

**Placer County Water Agency
Middle Fork American River Project
(FERC No. 2079)**

FINAL

**LAND 2 – FIRE PREVENTION AND RESPONSE
TECHNICAL STUDY REPORT – 2008**



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1.0 INTRODUCTION

This report describes the fire prevention and response study conducted by the Placer County Water Agency (PCWA) in accordance with the Land 2 – Fire Prevention and Response Technical Study Plan (LAND 2 – TSP) for the Middle Fork American River Project (MFP or Project). The LAND 2 – TSP was included in Supporting Document (SD) H of the Pre-Application Document (PAD) filed with the Federal Energy Regulatory Commission (FERC or Commission) on December 13, 2007 (PCWA 2007). Specifically, this report provides a detailed description of the methods and results of the fire prevention and response study completed in 2008 and 2009.

2.0 STUDY OBJECTIVES

The objectives of the fire prevention and response study described in the LAND 2 – TSP include the following:

- Characterize existing fire prevention and management plans and programs relevant to the MFP.
- Characterize fuel conditions in the immediate vicinity of the MFP, including condition of existing Project facilities and Project recreation facilities.
- Characterize PCWA's existing fire prevention measures associated with the MFP.
- Describe PCWA's existing fire response resources and procedures.

The objectives of the fire prevention and response study and the related study elements and reporting are summarized in Figure LAND 2-1.

3.0 STUDY IMPLEMENTATION

The fire prevention and response study was initiated in 2008 and completed in 2009. A summary of the study elements that have been completed, outstanding study elements, and any deviations or proposed modifications to the LAND 2 – TSP are discussed in the following subsections.

3.1. STUDY ELEMENTS COMPLETED

The following describes study elements have been completed.

Existing Fire Prevention and Management Plans

- Identified and described applicable federal, state, and local fire prevention and management regulations, plans, and programs; fuel treatment plans; and cooperative agreements in the Watershed relevant to fire prevention on lands within the existing and proposed FERC Project boundary

Fuel and Facility Conditions

- Identified and mapped through field surveys, fuel conditions at Project facilities, developed Project recreation facilities, stakeholder-identified dispersed concentrated use areas, and areas associated with potential Project betterments.
- Described the condition of each Project facility and developed Project recreation facility, including construction materials and clearance distances.
- In consultation with the U.S. Department of Agriculture, Forest Service (USDA-FS), identified and mapped existing defense zones (fuels treatment areas) around Project facilities (including Project roads and trails), developed Project recreation facilities, and areas associated with potential Project betterments.

PCWA's Existing and Proposed Fire Prevention Measures

- Described current vegetation management practices and fuel reduction measures implemented at Project facilities and developed Project recreation facilities.
- Identified existing fire hazard reduction measures at Project facilities and developed Project recreation facilities
- Determined if existing fire prevention measures conform to water quality protection practices (Best Management Practices (BMPs))
- Identified potential fire danger associated with developed Project recreation facilities and stakeholder-identified dispersed concentrated use areas.

PCWA's Fire Response Resources and Procedures

- Summarized PCWA's fire response resources and procedures.
- Described how outside agencies (for example, the USDA-FS, California Department of Forestry and Fire Protection (CAL FIRE), or Placer County Office of Emergency Services (OES)) inform PCWA of a fire in the vicinity of the MFP.
- Described how PCWA notifies outside agencies (for example, USDA-FS, CAL FIRE, or Placer County OES) of a non-Project fire in the vicinity of the MFP.
- Described how communications are carried out during a fire response, including the use of amateur emergency radio frequencies.
- Characterized and documented (to the extent possible) any fire-related incidents that have occurred at any Project facility or Project recreation facility that required a response by: (1) USDA-FS; (2) Placer County Sherriff's Department; (3) Placer County Search and Rescue; (4) CAL FIRE; or (5) a local fire department.

3.2. VARIANCES FROM THE LAND 2 – TSP

There were no variances from the LAND 2 – TSP.

3.3. OUTSTANDING STUDY ELEMENTS

There are no outstanding study elements from the LAND 2 – TSP.

3.4. PROPOSED MODIFICATIONS TO THE LAND 2 – TSP

There are no proposed modifications to the LAND 2 – TSP.

4.0 EXTENT OF STUDY AREA

The study area included areas immediately surrounding the Project facilities identified in Table LAND 2-1, developed Project recreation facilities identified in Table LAND 2-2, and the potential Project betterments identified in Table LAND 2-3. In addition, the study area included the stakeholder-identified dispersed concentrated use areas identified in Table LAND 2-4.

5.0 STUDY APPROACH

This section describes the approach used to identify and describe existing fire prevention and management plans; identify and map existing fuel and facility conditions and defense zones; identify and describe PCWA's existing and proposed fire prevention measures; and, summarize PCWA's fire response resources and procedures. Entities and individuals that provided information regarding the various study elements are provided in Table LAND 2-5.

5.1. IDENTIFY AND DESCRIBE EXISTING FIRE PREVENTION AND MANAGEMENT PLANS

Current federal, state, and local fire prevention and management regulations, plans, programs; fuel treatment programs; and cooperative agreements in the vicinity of the MFP were compiled, reviewed, and summarized. As part of this effort, fire prevention regulations, plans, programs, and agreements relevant to fire prevention on lands within the existing and proposed FERC Project boundary were identified.

5.2. IDENTIFY AND MAP FUEL AND FACILITY CONDITIONS AND DEFENSE ZONES

5.2.1. Fuel Conditions

Field surveys were conducted in 2008 to identify and map fuel conditions at Project facilities, developed Project recreation facilities, dispersed concentrated use areas, and areas associated with potential Project betterments. The survey methods (described below) were developed in consultation with the LAND Technical Working Group (TWG), including Dominic Panno (Tahoe National Forest (TNF), American River Ranger District Fuels Officer), and Brain Ebert (Eldorado National Forest (ENF), Georgetown Ranger District Fuels Officer).

A 100-foot survey buffer was selected around each facility and area of interest because it corresponds with the CAL FIRE standard for fire protection in the wildland environment. The fuel condition assessment consisted of identifying: (1) surface fuel

conditions; and (2) ladder and aerial fuel conditions at each survey location. Based on the surface and ladder and aerial fuel condition information, each location was then assigned a Fuel Model Identification Number (FMID) to characterize expected fire behavior based on site-specific fuel conditions.

Surface fuel conditions were identified and characterized using Scott-Burgan standard surface fuel behavior models (descriptions) (Scott and Burgan 2005). These fuel models (descriptions) characterize probable fire behavior at a location under typical weather conditions rather than actual vegetation (fuel load) present at a location. Both ocular estimates and photo series comparisons were used to identify appropriate surface fuel models at each survey location. Appendix A provides a list and description of the Scott-Burgan surface fuel models identified in the survey area.

Ladder and aerial fuel conditions at each location were characterized based on probable crown fire behavior. The characterization included: (1) a general description of probable crown fire activity at each location; and (2) quantification of four parameters used in current fire behavior models to predict potential crown fire behavior. These parameters include the average canopy cover, estimated average total height of the stand, estimated average height to live crown within the stand, and estimated crown bulk density within the aerial fuels. The parameters were estimated in the field not as the actual distances and percentages present in all cases, but rather to best represent probable fire behavior in these areas based on site-specific conditions. Appendix B provides a list and descriptions of the ladder and aerial fuel condition combinations identified in the survey area.

For each area surveyed, a FMID was determined and mapped based on the combination of surface fuel condition and aerial and ladder fuel conditions present. Each FMID represents a different expected fire behavior scenario.

5.2.2. Facility Condition

A survey of Project facilities and developed Project recreation facilities was conducted in 2008 to identify associated construction materials with respect to fire risk and protection. Materials were described for exterior walls, rooftops, and eaves for most buildings. General material type was described for other Project features.

Clearance distances around Project facilities and Project recreation facilities were described based on field surveys. "Clearance" was defined as the probable closest distance a free burning, fuel driven surface fire would come to a facility under typical fire weather conditions. Clearance determinations incorporated considerations of past mechanical and chemical fuel treatments and current surface fuel conditions in the vicinity of each facility as they apply to fire risk. Clearance distances were not considered applicable for facilities not at risk of fire damage (i.e., earth filled dam or concrete structure).

5.2.3. Mapping of Defense Zones

The USDA-FS was consulted to obtain the relevant Geographic Information System (GIS) layers that identify existing Wildland Urban Intermix (WUI) defense and threat zones (fuels treatment areas) in the vicinity of the MFP. The defense and threat zone layers were then overlaid with GIS layers of MFP facilities, Project recreation facilities and areas associated with potential Project betterments. A description of WUI defense and threat zones is provided in Appendix C.

5.3. IDENTIFY AND DESCRIBE EXISTING AND PROPOSED FIRE PREVENTION MEASURES

5.3.1. Vegetation Management Practices and Fuel and Hazard Reduction Measures at Project Facilities and Developed Project Recreation Facilities

PCWA's existing fire prevention measures for Project facilities and developed Project recreation facilities were summarized, including routine vegetation management practices and fuel reduction and hazard reduction measures. In addition, the USDA-FS), Pacific Southwest Region, Water Quality Management for National Forest Systems in California - Best Management Practices (USDA-FS 2000) was reviewed and compared to PCWA's current fire prevention measures for consistency.

5.3.2. Identify Potential Fire Danger Associated with Developed Project Recreation Facilities and Dispersed Concentrated Use Areas

Potential fire danger associated with developed Project recreation facilities and dispersed concentrated use areas was described using fire hazard and fire risk ratings, determined by the USDA-FS, for lands adjacent to recreation areas. Hazard and fire risk ratings were mapped using GIS data obtained from the ENF and TNF. The hazard and fire risk layers were then overlaid with GIS layers of developed Project recreation facilities and dispersed concentrated use areas.

5.4. SUMMARIZE PCWA'S FIRE RESPONSE RESOURCES AND PROCEDURES

PCWA's existing fire response resources and procedures were reviewed and summarized including:

- Process and schedule for updating the Fire Plan(s);
- Response and communication procedures in the event of a catastrophic fire in the Watershed;
- Procedures for responding and notifying agencies of fires at Project facilities, including the USDA-FS and CAL FIRE;
- Dedicated radio frequencies that could potentially be used by the County and fire response personnel for emergency communications;
- Designated shared radio frequencies that are or can be used during emergency situations;

- Availability and location of fire suppression equipment and personnel;
- How outside agencies (for example, the USDA-FS, CAL FIRE, or Placer County OES) inform PCWA of a fire in the vicinity of the MFP;
- How PCWA notifies outside agencies (for example, USDA-FS, CAL FIRE, or Placer County OES) of a non-Project fire in the vicinity of the MFP; and
- How communications are carried out during a fire response, including the use of amateur emergency radio frequencies.

Fire-incident response records from federal, state, and local agencies were obtained and reviewed to document incidents that occurred at any Project facility or Project recreation facility. Specifically, fire incident records from 2006 and 2007 were obtained from the USDA-FS, CAL FIRE, El Dorado County Sheriff's Department, Placer County Sheriff's Department, California State Parks, and the local fire departments, including Auburn City Fire Department, and Foresthill Fire Department. These records were reviewed to identify any fire-related responses to Project facilities or Project recreation facilities. This fire-related response information along with other emergency response information is reported in the LAND 3 – Emergency Action and Public Safety Technical Study Report (PCWA 2009).

