest Health Management Program. DOE implemented a Threatened and Endangered Species Habitat Management Plan (HMP) for LANL in March 1999; all projects implemented under this Management Program will comply with the HMP or with additional restrictions developed through consultation with the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service has concurred on DOE's determination that the proposed action "may affect but is not likely to adversely affect" the Mexican spotted owl, the bald eagle, the whooping crane and the southwestern willow flycatcher or their critical habitat for the implementation of the HMP. The Service will be consulted on the Wildfire Hazard Reduction and Forest Health Improvement Program's management plan (which will be part of the Biological Resources Management Plan) before individual projects are performed. It is expected that all activities whether covered by the HMP or under the to-be-developed Biological Resources Management Plan would be designed to avoid an adverse affect to either species individuals or their critical habitat. Similarly, there are not likely to be adverse effects to historic, prehistoric or other cultural

resources as a result of implementation of this program. The State Historic Preservation Officer has recently entered into a Programmatic Agreement with DOE regarding undertakings of no effect to cultural resources. Projects implemented under the Wildfire Hazard Reduction and Forest Health Improvement Program would be expected to comply with the provisions of the Programmatic Agreement or any additional provisions developed through the to-be-developed LANL Cultural Resources Management Plan's consultation process. DOE's compliance requirements under the Endangered Species Act and the National Historic Preservation Act will be on-going for the Wildfire Hazard Reduction and Forest Health Improvement Program due to the long term nature of the program. The U.S. Department of Agriculture, Forest Service, Santa Fe National Forest and San Ildefonso Pueblo participated in the preparation of the subject EA as Cooperating Agencies (as defined in 40 CFR 1501.6). The Interagency Wildfire Management Team also provided information that was used in the preparation of this EA.

FINDING: The United States Department of Energy finds that there would be no significant impact from proceeding with its proposal to implement the Wildfire Hazard Reduction and Forest Health Improvement Program at Los Alamos National Laboratory as described in the Proposed Action. This finding is based on the EA that analyzes the consequences of the relevant issues of environmental concern. The Department of Energy makes this Finding of No Significant Impact pursuant to the National Environmental Policy Act of 1969 [42 U.S.C. 4321 et seq.], the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act [40 CFR 1500] and the Department of Energy National Environmental Policy Act Implementing Procedures [10 CFR 1021]. Therefore, no environmental impact statement is required for this proposal.

Signed in Los Alamos, New Mexico this 10th day of August, 2000, 2000.

David A. Gurulé

David A. Gurulé, P.E.
Area Manager
Los Alamos Area Office

FOR FURTHER INFORMATION: For further information on this proposal, this Finding Of No Significant Impact (FONSI), or the Department of Energy's National Environmental Policy Act (NEPA) review program concerning proposals at Los Alamos National Laboratory, please contact:

Elizabeth Withers, NEPA Compliance Officer

Los Alamos Area Office

U.S. Department of Energy

528 35th Street

Los Alamos NM 87544

(505) 667-8690

Copies of this FONSI (with the Environmental Assessment attached) will be made available for public review at the DOE Public Reading Room within the Los Alamos National Laboratory Community Relations Office, 1619 Central Avenue, Los Alamos, New Mexico, 87544 at (505) 665-4400 or (800) 508-4400. Copies will also be made available within the DOE Public Reading Room at the Zimmerman Library, University of New Mexico, Albuquerque, New Mexico, 87131 at (505) 277-5441.