6.0 STUDY RESULTS

6.1. IDENTIFY AND DESCRIBE EXISTING FIRE PREVENTION AND MANAGEMENT PLANS

The objective of this section is to identify and describe applicable federal, state, and local fire prevention and management regulations, plans, and programs; fuel treatment plans; and cooperative agreements in the Middle Fork American River Watershed (Watershed) relevant to fire prevention on lands within the existing and proposed FERC Project boundary. Fire prevention measures and plans on lands within the existing FERC Project boundary are under the jurisdiction of the FERC. State and local laws are relevant in that they may provide guidance for development or implementation of fire prevention measures within the FERC Project boundary.

Typically, the FERC requires a Licensee to develop a Fire Plan in consultation with the USDA-FS and local and state fire agencies. The Fire Plan, which often requires approval by the USDA-FS, includes details regarding the Licensee's responsibilities for: implementing fire prevention measures (i.e., vegetation management) within the FERC Project boundary; addressing fire danger and public safety associated with Project-induced recreation; providing a list of the location of available fire suppression equipment and availability of fire suppression personnel; and reporting requirements for any Project-related fires.

Existing fire prevention and management regulations, plans, and programs; fuel treatment plans; and cooperative agreements in the Watershed that provide guidance for the development and implementation of a FERC-required Fire Plan are summarized in the following section. First, applicable federal, state, and local fire regulations and

fuels treatment plans are summarized. Then, federal, state, and local fire prevention and management plans are summarized.

6.1.1. Applicable Federal, State, and Local Fire Regulations and Fuels Treatment Plans

Federal, state and local regulations and policies related to fire protection, prevention, and suppression in the vicinity of the MFP include the Public Resource Codes of the State of California (PRC 4291-4293, 4421-4423, 4425, 4427-4428, 4430-4431, 4433, 4442, 4442.5, 4443 and 4446), Health and Safety Code of the State of California (12101, 13000, 13001, and 13005), and the U.S. Forest Service Manual (5130) (USDA-FS 2004b). Together, these regulations and policies regulate activities that may cause fires, and specify clearance distances around buildings and other types of structures (i.e., electrical transmission and distribution lines).

The USDA-FS and CAL FIRE also recommend a defensible space perimeter around structures in the forest and within the WUI zones. The PRC section 4291 requires a 100-foot defensible space/firebreak around structures. CAL FIRE's recommendation for defensible space complies with the PRC 4291, specifying a 100-foot fuel reduction zone around structures. The USDA-FS provides guidance on defensible space (varying from 30 to 200 feet depending on fire risk) for homeowners and commercial entities on their Firewise Internet-based information website, which can be found at <http://www.firewise.org/>.

The Healthy Forests Restoration Act ((HFRA) H.R. 1904) is the legislative component of the Healthy Forests Initiative that was signed into law in December of 2003 to reduce the threat of wildfire. The HFRA contains a variety of provisions to accelerate the implementation of hazardous-fuel reduction and forest restoration projects on specific types of USDA-FS and Bureau of Land Management (BLM) land that are at risk of wildland fire, such as a streamlined Environmental Assessment process. Specifically, the law addresses thinning overstocked forest stands, clearing vegetation to create fuel breaks, clearing diseased vegetation, and providing funding and guidance to reduce or eliminate hazardous fuels. The HFRA contains incentives for the development of Community Wildfire Protection Plans (CWPPs) for communities located in the WUI zone, which identify and prioritize areas of hazardous fuels and recommend measures to reduce those fuel hazards near communities (HFRA section 101[3]). The HFRA requires collaboration between Federal agencies and local communities, particularly in the development of the CWPPs. Community Wildfire Protection Plans with coverage areas that include the MFP have been prepared and are consistent with the federal CWPP requirements. Information on the HFRA is available at <http://www.forestsandrangelands.gov/>.

6.1.2. Federal, State, and Local Fire Prevention and Management Plans

The following federal, state, and local plans and programs were reviewed regarding fire prevention and management in the vicinity of the MFP:

- National Fire Plan;

- Tahoe National Forest Fire Management Plan;
- Eldorado National Forest Land and Resource Management Plan;
- Sierra Nevada Forest Plan;
- California Fire Plan;
- Community Wildfire Protection Plans (CWPP);
- Nevada-Yuba-Placer Fire Plan;
- CWPP for the West Slope of the Sierra Nevada in Placer County;
- Placer County Local Multi-hazard Mitigation Plan;
- Fire Management Plan for Auburn State Recreation Area;
- Foresthill Divide and Iowa Hill Divide Emergency Plan;
- Placer County Fire Safe Alliance; and
- Foresthill/Iowa Hill Fire Safe Council.

An overview of each plan, including coordination, goals and objectives, and key components is provided in Table LAND 2-6.

6.2. IDENTIFY AND MAP FUEL AND FACILITY CONDITIONS AND DEFENSE ZONES

6.2.1. Fuel Conditions

Ten distinct Scott-Burgan surface fuel models (descriptions) were observed in the surveyed areas, including lands associated with Project facilities, developed Project recreation facilities, dispersed concentrated use areas, and potential Project betterments (Tables LAND 2-7 through Land 2-10). The surface fuel models characterize surface fuel conditions at a specific location in relation to probable fire behavior.

Eight distinct ladder and aerial fuel condition categories were identified in the surveyed areas (Tables LAND 2-7 through Land 2-10). Appendix B includes a description of the eight observed ladder and aerial fuel condition categories and the associated parameters used to characterizes potential crown fire behavior

Thirteen overall fuel condition categories (combined surface model and ladder and aerial combinations) were identified in the survey area. Each category was assigned a unique FMID. Appendix D includes a list of the FMIDs and corresponding criteria for surface, ladder, and aerial fuel conditions. FMIDs identified in the survey area are depicted in Map LAND 2-1 (Project facilities, Project recreation facilities, and dispersed concentrated use areas) and Map LAND 2-2 (potential Project betterments) and are listed in Table LAND 2-7 (Project facilities), Table LAND 2-8 (Project recreation facilities), Table LAND 2-9 (potential Project betterments), and Table LAND 2-10 (dispersed concentrated use areas).

6.2.2. Facility Condition

The construction materials and associated clearance distances of Project facilities and features are presented in Table LAND 2-11. Similar information for developed Project recreation facilities is included in Table LAND 2-12.

6.2.3. Mapping of Existing Defense Zones

The location of existing defense and threat zones near Project facilities, Project related recreation facilities and potential Project betterments is depicted on Map LAND 2-3. A threat zone has been designated in the vicinity near Ralston Afterbay (Map Land 2-3, sheet 1 of 2). A defense zone has been designated in the area around the Operators Cottages and Shop and at Hell Hole Dormitory near Hell Hole Reservoir (Map Land 2-3, sheet 2 of 2).

6.3. DESCRIBE EXISTING AND PROPOSED FIRE PREVENTION MEASURES

6.3.1. Vegetation Management Practices and Fuel and Hazard Reduction Measures at Project Facilities and Developed Project Recreation Facilities

Vegetation management, which includes vegetation trimming by hand and to a lesser extent, the use of herbicides is implemented by PCWA at Project facilities and features, roads, and trails. Vegetation management at Project developed recreation facilities is completed by USDA-FS under a collection agreement (No. 03-CO-11051754-014 and No. 03-CO-1105035312). Table LAND 2-13 includes the frequency of Project-related vegetation management activities at Project facilities and features, and Project roads and trails. Table LAND 2-14 includes the frequency of vegetation management activities at Project recreation facilities. Most vegetation management activities occur during the spring and early summer to avoid work during high fire danger periods. Vegetation management is implemented only within the area necessary to reduce fire hazard, protect Project facilities, and provide for worker/public health and safety. At some Project facilities, vegetation management activities are limited by the steep and rugged topography. Typical management areas around various Project facility types and features are summarized in the table below.

Vegetation Management Area	Existing Project Facilities, Features, or Recreation Facilities
2 feet	<ul style="list-style-type: none"> ▪ on either side of trails
5 feet	<ul style="list-style-type: none"> ▪ around the perimeter of the dams ▪ outside the perimeter fence of powerhouses, switchyards, and substations ▪ around ancillary support facilities and Project fences
10 feet	<ul style="list-style-type: none"> ▪ on either side of penstocks, valve houses, and removable sections ▪ on either side of communication lines, powerlines, photovoltaic poles and lines, and roads and access points
50 feet	<ul style="list-style-type: none"> ▪ around intakes, gatehouses, surge tanks, adits, portals, microwave reflectors, radio towers, sediment disposal areas, drop inlets, recreation facilities and features, and snow courses

A description of each of the Project-related vegetation management activities implemented for the MFP is provided below.

Trimming by Hand

Manual vegetation management activities include trimming of grasses and forbs using string trimmers, and the removal or trimming of overhanging limbs of shrubs and trees using a chain saw (or other handheld saw) or clippers. These management activities are implemented on an as-needed basis in conjunction with facility inspections.

Herbicide and Fungicide Use

Herbicides are used in addition to manual vegetation management activities on an annual basis at Project facilities including: within the perimeter fences of the Middle Fork Powerhouse and Upper and Lower Switchyards, the Oxbow Powerhouse and Switchyard, and Ralston Powerhouse and Switchyard. Herbicide use is restricted to the graveled parking areas within the perimeter fences of the powerhouses. Small hand-held sprayers are used to apply over-the-counter herbicides (e.g., Roundup®). All herbicides are applied in accordance with label instructions. Fungicides are used in addition to manual vegetation management activities at Project recreation facilities and features.

6.3.2. Fire Hazard Reduction Measures

PCWA clears vegetation, as described in the previous section, to reduce fire hazards at Project facilities and developed Project recreation facilities. PCWA also trims vegetation by hand along many access roads in the Project area. Vegetation maintenance on Project roads, access points, and trails is identified in Table LAND 2-13.

6.3.3. Fire Prevention Best Management Practices

The USDA-FS, Pacific Southwest Region, Water Quality Management Plan for Forest Systems in California (USDA-FS 2000) specifies BMPs for National Forest System lands. These BMPs have been certified by the State Water Resources Quality Control Board (SWRQCB) and approved by the U.S. Environmental Protection Agency (EPA). One component of the plan specifies six BMPs to control nonpoint source pollution associated with fire suppression and fuels management activities. The BMPs describe methods and techniques to incorporate water quality control measures into fire suppression and fuels programs. The BMPs also include techniques for rehabilitating damage that may be caused during fire suppression activities. The six BMPs are: (1) Fire and Fuel Management Activities; (2) Consideration of Water Quality in Formulating Fire Prescriptions; (3) Protection of Water Quality from Prescribed Burning Effects; (4) Minimizing Watershed Damage from Fire Suppression Efforts; (5) Repair or Stabilization of Fire Suppression Related Watershed Damage; and (6) Emergency Rehabilitation of Watershed Following Wildfires.

PCWA's existing fire prevention and protection measures are limited to vegetation management activities around Project facilities and Project recreation facilities. The goal of these activities is to reduce potential public and private property losses and minimize environmental impacts from fires by reducing dense vegetative cover around Project facilities and Project recreation facilities. This goal is consistent with the first BMP, Fire and Fuel Management Activities. The five other water quality protection measures (BMPs) are related to formulating fire prescriptions, conducting prescribed burns, assisting in fire suppression efforts, or rehabilitating watersheds following a wildfire. Since PCWA does not participate in these activities, these BMPs are not applicable to PCWA.

6.3.4. Potential Fire Danger Associated with Project Recreation Facilities and Dispersed Concentrated Use Areas

Requests for GIS layers depicting fire danger (fire hazard ratings and fire risk ratings) in the vicinity of the MFP were submitted to the ENF and TNF. To date, only data from the ENF are available. Map LAND 2-4 includes the fire hazard and risk ratings for lands in the vicinity of the MFP within the ENF. Fire hazard and risk ratings at each Project recreation facilities and dispersed concentrated use areas within the ENF are provided in Table LAND 2-15.

6.4. REVIEW OF PCWA'S FIRE RESPONSE RESOURCES AND PROCEDURES

6.4.1. Fire Plan

The MFP currently does not have a Fire Plan which addresses routine operations and maintenance of the Project. PCWA developed a Fire Plan (PCWA 1962) during the period of time when the Project was under construction in the early 1960's. This Fire Plan only pertained to activities associated with the original construction of the Project. Since construction of the Project was completed, PCWA has only been required to

develop and implement project-specific fire plans for non-routine Project activities that require a Special Use Permit (SUP) from the USDA-FS. A Fire Plan does not currently exist which addresses routine operations and maintenance of the Project.

These project-specific fire plans outline the responsibilities and measures for fire prevention, detection, reporting, and suppression during planned field activities for the duration of each declared fire season or when ground litter and vegetation will sustain combustion potentially causing the spread of fire. Each plan also includes initial attack and reporting procedures that must be followed in the event of a fire within or adjacent to the project area or resulting from project activities on USDA-FS lands. Each plan also specifies guidelines under which construction activities will be curtailed or shut down, which are based on Project Activity Levels (PAL) established daily by the USDA-FS. The PALs are developed based on current fire suppression activities, weather, and condition of the vegetation. PCWA's contractor must contact the USDA-FS each day to determine if any restrictions on work and fire precautions are required. The terms and conditions of any permits required are also included in the fire plan. The USDA-FS template used for the preparation of a project-specific fire plans is provided in Appendix E.

For all Project activities, including routine operation and maintenance activities, PCWA complies with TNF's and ENF's fire restrictions that may be imposed when fire danger is high. These restrictions typically prohibit activities that could result in a wildfire, such as limiting fire and stove use in areas other than designated fire rings and stoves at specified locations; smoking except in specified areas; operations of internal combustion engines; and, use of explosives or welding equipment.

6.4.2. Response and Communication Procedures

PCWA reports all Project and non-Project related fires requiring an emergency response to '911'. If a phone call to '911' is not possible, PCWA personnel radio PCWA's Power Systems Office in Foresthill, California. PCWA's Foresthill office personnel then call '911'. At construction sites that have a project-specific fire plan, PCWA must also report all fires to the Forest Service Dispatcher at the Grass Valley Emergency Command Center, regardless of the need for assistance or the cause. Information on any fire incident in the vicinity of the MFP is dispatched to PCWA personnel and any of their contractors working in the area.

Fire suppression responsibilities in the vicinity of the MFP are shared among CAL FIRE; TNF; ENF; Placer County; and local fire protection districts and departments, including the Foresthill Fire Protection District and Placer Consolidated Fire Protection District. A '911' call from a land line is received by the Placer County Sheriff's Department. A call from a cell phone is first answered by the California Highway Patrol (CHP) and then is transferred to the Placer County Sheriff's Department. In the event of a fire related incident, the Placer County Sheriff's Department notifies the appropriate agencies (e.g., CAL FIRE or the USDA-FS), as necessary.

In circumstances when a fire in the vicinity of the MFP is directly reported to emergency responder, PCWA's Power Systems Office in Foresthill is notified by emergency responders (for example USDA-FS, CAL FIRE, or Placer County OES) depending on jurisdiction). PCWA then provides this fire information to its personnel working in the vicinity of the MFP.

PCWA cooperates with federal and state agencies and local fire fighting departments when a fire occurs in the vicinity of the MFP. If requested, PCWA provides the responding agencies with the location of, and emergency procedures for, PCWA staff and contractors in vicinity of the fire (incident area). PCWA also provides information to emergency responders regarding water available at Project facilities, including Project reservoirs and diversion pools.

Communications during fire incidents are provided and coordinated by the responding agencies and fire departments. PCWA does not establish, or participate in, communications between these agencies on dedicated emergency channels during fire incidents. PCWA has one dedicated radio frequency that is shared with Pacific Gas and Electric (PG&E) for coordinating operation and maintenance of the MFP. It is not used for communications by or with emergency response teams during wildfires.

PCWA is not a designed emergency response agency and, therefore, does not have dedicated fire suppression equipment or personnel trained to respond to fire incidents in the vicinity of the MFP. PCWA's fire suppression equipment is limited to fire extinguishers that are kept in all PCWA-owned vehicles and Project powerhouses.

Fire-related incidents at or near Project facility or Project recreation facility in 2006 and 2007 that required response by: (1) USDA-FS; (2) the Placer County Sheriff's Department; (3) Placer County Search and Rescue; (4) CAL FIRE; or (5) a local fire department were compiled and summarized. This information along with other emergency response information is reported in the LAND 3- Emergency Action and Public Safety Technical Study Report (PCWA 2009).

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TABLES

Table LAND 2-1. Existing Project Facilities and Features.**Dams, Reservoirs, and Diversion Pools**

Large Dams
French Meadows Dam and Outlet Works
Hell Hole Dam and Outlet Works
Medium Dams
Middle Fork Interbay Dam
Ralston Afterbay Dam
Small Dams
Duncan Creek Diversion Dam
North Fork Long Canyon Diversion Dam
South Fork Long Canyon Diversion Dam
Large Reservoirs
French Meadows Reservoir
Hell Hole Reservoir
Medium Reservoirs
Middle Fork Interbay
Ralston Afterbay
Small Diversion Pools
Duncan Creek Diversion Pool
North Fork Long Canyon Diversion Pool
South Fork Long Canyon Diversion Pool

Water Conveyance Systems

Tunnels
Duncan Creek – Middle Fork Tunnel
French Meadows – Hell Hole Tunnel
Hell Hole – Middle Fork Tunnel
Middle Fork – Ralston Tunnel
Ralston – Oxbow Tunnel
Diversion Pipes and Drop Inlets
North Fork Long Canyon Diversion Pipe and Drop Inlet
South Fork Long Canyon Diversion Pipe and Drop Inlet
Surge Shafts and Adits
Brushy Canyon Adit
Hell Hole – Middle Fork Tunnel Surge Shaft and Tank
Middle Fork – Ralston Tunnel Surge Shaft and Tank
Removable Sections and Portals
Duncan Creek – Middle Fork Tunnel Portal
French Meadows – Hell Hole Tunnel Removable Section
Hell Hole – Middle Fork Tunnel Removable Section
Middle Fork – Ralston Tunnel Removable Section
North Fork Long Canyon Crossing Removable Section
Intakes and Gatehouses
Duncan Creek – Middle Fork Tunnel Intake
French Meadows – Hell Hole Tunnel Gatehouse
French Meadows – Hell Hole Tunnel Intake
Hell Hole – Middle Fork Tunnel Gatehouse
Hell Hole – Middle Fork Tunnel Intake
Middle Fork – Ralston Tunnel Intake and Gatehouse
Ralston – Oxbow Tunnel Intake

Table LAND 2-1. Existing Project Facilities and Features (continued).

Water Conveyance Systems (continued)
Penstocks and Valve Houses
French Meadows Powerhouse Penstock and Butterfly Valve House
Middle Fork Powerhouse Penstock and Butterfly Valve House
Ralston Powerhouse Penstock and Butterfly Valve House
Powerhouses, Switchyards, and Substations
French Meadows Powerhouse and Switchyard
Hell Hole Powerhouse
Middle Fork Powerhouse and Upper and Lower Switchyards
Ralston Powerhouse and Switchyard
Oxbow Powerhouse and Switchyard
Hell Hole Substation
Gaging Stations and Weirs
Stream Gages and Weirs
Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700)
Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750)
Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500)
Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770)
Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760)
Middle Fork American River Gage below Oxbow Powerhouse (USGS Gage No. 11433300)
North Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433085)
South Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433065)
Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800)
Diversion Gages
North Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433080)
South Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433060)
Reservoir Gages
French Meadows Reservoir Gage (USGS Gage No. 11427400)
French Meadows Reservoir Staff Gage
Hell Hole Reservoir Gage (USGS Gage No. 11428700)
Hell Hole Reservoir Staff Gage
Middle Fork Interbay Reservoir Gage
Ralston Afterbay Reservoir Gage
Powerhouse Gages
French Meadows Powerhouse Gage (USGS Gage No. 11427200)
Middle Fork Powerhouse Gage (USGS Gage No. 11428600)
Oxbow Powerhouse Gage (USGS Gage No. 11433212)
Ralston Powerhouse Gage (USGS Gage No. 11427765)
Leakage Weirs
French Meadows Dam Leakage Weirs Nos. 1–6
Hell Hole Dam Leakage Weir
Project Communication Lines and Powerlines
French Meadows Area
French Meadows Dam Generator Building to French Meadows Dam Outlet Works Powerline
French Meadows Dam Generator Building to French Meadows Dam Spillway Gates Powerline

Table LAND 2-1. Existing Project Facilities and Features (continued).

Project Communication Lines and Powerlines (continued)
Hell Hole Area
French Meadows Powerhouse to French Meadows Powerhouse Penstock and Butterfly Valve House Communication Line/Powerline
French Meadows Powerhouse and Switchyard to Hell Hole – Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator’s Cottages, and Hell Hole Powerhouse Communication Line/Powerline
Dormitory and Cottages Water Supply Tank Powerline
Hell Hole Powerhouse to Rubicon River Gage and Weir below Hell Hole Dam Communication Line/Powerline
Middle Fork Interbay Area
Middle Fork Powerhouse to Middle Fork Powerhouse Butterfly Valve House Communication Line/Powerline
Middle Fork Powerhouse Butterfly Valve House to Radio Repeater near Hell Hole – Middle Fork Tunnel Surge Tank (underground) Communication Line/Powerline
Middle Fork Powerhouse to Middle Fork – Ralston Tunnel Intake and Gatehouse Communication Line/Powerline
Middle Fork Powerhouse to Middle Fork American River Gage above Middle Fork Powerhouse Communication Line/Powerline
Ralston – Oxbow Area
Ralston – Oxbow Tunnel Intake to Ralston Powerhouse Communication Line
Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline
Ralston Afterbay Dam Generator Building to Ralston – Oxbow Tunnel Intake Communication Line/Powerline
Oxbow Powerhouse to Ralston Afterbay Dam Generator Building Communication Line/Powerline
Photovoltaic Poles and Powerlines
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam
Photovoltaic Pole and Powerline at Duncan Creek Gage below Diversion Dam
Photovoltaic Pole and Powerline at Middle Fork American River Gage below French Meadows Dam
Photovoltaic Pole and Powerline at Middle Fork American River Gage above Middle Fork Powerhouse
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage at Diversion Dam
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage at Diversion Dam
Photovoltaic Pole at Middle Fork American River Gage below Oxbow Powerhouse
Microwave Reflectors and Radio Towers
Passive Microwave Reflector Station above Middle Fork Interbay
Radio Communications Tower near French Meadows – Hell Hole Tunnel Gatehouse
Radio Communications Tower and Repeater near Hell Hole – Middle Fork Tunnel Surge Shaft and Tank
Passive Microwave Reflector Station above Ralston Afterbay
Disposal Sites
Duncan Diversion Dam Sediment Disposal Area
North Fork Long Canyon Crossing Sediment Disposal Area
Middle Fork Interbay Sediment Disposal Area
Ralston Ridge Sediment Disposal Area
Indian Bar Sediment Disposal Area
Ancillary Facilities
French Meadows Dam Generator Building
French Meadows Dam Staging Area
Dormitory Facility
Dormitory and Cottages Water Supply Tank

Table LAND 2-1. Existing Project Facilities and Features (continued).

Ancillary Facilities (continued)
Hell Hole Staging Areas
Operator Cottages and Shop
Ralston Afterbay Dam Generator Building
Storage Building at Middle Fork – Ralston Tunnel Surge Shaft and Tank
Wabena Meadows Snow Course
Miranda Cabin Snow Course
Diamond Crossing Snow Course
Talbot Camp Snow Course
Project Fences
Slope Fences
French Meadows Powerhouse Penstock Rock Fence
French Meadows Powerhouse Slope Fence
Long Canyon Crossing Slope Fence
Middle Fork Powerhouse Upper Switchyard Slope Fence
Middle Fork Interbay Dam Slope Fence
Oxbow Powerhouse Slope Fence
Ralston Powerhouse Penstock and Butterfly Valve House Slope Fences
Ralston Powerhouse Slope Fence
Public Safety Fences
Dormitory Facility Barrier Fence
Hell Hole Dam General Parking Area Barrier Fence
North Fork Long Canyon Crossing Removable Section Barrier Fence
Project Roads and Access Points
Duncan Creek Area
Duncan Creek Diversion Intake Road and Diversion Pool Access Point
Duncan Creek Diversion Dam Road
Duncan Creek Diversion Pool Road and Access Point
French Meadows Area
Duncan Creek – Middle Fork Tunnel Portal Road and Spillway Access Point
French Meadows – Hell Hole Tunnel Gatehouse Road
French Meadows Dam Outlet Works and Leakage Weirs Road
French Meadows Dam Staging Area Road
Middle Fork American River Gage and Weir below French Meadows Dam Road
Hell Hole Area
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point
Rubicon River Gage and Weir below Hell Hole Dam Road
Hell Hole Dam Leakage Weir Road
Hell Hole Dam Spillway Northern Access Point
French Meadows – Hell Hole Tunnel Portal Road
French Meadows Powerhouse Road
Hell Hole – Middle Fork Tunnel Gatehouse Road
Dormitory Facility Road
Hell Hole Dam Spillway Discharge Channel Road
Long Canyon Area
North Fork Long Canyon Diversion North Road
North Fork Long Canyon Diversion South Road
North Fork Long Canyon Diversion Drop Inlet Road

Table LAND 2-1. Existing Project Facilities and Features (continued).

Project Roads and Access Points (continued)
Long Canyon Area (continued)
South Fork Long Canyon Diversion and Drop Inlet Road
North Fork Long Canyon Crossing Removable Section North Road and Parking Area
North Fork Long Canyon Crossing Removable Section South Road
Middle Fork Interbay Area
Middle Fork Powerhouse Butterfly Valve House Road
Middle Fork Powerhouse Penstock and Butterfly Valve House Road
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points
Middle Fork Powerhouse Upper Switchyard Road
Ralston–Oxbow Area
Brushy Canyon Adit Road
Oxbow Powerhouse Road
Ralston Powerhouse Butterfly Valve House Road
Ralston – Oxbow Tunnel Intake Road
Ralston Afterbay Road and Boat Ramp
Ralston Afterbay Dam Road and Afterbay Access Point
Ralston Afterbay Sediment Removal Access Point
Project Trails
Duncan Creek Area
Duncan Creek Diversion Dam North Trail
Duncan Creek Diversion Dam South Trail
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail
Duncan Creek Gage and Weir above Diversion Trail
Duncan Creek Gage and Weir below Diversion Trail
French Meadows Area
Middle Fork American River Gage and Weir below French Meadows Dam Trail
Middle Fork Interbay Area
Middle Fork American River Gage above Middle Fork Powerhouse Trail
Passive Microwave Reflector Station above Middle Fork Interbay Trail
Ralston Afterbay Area
Passive Microwave Reflector Station above Ralston Afterbay Trail
Middle Fork American River Gage below Oxbow Powerhouse Trail

Table LAND 2-2. Project Recreation Facilities.

Project Recreation Facilities
French Meadows Area
Ahart Campground
Coyote Group Campground
Poppy Campground
French Meadows Campground
Gates Group Campground
Lewis Campground
French Meadows Picnic Area
McGuire Picnic Area
French Meadows Boat Ramp
McGuire Boat Ramp
Dolly Creek Water Supply
French Meadows Campground Water Supply
Hell Hole Area
Big Meadows Campground
Hell Hole Campground
Upper Hell Hole Campground
Hell Hole Vista
Hell Hole General Parking Area
Hell Hole Boat Ramp Parking Area
Hell Hole Boat Ramp
Big Meadows Campground Water Supply
Ralston Afterbay Area
Ralston Picnic Area
Ralston Picnic Area Cartop Boat Ramp
Indian Bar Rafting Access and General Parking
Long Canyon Area
Middle Meadows Group Campground
Middle Meadows Group Campground Water Supply

Table LAND 2-3. Potential Project Betterments.

Hell Hole Reservoir Seasonal Storage Increase

Hell Hole Dam
Modified Facilities
Hell Hole Dam Spillway Crest Gates
Hell Hole Dam Parapet Walls
New Facilities
Hell Hole Dam Spillway Crest Gates Control Building
Hell Hole Dam Spillway Crest Gates Control Building Powerline
Temporary Construction and Staging Areas
Hell Hole Dam Spillway Crest Gates Construction Road
Hell Hole Dam Spillway Crest Gates Construction Work Area
Hell Hole Dam Spillway Crest Gates and Control Building Construction Staging Area
Hell Hole Dam Parapet Wall Construction Staging and Work Area
Hell Hole Dam Spillway Crest Gates Control Building Construction Work Area
Hell Hole Dam Spillway Crest Gates Control Building Powerline Construction Work Area
Hell Hole Dam Spillway Crest Gates Control Building Powerline Construction Staging Area
Hell Hole-Middle Fork Tunnel Gatehouse
Modified Facilities
Hell Hole - Middle Fork Tunnel Gatehouse Parapet Wall
Temporary Construction and Staging Areas
Hell Hole-Middle Fork Tunnel Gatehouse Parapet Wall Construction Staging and Work Area
French Meadows Powerhouse
Modified Facilities
French Meadows Powerhouse Parapet Wall
Temporary Construction and Staging Areas
French Meadows Powerhouse Parapet Wall Construction Staging and Work Area
South Fork Long Canyon Diversion
Modified Facilities
South Fork Long Canyon Diversion Dam Crest Gates
New Facilities
South Fork Long Canyon Diversion Dam Crest Gates Generator Building
Temporary Construction and Staging Areas
South Fork Long Canyon Diversion Dam Crest Gates and Generator Building Construction Staging and Work Area

French Meadows Powerhouse Capacity Upgrade

French Meadows Reservoir
Modified Facilities
French Meadows - Hell Hole Tunnel Intake Trash Rack
Temporary Construction and Staging Areas
French Meadows - Hell Hole Tunnel Intake Trash Rack Construction Staging Area
French Meadows - Hell Hole Tunnel Intake Trash Rack Construction Work Area
French Meadows - Hell Hole Tunnel Intake Trash Rack Construction Road
French Meadows Powerhouse
Modified Facilities
French Meadows Powerhouse Switchyard
New Facilities
French Meadows Powerhouse

Table LAND 2-3. Potential Project Betterments (continued).

French Meadows Powerhouse Capacity Upgrade

French Meadows Powerhouse (continued)
French Meadows Powerhouse Penstock
French Meadows - Hell Hole Tunnel Surge Shaft/Tank
French Meadows - Hell Hole Tunnel Surge Pipeline
French Meadows - Hell Hole Tunnel Surge Shaft or Pipeline Road
Temporary Construction and Staging Areas
French Meadows Powerhouse/Switchyard Construction Work Area
French Meadows Powerhouse/Switchyard Construction Staging Area
French Meadows Powerhouse Penstock Construction Work Area
French Meadows Powerhouse Penstock Construction Staging Areas
French Meadows - Hell Hole Tunnel Surge Shaft/Tank or Pipeline Construction Staging Areas
French Meadows - Hell Hole Tunnel Surge Shaft/Tank Construction Work Area
French Meadows - Hell Hole Tunnel Surge Pipeline Construction Work Area
French Meadows - Hell Hole Tunnel Surge Shaft or Pipeline Road Construction Staging and Work Area
Non-Project Facilities Modified During Construction
Forest Road 14N09A
Forest Road 14N09A Construction Staging and Work Area
Middle Fork Powerhouse
Modified Facilities
Middle Fork Powerhouse Upper and Lower Switchyard

Ralston Powerhouse Capacity Upgrade

Ralston Powerhouse
Modified Facilities
Ralston Powerhouse
Temporary Construction and Staging Areas
Ralston Powerhouse Construction Staging Area

Table LAND 2-4. Dispersed Concentrated Use Areas.**Dispersed Concentrated Use Areas****French Meadows Reservoir Area**

Area near French Meadows-Hell Hole Tunnel Gatehouse

Area immediately downstream of French Meadows Dam (both sides of river)

Area located immediately northwest of French Meadows Dam

Area near bridge over the Middle Fork American River, upstream French Meadows Reservoir

Duncan Creek Diversion Dam Area

Area on north side of Duncan Creek Diversion Dam

Area near Duncan Creek Gage and Weir, upstream of Duncan Creek Diversion Dam

Area near new bridge crossing Duncan Canyon on the road to the Grizzly, etc.

Hell Hole Reservoir Area

Area on west side of Hell Hole Reservoir, between dam and Hell Hole Boat Ramp

Grey Horse Area

Long Canyon Area

Area surrounding South Fork Long Canyon Diversion Dam

Areas along South Fork Long Canyon Creek, downstream of South Fork Long Canyon Diversion Dam

Middle Fork Interbay Area

Shoreline area surrounding Middle Fork Interbay

Ralston Afterbay Area

Ralston Afterbay Sediment Disposal Area

Shoreline area surrounding Ralston Afterbay

Area along Middle Fork American River, between Ralston Picnic Area and the new gage

Area at confluence of North Fork of the Middle Fork American River and Middle Fork American River

Indian Bar, Willow Bar, and Junction Bar Areas

Table LAND 2-5. Primary Contacts for LAND 2 Interviews and Data Gathering Effort.

Primary LAND 2 Contact, Title	Study Element				
	Fuel Conditions Survey	PCWA Fire Prevention	Vegetation Management	Fire Response Procedures	Incident Reports
PCWA					
Andy Fecko, Resource Planning Administrator			X		
Steve Jones, Power Systems Manager		X			
Marc Wyatt, Maintenance Supervisor		X	X	X	
USDA-FS					
R. Scott Husmann (TNF), Roads Manager		X			
Dominic Panno, Fuels Officer (TNF)	X				
Brian Ebert, Fuels Officer (ENF)	X				
Mo Tebbe, Public Service Officer (TNF)	X				X
CAL FIRE					
Frank Quadro, Assistant Chief, South Division Operation					X
Placer County					
Brett Storey, Senior Management Analyst					X
Richard Tornberg, Lieutenant, Sheriff's Department					X
El Dorado County					
Sgt. Bernie Morton					X
California State Parks, Auburn State Recreation Area					
Lolly Bartlett, Park Aid					X
Foresthill Fire Department					
Kurt Snyder, Fire Chief					X
Auburn City Fire Department					
Mark D'Ambrogi, Fire Chief					X

Table LAND 2-6. Summary of Federal, State, and Local Fire Prevention and Management Plans and Local Fire Programs.

Name	Reference	Overview and Coordination	Goals and Objectives	Main Plan Components
Federal Plans				
National Fire Plan	Secretaries of the Interior and of Agriculture 2000; and WGA 2001, 2002, and 2006	<p>The National Fire Plan provides technical, financial, and resource guidance and support for wildland fire management across the United States.</p> <p>It is comprised of a number of documents, including a September 8, 2000 report from the Secretaries of the Interior and of Agriculture to the President of the United States in response to the wildland fires in 2000; congressional direction accompanying substantial new appropriations for wildland fire management for fiscal year 2001 in response to this report; and several approved and draft comprehensive strategies to implement all or parts of the plan.</p> <p>These comprehensive strategies have been adopted by federal agencies and governors of western states, in collaboration with county commissioners, tribal leaders, and other stakeholders.</p>	Develop a long-term strategy to address the wildlife fire and hazardous fuels situation, as well as the need for habitat restoration and rehabilitation in the United States, with collaborations among States and local government in an effective and efficient way.	<p>A major component of the National Fire Plan is interagency coordination, particularly between federal and non-federal entities, for planning fire risk reduction activities and implementation of these activities and plans. The USDA-FS and Department of the Interior work together to:</p> <ul style="list-style-type: none"> • Ensure that necessary firefighting resources and personnel are available to fight wildland fires; • Conduct emergency stabilization and rehabilitation in areas affected by wildland fires; • Implement fuel reduction activities in the forests and rangelands, such as clearing dry brush; • Provide assistance to communities affected or may be affected by wildland fire; and • Participate in an interagency team that enforces accountability for wildland fires on public lands. <p>The comprehensive strategies of the National Fire Plan:</p> <ul style="list-style-type: none"> • Provide a framework for protecting communities and the environment, • Focus on restoration of fire-adapted environments, and • Promote community assistance.
Tahoe National Forest Land and Resource Management Plan	USDA-FS – TNF 1998; TNF 2008	The fire management policy for the TNF is described in the Tahoe National Forest Land and Resource Management Plan (TNF LRMP). The TNF developed a fire management plan (Fire Management Plan (FMP)) in 2008 to implement the management direction and fire and fuels goals specified in the TNF LRMP. The TNF works cooperatively with various agencies, fire departments, and community Fire Safe Councils in the implementation of their programs and plans.	<p>Implement various fuels treatments to forests to reduce unnaturally dense conditions in certain areas to:</p> <ul style="list-style-type: none"> • Effectively suppress fire (intensity and rate of spread), • Reduce the number of acres burned, and • Restore fire-adapted ecosystems 	<p>The FMP</p> <ul style="list-style-type: none"> • Provides management direction for wildland-urban lands, general forest lands, wilderness, and special interest areas within the TNF, including safety, fire suppression, fuels management, strategic management objectives, and management considerations that affect operational implementation. • Specifies general implementation procedures to assist Incident Commanders in the evaluation of the appropriate response, strategies, tactics, and level of organization required during a fire.
Eldorado National Forest Land and Resource Management Plan	USDA-FS 1988	<p>The fire management for Eldorado National Forest is described in the Eldorado National Forest Land and Resource Management Plan (ENF LRMP).</p> <p>Portions of this plan have been replaced by the Sierra Nevada Forest Plan described below.</p>	Provide a sufficient level of fire protection and fuels treatments to assure a continuous flow of projected outputs and amenities from the ENF and to provide public safety and minimize resource losses from catastrophic fires.	<p>The plan:</p> <ul style="list-style-type: none"> • Provides standards and guidelines for fire prevention, detection, suppression, and activity (fuels from timber and road construction activities), natural, and prescribed fuels management. • Places emphasis on budget allocation towards the initial attack (fire suppression).

Table LAND 2-6. Summary of Federal, State, and Local Fire Prevention and Management Plans and Local Fire Programs (continued).

Name	Reference	Overview and Coordination	Goals and Objectives	Main Plan Components
Federal Plans				
Sierra Nevada Forest Plan	USDA-FS 2004a	The Sierra Nevada Forest Plan supersedes the fire and fuels management goals of previous land and resource management plans for the lands in the Sierra Nevada mountain range and Modoc Plateau in California and parts of Nevada including the ENF LRMP. This plan places the greatest emphasis on fuels treatment (e.g. thinning, salvage, and prescribe and natural fires).	Effectively modify fire behavior (intensity and rate of spread) to reduce the risk of fire in the urban-wildland interface with fuels treatments, while also improving forest health and ecosystem function by re-introducing fire into a fire-adapted ecosystem.	<p>The plan includes:</p> <ul style="list-style-type: none"> • Direction for the strategic placement of fuel treatment areas around communities and within the forests; • Requirements for the design of the pattern of fuels treatments needed to implement the fire and fuels strategy; • Mechanisms for efficient appropriation of funds to maximize program effectiveness; • Opportunities to improve overall forest health; • Ecosystem restoration following a catastrophic disturbance; • New fuels and vegetation management standards and guidelines; • An adaptive management and monitoring strategy; and • Salvaging of dead and dying trees.
State Plans				
California Fire Plan	Cal Fire 1996	<p>The California Fire Plan is the result of a cooperative effort between the State Board of Forestry and Cal Fire.</p> <p>The California Fire Plan focuses on pre-fire management to reduce fire fighting costs and property losses, and improve firefighter safety and ecosystem health.</p> <p>The current plan was finalized in March 1996 and is currently undergoing review by Cal Fire. Fire prevention and management plans with coverage areas that include the MFP have been prepared and are consistent with the California Fire Plan.</p>	<p>Five strategic objectives:</p> <ul style="list-style-type: none"> • Create wildfire protection zones that reduce risks to citizens and firefighters. • Assess all wildlands to identify high risk, high value areas and develop information on and determine who is responsible, who is responding, and who is paying for wildland fire emergencies. The assessments will be completed for all wildland fire service providers, including federal, state, local government, and private. • Identify and analyze key policy issues focused on the development of alternatives to reduce total costs and losses by increasing fire protection system effectiveness and develop recommendations for changes in public policy. • Monitor all public and private expenditures and economic losses of the wildland fire protection system. • Translate the analyses into public policies. 	<p>The framework for ongoing fire planning in California includes five main components:</p> <ul style="list-style-type: none"> • Creates wildfire protection zones to reduce risks to citizens and firefighters; • Defines an assessment of the protection system for wildland fire. • Establishes methods for defining assets protected and their degree of risk from wildfire. • Identified pre-fire management prescriptions designed to protect assets and also identify who benefits and who should share the costs. • Develops a fiscal framework for assessing and monitoring annual and long-term change.

Table LAND 2-6. Summary of Federal, State, and Local Fire Prevention and Management Plans and Local Fire Programs (continued).

Name	Reference	Overview and Coordination	Goals and Objectives	Main Plan Components
Local Plans				
Community Wildfire Protection Plans	http://www.cafirealliance.org/cwpp/ .	<p>Community Wildfire Protection Plans enable communities located in the wildland-urban interface to locally address the challenges of being located in areas with wildfire risk, as defined by the HFRA.</p> <p>A CWPP is developed collaboratively by local officials with state officials, federal agencies that manage nearby lands, and other stakeholders.</p> <p>Projects identified in a CWPP have funding priority from the National Fire Plan (described above). The implementation of fuel treatment projects identified in a CWPP may also be expedited by the USDA-FS and BLM through alternative environmental compliance options offered under the HFRA.</p> <p>Two CWPPs that include areas in the vicinity of the MFP are described below.</p>		<p>A CWPP must:</p> <ul style="list-style-type: none"> • Identify and prioritize areas for hazardous fuel reduction treatments and recommend type of methods for fuel reduction projects. • Recommend measures for homeowners and communities to reduce fire risk to structures.
Nevada-Yuba-Placer Fire Plan	Cal Fire 2005	<p>The Nevada-Yuba-Placer Unit Fire Management Plan (NYP Fire Plan) was developed to implement the guidelines set forth in the State Fire Plan. The State Fire Plan provides tools to assess fire fuel hazards and risks in order to design and implement mitigating activities.</p> <p>The current NYP Fire Plan is compliant with the requirements of the HFRA as a CWPP.</p> <p>The stakeholders, including various local government department, agencies, and districts; local interest groups; and state and federal agencies and districts, have agreed to the content of this plan as part of a collaborative effort to identify projects and possibly influence how additional federal funds may be distributed for fire management projects on non federal lands.</p>	Focus efforts on public education and public assistance programs which promote property owner efforts in fuels management to reduce costs and losses from wildfire.	<p>The NYP Fire Plan provides:</p> <ul style="list-style-type: none"> • Background information, • Fuels and fire data, • Proposed projects, and • Individual Battalion reports outlining mitigating activities commonly carried out each year.
CWPP for the West Slope of the Sierra Nevada in Placer County	Placer County Offices of Emergency Services 2008	The Community Wildfire Protection Plan for the West Slope of the Sierra Nevada in Placer County was developed in compliance with the HFRA for the west slope of the Sierra Nevada in Placer County.	Reduce wildfire risk to communities near the west slope of the Sierra Nevada in Placer County by identifying and prioritizing projects that will reduce hazardous fuels in and near communities.	<p>The plan:</p> <ul style="list-style-type: none"> • Consolidates existing plans describing fuel hazards, fire behavior, and fuel reduction projects; • Identifies and prioritizes additional projects to reduce fuel hazards that threaten communities; • Provides local, state, and federal representatives with guidance to implement fuel reduction projects over the next five years; and • Includes a monitoring program to adapt the plan to changing conditions during the planning period.

Table LAND 2-6. Summary of Federal, State, and Local Fire Prevention and Management Plans and Local Fire Programs (continued).

Name	Reference	Overview and Coordination	Goals and Objectives	Main Plan Components
Additional Local Fire Plans and Programs				
Placer County Local Multi-hazard Mitigation Plan	Placer County 2005	<p>The Multi-hazard Mitigation Plan is a multi-jurisdictional plan prepared for Placer County, participating districts, and cities in the county.</p> <p>The county-wide plan was created to satisfy federal requirements of the Department of Homeland Security and FEMA. The plan was developed in coordination with other federal, state, and local agencies, including regional agencies, such as the Placer County Fire Safe Alliance, PCWA, and Placer County Resource Conservation District.</p> <p>The plan enables the participating cities to take actions that would reduce or eliminate long-term risks to these communities from a variety of potential hazards, including flooding, earthquakes, and fires.</p>	<ul style="list-style-type: none"> Reduce or eliminate long-term risks to people and property from various types of hazards. 	<p>The planning process included analyses of past natural hazard events and resulting losses, and potential future risks from these hazards. Fires and floods were identified as the two hazards with the greatest risk and vulnerability for the county.</p> <p>The plan identifies potential mitigation goals and objectives for each of these hazards with the goal of improving the cities' and county's responses and reducing associated costs, as well as specific recommendations for actions that could alleviate losses from future disasters.</p> <p>The plan includes a Wildland Fire Risk Map for the county, generated from weather, topographical, and fuel loads geographical information data. The majority of the county is designated as high to very high fire risk due to the rugged terrain, high fuel loads, and long dry summers.</p> <p>Six fire mitigation measures are identified in the plan: CWPPs, fuels management, code/ ordinance changes, defensible space, emergency service enhancements, and public awareness/ education.</p>
Fire Management Plan for Auburn State Recreation Area	Cal Fire 2005	<p>The Fire Management Plan for the Auburn State Recreational Area (ASRA) was developed as part of the Nevada-Yuba-Placer Fire Management Plan to guide Cal Fire activities and act as a plan for fire prevention and pre suppression activities in the ASRA.</p> <p>The Cal Fire has provided fire prevention and suppression services at Auburn Dam and Reservoir project lands since 1979.</p>	Protect public and private resources within the ASRA by reducing the risk and hazard of wildland fires through the implementation of management strategies that promote the preservation and restoration of natural resources and protection of cultural resources.	The plan identifies a number of actions and programs to be implemented to reduce wildland fire risk and hazard, including law enforcement patrols; inspections and code enforcement of distribution and transmission lines, structures, and projects; maintenance and development of new fuel breaks; vegetation/ fuels management including around campgrounds; and implementation of prescribed burns.
Foresthill Divide and Iowa Hill Divide Emergency Plan	Foresthill Fire Department (2006).	<p>The Foresthill Divide and Iowa Hill Divide Emergency Plan covers all emergency responses in Foresthill and Iowa Hill areas that are within the State Response Area.</p> <p>Cal Fire and the USDA-FS have the primary responsibilities for fire suppression for areas included in this plan.</p>	Provide information, direction, and coordination guidance for agencies responding to emergency situations, including fires, in these areas.	<p>The plan outlines:</p> <ul style="list-style-type: none"> Concepts of operations, including emergency management, emergency medical services, public information dissemination, evacuation and traffic control, water supply and communications; and Agency responsibilities, including PCWA.
Placer County Fire Safe Alliance	http://www.placerfirealliance.org/ .	The Placer County Fire Safe Alliance is comprised of members from federal, state, and local resource management agencies, local fire districts, community fire safe councils, and private industries. The alliance is led by a team consisting of the Placer County Fire Mitigation Coordinator and a representative from Cal Fire, BLM, and the USDA-FS.	<p>The group focuses on the wildland-urban interface by reducing fuel loads, providing healthy forest ecosystems, and creating fire safe communities. PCWA is a member of the Placer County Fire Safe Alliance.</p> <p>The council works with the community to educate residents about defensible space, fire safe materials, evacuation plans, and potential funding sources.</p>	

Table LAND 2-6. Summary of Federal, State, and Local Fire Prevention and Management Plans and Local Fire Programs (continued).

Name	Reference	Overview and Coordination	Goals and Objectives	Main Plan Components
Additional Local Fire Plans and Programs (continued)				
Foresthill/Iowa Hill Fire Safe Council	http://firesafeforesthill.org/ .	<p>The Foresthill/Iowa Hill Fire Safe Council (FFSC) includes fire personnel, concerned citizens, and federal, state, and local agency representatives who assist local property owners in protecting their personal property from a catastrophic fire. It is a member of the Placer County Fire Safe Alliance. The Council is sponsored by the Foresthill Fire Protection District (FFPD).</p> <p>The FFPD responds to structure and wildfires and vehicle accidents, as well as providing local advanced life support services in greater Foresthill area. The FFPD supports Cal Fire and the USDA-FS in responses to wildfires.</p>	<p>Minimize risks to life, property, and natural resources from wildfires in Placer County through:</p> <ul style="list-style-type: none"> • Information dissemination and public education programs on fire safe communities, fire risk, and fire hazard mitigation; • Assistance and participating in community fire mitigation efforts; • Prioritizing and securing funding for coordinated fire safe projects and activities; and • Monitoring and reviewing fire safe activities to ensure that the goals are met. 	

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities.

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Dams Reservoirs, and Diversion Pools						
Large Dams						
French Meadows Dam and Outlet Works	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
Hell Hole Dam and Outlet Works	NB9	0	0	0	0	2
	SH5	0	0	0	0	10
Medium Dams						
Middle Fork Interbay Dam	GR1	0	0	0	0	1
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12
Ralston Afterbay Dam	TL5	70	80	3	0.25	7
	SH5	20	50	3	0.15	13
Small Dams						
Duncan Creek Diversion Dam	GR1	0	0	0	0	1
	TL5	70	80	3	0.25	7
North Fork Long Canyon Diversion Dam	TL5	70	80	3	0.25	7
South Fork Long Canyon Diversion Dam	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
Large Reservoirs						
French Meadows Reservoir	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
	TL3	70	80	10	0.25	4
	GR2	30	80	10	0.15	6
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12
Hell Hole Reservoir	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
	TL3	80	30	10	0.15	5
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	SH5	0	0	0	0	10
	SH5	20	50	3	0.15	13

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Dams Reservoirs, and Diversion Pools (continued)						
Medium Reservoirs						
Middle Fork Interbay	GR1	0	0	0	0	1
	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12
Ralston Afterbay	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12
	SH5	20	50	3	0.15	13
Small Diversion Pools						
Duncan Creek Diversion Pool	GR1	0	0	0	0	1
	TL5	70	80	3	0.25	7
North Fork Long Canyon Diversion Pool	TL5	70	80	3	0.25	7
South Fork Long Canyon Diversion Pool	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
	TL5	70	80	3	0.25	7
Water Conveyance Systems						
Diversion Pipes and Drop Inlets						
North Fork Long Canyon Diversion Pipe and Drop Inlet	TL5	70	80	3	0.25	7
South Fork Long Canyon Diversion Pipe and Drop Inlet	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
	TL5	70	80	3	0.25	7
Surge Shafts and Adits						
Brushy Canyon Adit	TL5	70	80	8	0.15	12
Hell Hole - Middle Fork Tunnel Surge Shaft and Tank	GR1	0	0	0	0	1
	TL5	70	80	8	0.15	12
Middle Fork - Ralston Tunnel Surge Shaft and Tank	NB9	0	0	0	0	2
	SH5	20	50	3	0.15	13
Removable Sections and Portals						
Duncan Creek - Middle Fork Tunnel Portal	GR1	0	0	0	0	1
	TL3	70	80	10	0.25	4
French Meadows - Hell Hole Tunnel Removable Section	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH5	0	0	0	0	10
Hell Hole - Middle Fork Tunnel Removable Section	GR1	0	0	0	0	1
	TL5	70	80	8	0.15	12

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Water Conveyance Systems (continued)						
Removable Sections and Portals (continued)						
Middle Fork - Ralston Tunnel Removable Section	GR1	0	0	0	0	1
North Fork Long Canyon Crossing Removable Section	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Intakes and Gatehouses						
Duncan Creek - Middle Fork Tunnel Intake	TL5	70	80	3	0.25	7
French Meadows - Hell Hole Tunnel Gatehouse	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
French Meadows - Hell Hole Tunnel Intake						N/A
Hell Hole - Middle Fork Tunnel Gatehouse	SH5	0	0	0	0	10
Hell Hole - Middle Fork Tunnel Intake						N/A
Middle Fork - Ralston Tunnel Intake and Gatehouse	TL5	70	80	8	0.15	12
Ralston - Oxbow Tunnel Intake	GR1	0	0	0	0	1
Penstocks and Valve Houses						
French Meadows Powerhouse Penstock and Butterfly Valve House	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Middle Fork Powerhouse Penstock and Butterfly Valve House	GR1	0	0	0	0	1
	TL5	70	80	8	0.15	12
Ralston Powerhouse Penstock and Butterfly Valve House	GR1	0	0	0	0	1
Powerhouses, Switchyards, and Substations						
French Meadows Powerhouse and Switchyard	SH5	0	0	0	0	10
Hell Hole Powerhouse	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	SH5	0	0	0	0	10
Middle Fork Powerhouse and Upper and Lower Switchyards	TL5	70	80	8	0.15	12
Ralston Powerhouse and Switchyard	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
Oxbow Powerhouse and Switchyard	NB9	0	0	0	0	2
	TL3	80	30	10	0.15	5
Hell Hole Substation	TL5	70	80	3	0.25	7
Gaging Stations and Weirs						
Stream Gages and Weirs						
Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700)	TL5	70	80	3	0.25	7
Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750)	TL3	80	30	10	0.15	5
Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500)	TL5	70	80	8	0.15	12

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Gaging Stations and Weirs (continued)						
Stream Gages and Weirs (continued)						
Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770)	GR1	0	0	0	0	1
	TL5	70	80	8	0.15	12
Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760)	GR2	30	80	10	0.15	6
	TL5	70	80	8	0.15	12
Middle Fork American River Gage below Oxbow Powerhouse (USGS Gage No. 11433300)	NB9	0	0	0	0	2
	SH3	20	50	5	0.15	8
North Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433085)	TL5	70	80	3	0.25	7
South Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433065)	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
	TL5	70	80	3	0.25	7
Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800)	GR2	30	80	10	0.15	6
	SH5	0	0	0	0	10
Diversion Gages						
North Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433080)	TL5	70	80	3	0.25	7
South Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433060)	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
	TL5	70	80	3	0.25	7
Reservoir Gages						
French Meadows Reservoir Gage (USGS Gage No. 11427400)						NA
French Meadows Reservoir Staff Gage	TL3	70	80	10	0.025	4
Hell Hole Reservoir Gage (USGS Gage No. 11428700)						NA
Hell Hole Reservoir Staff Gage	SH5	0	0	0	0	10
Middle Fork Interbay Reservoir Gage	TL5	70	80	8	0.15	12
Ralston Afterbay Reservoir Gage	SH5	20	50	3	0.15	13
French Meadows Powerhouse Gage (USGS Gage No. 11427200)	SH5	0	0	0	0	10
Middle Fork Powerhouse Gage (USGS Gage No. 11428600)	GR2	30	80	10	0.15	6
	TL5	70	80	8	0.15	12
Powerhouse Gages						
Oxbow Powerhouse Gage (USGS Gage No. 11433212)	TL3	80	30	10	0.15	5
Ralston Powerhouse Gage (USGS Gage No. 11427765)	NB9	0	0	0	0	2
Leakage Weirs						
French Meadows Dam Leakage Weirs Nos. 1-6	TL5	70	80	8	0.15	12
	GR2	30	80	10	0.15	6
Hell Hole Dam Leakage Weir	SH5	0	0	0	0	10

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Project Communication Lines and Powerlines						
French Meadows Area						
French Meadows Dam Generator Building to French Meadows Dam Outlet Works Powerline	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
	SH3	20	50	5	0.15	8
French Meadows Dam Generator Building to French Meadows Dam Spillway Gates Powerline	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL3	70	80	10	0.25	4
Hell Hole Area						
French Meadows Powerhouse to French Meadows Powerhouse Penstock and Butterfly Valve House Communication Line/Powerline	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH5	0	0	0	0	10
	NB9	0	0	0	0	2
French Meadows Powerhouse and Switchyard to Hell Hole - Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator's Cottages, and Hell Hole Powerhouse Communication Line/Powerline	GR2	30	80	10	0.15	6
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	SH5	0	0	0	0	10
Dormitory and Cottages Water Supply Tank Powerline	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
Hell Hole Area						
Hell Hole Powerhouse to Rubicon River Gage and Weir below Hell Hole Dam Communication Line/Powerline	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	SH5	0	0	0	0	10
Middle Fork Interbay Area						
Middle Fork Powerhouse to Middle Fork Powerhouse Butterfly Valve House Communication Line/Powerline	GR1	0	0	0	0	1
	TL5	70	80	8	0.15	12
Middle Fork Powerhouse Butterfly Valve House to Radio Repeater near Hell Hole - Middle Fork Tunnel Surge Tank (underground) Communication Line/Powerline	TL5	70	80	8	0.15	12
	SH5	20	50	3	0.15	13
Middle Fork Powerhouse to Middle Fork - Ralston Tunnel Intake and Gatehouse Communication Line/Powerline	TL5	70	80	8	0.15	12
Middle Fork Powerhouse to Middle Fork American River Gage above Middle Fork Powerhouse Communication Line/Powerline	GR2	30	80	10	0.15	6
	TL5	70	80	8	0.15	12

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Project Communication Lines and Powerlines (continued)						
Ralston - Oxbow Area						
Ralston - Oxbow Tunnel Intake to Ralston Powerhouse Communication Line	GR1	0	0	0	0	1
	SH3	20	50	5	0.15	8
Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
Ralston Afterbay Dam Generator Building to Ralston - Oxbow Tunnel Intake Communication Line/Powerline	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL3	80	30	10	0.15	5
	SH5	20	50	3	0.15	13
Oxbow Powerhouse to Ralston Afterbay Dam Generator Building Communication Line/Powerline	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL3	80	30	10	0.15	5
	SH5	20	50	3	0.15	13
Photovoltaic Poles and Powerlines						
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam	TL5	70	80	3	0.25	7
Photovoltaic Pole and Powerline at Duncan Creek Gage below Diversion Dam	TL3	80	30	10	0.15	5
Photovoltaic Pole and Powerline at Middle Fork American River Gage below French Meadows Dam	TL5	70	80	8	0.15	12
Photovoltaic Pole and Powerline at Middle Fork American River Gage above Middle Fork Powerhouse	GR2	30	80	10	0.15	6
	TL5	70	80	8	0.15	12
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage at Diversion Dam	TL5	70	80	3	0.25	7
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage at Diversion Dam	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
Photovoltaic Pole at Middle Fork American River Gage below Oxbow Powerhouse	SH3	20	50	5	0.15	8
	NB9	0	0	0	0	2
Microwave Reflectors and Radio Towers						
Passive Microwave Reflector Station above Middle Fork Interbay	SH5	0	0	0	0	11
	TL5	70	80	8	0.15	12

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Microwave Reflectors and Radio Towers (continued)						
Radio Communications Tower near French Meadows - Hell Hole Tunnel Gatehouse	NB9	0	0	0	0	2
Radio Communications Tower and Repeater near Hell Hole - Middle Fork Tunnel Surge Shaft and Tank	GR1	0	0	0	0	1
	TL5	70	80	8	0.15	12
Passive Microwave Reflector Station above Ralston Afterbay	GR2	30	80	10	0.15	6
	SH5	0	0	0	0	11
Disposal Sites						
Duncan Diversion Dam Sediment Disposal Area	GR1	0	0	0	0	1
	TL5	70	80	3	0.25	7
Long Canyon Crossing Sediment Disposal Area	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	GR1	0	0	0	0	1
Middle Fork Interbay Sediment Disposal Area	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
Ralston Ridge Sediment Disposal Area	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
Indian Bar Sediment Disposal Area	NB9	0	0	0	0	2
	SH5	20	50	3	0.15	13
Ancillary Facilities						
French Meadows Dam Generator Building	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL3	70	80	10	0.25	4
French Meadows Dam Staging Area	SH3	20	50	5	0.15	8
Dormitory Facility	SH3	20	50	5	0.15	8
Dormitory and Cottages Water Supply Tank	GR2	30	80	10	0.15	6
Hell Hole Staging Areas	NB9	0	0	0	0	2
Operator Cottages and Shop	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Ralston Afterbay Dam Generator Building	NB9	0	0	0	0	2
	SH5	20	50	3	0.15	13
Storage Building at Middle Fork - Ralston Tunnel Surge Shaft and Tank	NB9	0	0	0	0	2
	SH5	20	50	3	0.15	13
Wabena Meadows Snow Course	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Ancillary Facilities (continued)						
Miranda Cabin Snow Course	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10
Diamond Crossing Snow Course	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10
Talbot Camp Snow Course	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10
Project Fences						
Slope Fences						
French Meadows Powerhouse Penstock Rock Fence	SH1	0	0	0	0	10
French Meadows Powerhouse Slope Fence	SH1	0	0	0	0	10
Long Canyon Crossing Slope Fence	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Middle Fork Powerhouse Upper Switchyard Slope Fence	TL5	70	80	8	0.15	12
Middle Fork Interbay Dam Slope Fence	TL5	70	80	8	0.15	12
Oxbow Powerhouse Slope Fence	TL3	80	30	10	0.15	5
Ralston Powerhouse Penstock and Butterfly Valve House Slope Fences	GR1	0	0	0	0	1
Ralston Powerhouse Slope Fence	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
Public Safety Fences						
Dormitory Facility Barrier Fence/ Dormitory Facility Security Fence	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
Hell Hole Dam General Parking Area Barrier Fence	NB9	0	0	0	0	2
	SH3	20	50	5	0.15	8
North Fork Long Canyon Crossing Removable Section Barrier Fence	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Project Roads and Access Points						
Duncan Creek Area						
Duncan Creek Diversion Intake Road and Diversion Pool Access Point	TL5	70	80	3	0.25	7
Duncan Creek Diversion Dam Road	GR1	0	0	0	0	1
Duncan Creek Diversion Pool Road and Access Point	GR1	0	0	0	0	1
	TL5	70	80	3	0.25	7
French Meadows Area						
Duncan Creek - Middle Fork Tunnel Portal Road and Spillway Access Point	TL3	70	80	10	0.25	4
	TL5	70	80	3	0.25	7
French Meadows - Hell Hole Tunnel Gatehouse Road	NB9	0	0	0	0	2

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Project Roads and Access Points (continued)						
French Meadows Area (continued)						
French Meadows Dam Outlet Works and Leakage Weirs Road	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
	GR2	30	80	10	0.15	6
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
French Meadows Dam Staging Area Road	SH3	20	50	5	0.15	8
Middle Fork American River Gage and Weir below French Meadows Dam Road	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12
Hell Hole Area						
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
Rubicon River Gage and Weir below Hell Hole Dam Road	GR2	30	80	10	0.15	6
	SH1	0	0	0	0	10
Hell Hole Dam Leakage Weir Road	GR2	30	80	10	0.15	6
	SH1	0	0	0	0	10
Hell Hole Dam Spillway Northern Access Point	NB9	0	0	0	0	2
	SH3	20	50	5	0.15	8
French Meadows - Hell Hole Tunnel Portal Road	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10
French Meadows Powerhouse Road	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10
Hell Hole - Middle Fork Tunnel Gatehouse Road	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10
Dormitory Facility Road	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
Hell Hole Dam Spillway Discharge Channel Road	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
	SH1	0	0	0	0	10

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Project Roads and Access Points (continued)						
Long Canyon Area						
North Fork Long Canyon Diversion North Road	TL5	70	80	3	0.25	7
North Fork Long Canyon Diversion South Road	TL5	70	80	3	0.25	7
North Fork Long Canyon Diversion Drop Inlet Road	TL5	70	80	3	0.25	7
South Fork Long Canyon Diversion and Drop Inlet Road	GR1	0	0	0	0	1
	TL5	70	80	3	0.25	7
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	GR1	0	0	0	0	1
North Fork Long Canyon Crossing Removable Section South Road	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Middle Fork Interbay Area						
Middle Fork Powerhouse Butterfly Valve House Road	GR1	0	0	0	0	1
	TL5	70	80	3	0.25	7
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	GR1	0	0	0	0	1
	GR2	30	80	10	0.15	6
	TL5	70	80	8	0.15	12
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
	TL3	70	80	10	0.25	4
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	SH5	0	0	0	0	11
	TL5	70	80	8	0.15	12
	SH5	20	50	3	0.15	13
Middle Fork Powerhouse Upper Switchyard Road	TL5	70	80	8	0.15	12
Brushy Canyon Adit Road	GR1	0	0	0	0	1
	TL3	70	80	10	0.25	4
	TL5	70	80	3	0.25	7
	TL5	70	80	8	0.15	12
	SH5	20	50	3	0.15	13
Oxbow Powerhouse Road	GR1	0	0	0	0	1
	GR1	0	0	0	0	1
	TL3	80	30	10	0.15	5
Ralston Powerhouse Butterfly Valve House Road	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
Ralston - Oxbow Tunnel Intake Road	GR1	0	0	0	0	1
	TL3	80	30	10	0.15	5

Table LAND 2-7. Surface, Ladder, and Aerial Fuel Conditions at Project Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Project Roads and Access Points (continued)						
Ralston-Oxbow Area						
Ralston Afterbay Road and Boat Ramp	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL3	80	30	10	0.15	5
	SH5	20	50	3	0.15	13
Ralston Afterbay Dam Road and Afterbay Access Point	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH5	20	50	3	0.15	13
Ralston Afterbay Sediment Removal Access Point	GR1	0	0	0	0	1
Project Trails						
Duncan Creek Area						
Duncan Creek Diversion Dam North Trail	GR1	0	0	0	0	1
Duncan Creek Diversion Dam South Trail	TL5	70	80	3	0.25	7
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail	GR1	0	0	0	0	1
	TL5	70	80	3	0.25	7
Duncan Creek Gage and Weir above Diversion Trail	TL5	70	80	3	0.25	7
Duncan Creek Gage and Weir below Diversion Trail	TL3	80	30	10	0.15	5
French Meadows Area						
Middle Fork American River Gage and Weir below French Meadows Dam Trail	TL5	70	80	8	0.15	12
Middle Fork Interbay Area						
Middle Fork American River Gage above Middle Fork Powerhouse Trail	TL5	70	80	8	0.15	12
Passive Microwave Reflector Station above Middle Fork Interbay Trail	SH5	0	0	0	0	11
	TL5	70	80	8	0.15	12
Ralston Afterbay Area						
Passive Microwave Reflector Station above Ralston Afterbay Trail	GR2	30	80	10	0.15	6
	TL5	70	80	3	0.25	7
	SH5	0	0	0	0	11
Middle Fork American River Gage below Oxbow Powerhouse Trail	NB9	0	0	0	0	2
	SH3	20	50	5	0.15	8

Table LAND 2-8. Surface, Ladder, and Aerial Fuel Conditions at Project Recreation Facilities.

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Project Recreation Facilities						
French Meadows Area						
Ahart Campground	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
	TL3	70	80	10	0.25	4
Coyote Group Campground	NB9	0	0	0	0	2
	TL3	70	80	10	0.25	4
	GR2	30	80	10	0.15	6
Poppy Campground	TL5	70	80	3	0.25	7
French Meadows Campground	GS1	70	80	3	0.25	3
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
Gates Group Campground	TL3	70	80	10	0.25	4
	TL5	70	80	3	0.25	7
Lewis Campground	GS1	70	80	3	0.25	3
	TL3	70	80	10	0.25	4
French Meadows Picnic Area	TL5	70	80	3	0.25	7
McGuire Picnic Area	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
French Meadows Boat Ramp	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
McGuire Boat Ramp	NB9	0	0	0	0	2
Hell Hole Area						
Big Meadows Campground	TL5	70	80	3	0.25	7
	TL5	70	80	8	0.15	12
Hell Hole Campground	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
Upper Hell Hole Campground	TL3	80	30	10	0.15	5
Hell Hole Vista	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
Hell Hole General Parking Area	SH1	0	0	0	0	10
	NB9	0	0	0	0	2
Hell Hole Boat Ramp Parking Area	SH3	20	50	5	0.15	8
	NB9	0	0	0	0	2
Hell Hole Boat Ramp	SH3	20	50	5	0.15	8
	NB9	0	0	0	0	2

Table LAND 2-8. Surface, Ladder, and Aerial Fuel Conditions at Project Recreation Facilities (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				MFP Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Project Recreation Facilities (continue)						
Ralston Afterbay Area						
Ralston Picnic Area	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
Ralston Picnic Area Cartop Boat Ramp	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
Indian Bar Rafting Access and General Parking	NB9	0	0	0	0	2
	TL3	80	30	10	0.15	5
Long Canyon Area						
Middle Meadows Group Campground	TL5	70	80	3	0.25	7
Project Recreation Facility Features						
Project Recreation Facility Water Supplies and Associated Maintenance Trails						
Dolly Creek Water Supply	NB9	0	0	0	0	2
	GS1	70	80	3	0.25	3
	TL3	70	80	10	0.25	4
	TL3	80	30	10	0.15	5
	GR2	30	80	10	0.15	6
	TL5	70	80	3	0.25	7
French Meadows Campground Water Supply and Trail	SH3	20	50	5	0.15	8
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Big Meadows Campground Water Supply and Trail	SH3	20	50	5	0.15	8
	TL5	70	80	3	0.25	7
Middle Meadows Group Campground Water Supply, Fence, and Trail	TL5	70	80	8	0.15	12
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12

Table LAND 2-9. Surface, Ladder, and Aerial Fuel Conditions at Project Betterments.

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				Fuel Model Identification Number (See Map LAND 2-2)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Hell Hole Reservoir Seasonal Storage Increase						
Hell Hole Dam						
Modified Facilities						
Hell Hole Dam Spillway Crest Gates	NB9	0	0	0	0	2
Hell Hole Dam Parapet Walls	NB9	0	0	0	0	2
	SH1	0	0	0	0	10
New Facilities						
Hell Hole Dam Spillway Crest Gates Control Building	NB9	0	0	0	0	2
Hell Hole Dam Spillway Crest Gates Control Building Powerline	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
Temporary Construction and Staging Areas						
Hell Hole Dam Spillway Crest Gates Construction Road	NB9	0	0	0	0	2
Hell Hole Dam Spillway Crest Gates Construction Work Area	NB9	0	0	0	0	2
Hell Hole Dam Spillway Crest Gates and Control Building	NB9	0	0	0	0	2
Hell Hole Dam Parapet Wall Construction Staging and Work Area	NB9	0	0	0	0	2
	SH1	0	0	0	0	10
Hell Hole Dam Spillway Crest Gates Control Building Powerline Construction Staging Area	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
Hell Hole-Middle Fork Tunnel Gatehouse						
Modified Facilities						
Hell Hole – Middle Fork Tunnel Gatehouse Parapet Wall	SH1	0	0	0	0	10
Temporary Construction and Staging Areas						
Hell Hole-Middle Fork Tunnel Gatehouse Parapet Wall	SH1	0	0	0	0	10
French Meadows Powerhouse						
Modified Facilities						
French Meadows Powerhouse Parapet Wall	SH1	0	0	0	0	10
Temporary Construction and Staging Areas						
French Meadows Powerhouse Parapet Wall Construction	SH1	0	0	0	0	10
South Fork Long Canyon Diversion						
Modified Facilities						
South Fork Long Canyon Diversion Dam Crest Gates	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
New Facilities						
South Fork Long Canyon Diversion Dam Crest Gates Generator Building	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3

Table LAND 2-9. Surface, Ladder, and Aerial Fuel Conditions at Project Betterments (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				Fuel Model Identification Number (See Map LAND 2-2)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Hell Hole Reservoir Seasonal Storage Increase (continued)						
South Fork Long Canyon Diversion (continued)						
Temporary Construction and Staging Areas						
South Fork Long Canyon Diversion Dam Crest Gates and Generator Building Construction Staging and Work Area	GR1	0	0	0	0	1
	GS1	70	80	3	0.25	3
	TL5	70	80	3	0.25	7
French Meadows Powerhouse Capacity Upgrade						
French Meadows Reservoir						
Modified Facilities						
French Meadows – Hell Hole Tunnel Intake Trash Rack						NA
Temporary Construction and Staging Areas						
French Meadows – Hell Hole Tunnel Intake Trash Rack	SH1	0	0	0	0	10
French Meadows – Hell Hole Tunnel Intake Trash Rack	SH1	0	0	0	0	10
French Meadows – Hell Hole Tunnel Intake Trash Rack	SH1	0	0	0	0	10
French Meadows Powerhouse						
Modified Facilities						
French Meadows Powerhouse Switchyard	SH1	0	0	0	0	10
New Facilities						
French Meadows Powerhouse	SH1	0	0	0	0	10
French Meadows Powerhouse Penstock	NB9	0	0	0	0	2
	SH1	0	0	0	0	10
French Meadows – Hell Hole Tunnel Surge Shaft/Tank	NB9	0	0	0	0	2
	SH5	0	0	0	0	11
French Meadows – Hell Hole Tunnel Surge Pipeline	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH1	0	0	0	0	10
	SH5	0	0	0	0	11
French Meadows – Hell Hole Tunnel Surge Shaft or Pipeline Road	GS1	70	80	3	0.25	3
	SH5	0	0	0	0	11
Temporary Construction and Staging Areas						
French Meadows Powerhouse/Switchyard Construction Work Area	TL5	70	80	3	0.25	7
	SH1	0	0	0	0	10
French Meadows Powerhouse/Switchyard Construction Staging Areas	TL5	70	80	3	0.25	7
	SH1	0	0	0	0	10
French Meadows Powerhouse Penstock Construction Work Area	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH1	0	0	0	0	10

Table LAND 2-9. Surface, Ladder, and Aerial Fuel Conditions at Project Betterments (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				Fuel Model Identification Number (See Map LAND 2-2)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Hell Hole Reservoir Seasonal Storage Increase (continued)						
French Meadows Powerhouse (continued)						
Temporary Construction and Staging Areas (continued)						
French Meadows Powerhouse Penstock Construction Staging Areas	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
French Meadows – Hell Hole Tunnel Surge Shaft/Tank or Pipeline Construction Staging Areas	NB9	0	0	0	0	2
	SH5	0	0	0	0	11
French Meadows – Hell Hole Tunnel Surge Shaft/Tank	SH5	0	0	0	0	11
French Meadows – Hell Hole Tunnel Surge Pipeline Construction Work Area	GR1	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
French Meadows – Hell Hole Tunnel Surge Shaft or Pipeline Road Construction Staging and Work Area	SH5	0	0	0	0	11
	GS1	70	80	3	0.25	3
Forest Road 14N09A	SH5	0	0	0	0	11
	GS1	70	80	3	0.25	3
Forest Road 14N09A Construction Staging and Work Area	SH5	0	0	0	0	11
	TL5	70	80	3	0.25	7
Middle Fork Powerhouse Modified Facilities						
Middle Fork Powerhouse Upper Switchyard	TL5	70	80	8	0.15	12
Ralston Powerhouse Capacity Upgrade						
Ralston Powerhouse Modified Facilities						
Ralston Powerhouse	NB9	0	0	0	0	2
Temporary Construction and Staging Areas						
Ralston Powerhouse Construction Staging Area	GR1	0	0	0	0	1
	NB9	0	0	0	0	2

Table LAND 2-10. Surface, Ladder, and Aerial Fuel Conditions at Dispersed Concentrated Use Areas.

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
French Meadows Reservoir Area						
Area near French Meadows-Hell Hole Tunnel Gatehouse	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Area immediately downstream of French Meadows Dam (both sides of river)	0	0	0	0	0	1
	GS1	70	80	3	0.25	3
	SH3	20	50	5	0.15	8
Area located immediately northwest of French Meadows Dam	NB9	0	0	0	0	2
	SH3	20	50	5	0.15	8
Area near bridge over the Middle Fork American River, upstream French Meadows Reservoir	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
Duncan Creek Diversion Dam Area						
Area on north side of Duncan Creek Diversion Dam	0	0	0	0	0	1
	TL5	70	80	3	0.25	7
Area near Duncan Creek Gage and Weir, upstream of Duncan Creek Diversion Dam	0	0	0	0	0	1
	TL5	70	80	3	0.25	7
Area near new bridge crossing Duncan Canyon on the road to the Grizzly, etc.	0	0	0	0	0	1
	TL5	70	80	3	0.25	7
Hell Hole Reservoir Area						
Area on west side of Hell Hole Reservoir, between dam and Hell Hole Boat Ramp	NB9	0	0	0	0	2
Gray Horse Area	TL5	70	80	3	0.25	7
	SH5	20	50	3	0.15	13
Long Canyon Area						
Area surrounding South Fork Long Canyon Diversion Dam	0	0	0	0	0	1
	GS1	70	80	3	0.25	3
	TL5	70	80	3	0.25	7

Table LAND 2-10. Surface, Ladder, and Aerial Fuel Conditions at Dispersed Concentrated Use Areas (continued).

Project Facility	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Conditions: Canopy Characteristics				Fuel Model Identification Number (See Map LAND 2-1)
		Average Canopy Cover (%)	Average Height of Stand (feet)	Average Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
Long Canyon Area (continued)						
Areas along South Fork Long Canyon Creek, downstream of South Fork Long Canyon Diversion Dam	TL5	70	80	3	0.25	7
Middle Fork Interbay Area						
Shoreline area surrounding Middle Fork Interbay	GR2	30	80	10	0.15	6
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12
Ralston Afterbay Area						
Ralston Afterbay Sediment Disposal Area	0	0	0	0	0	1
Shoreline area surrounding Ralston Afterbay	0	0	0	0	0	1
	NB9	0	0	0	0	2
	TL5	70	80	3	0.25	7
	SH3	20	50	5	0.15	8
	TL5	70	80	8	0.15	12
	SH5	20	50	3	0.15	13
Area along Middle Fork American River, between Ralston Picnic Area and the new gage	TL5	70	80	3	0.25	7
Area at confluence of North Fork of the Middle Fork American River and Middle Fork American River	SH1	0	0	0	0	10
	SH5	20	50	3	0.15	13
Indian Bar, Willow Bar, and Junction Bar Areas	0	0	0	0	0	1
	NB9	0	0	0	0	2
	TL3	80	30	10	0.25	5
	SH1	0	0	0	0	10
	SH5	20	50	3	0.15	13

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities.

Project Facility	Construction Materials	Clearance
Dams Reservoirs, and Diversion Pools		
Large Dams		
French Meadows Dam and Outlet Works	Concrete / earthen	N/A
Hell Hole Dam and Outlet Works	Concrete / earthen	N/A
Medium Dams		
Middle Fork Interbay Dam	Concrete / earthen	N/A
Ralston Afterbay Dam	Concrete / earthen	N/A
Small Dams		
Duncan Creek Diversion Dam	Concrete	N/A
North Fork Long Canyon Diversion Dam	Concrete	N/A
South Fork Long Canyon Diversion Dam	Concrete	N/A
Large Reservoirs		
French Meadows Reservoir	Water	N/A
Hell Hole Reservoir	Water	N/A
Medium Reservoirs		
Middle Fork Interbay	Water	N/A
Ralston Afterbay	Water	N/A
Small Diversion Pools		
Duncan Creek Diversion Pool	Water	N/A
North Fork Long Canyon Diversion Pool	Water	N/A
South Fork Long Canyon Diversion Pool	Water	N/A
Water Conveyance Systems		
Diversion Pipes and Drop Inlets		
North Fork Long Canyon Diversion Pipe and Drop Inlet	Concrete base with metal siding and metal roof	20'
South Fork Long Canyon Diversion Pipe and Drop Inlet	Concrete base with metal siding and metal roof	50'
Surge Shafts and Adits		
Brushy Canyon Adit	Collapsed feature, non-distinguishable	N/A
Hell Hole - Middle Fork Tunnel Surge Shaft and Tank	Concrete	10
Middle Fork - Ralston Tunnel Surge Shaft and Tank	Concrete / steel	N/A
Removable Sections and Portals		
Duncan Creek - Middle Fork Tunnel Portal	Concrete	N/A

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Water Conveyance Systems (continued)		
Removable Sections and Portals (continued)		
French Meadows - Hell Hole Tunnel Removable Section	Large diameter exposed metal pipe with concrete footings	N/A
Hell Hole - Middle Fork Tunnel Removable Section	Large diameter metal pipe with concrete footings	20'
Middle Fork - Ralston Tunnel Removable Section	Exposed large diameter metal pipe with concrete footings	10'
Removable Sections and Portals		
North Fork Long Canyon Crossing Removable Section	Exposed large diameter metal pipe with concrete footings	10'
Intakes and Gatehouses		
Duncan Creek - Middle Fork Tunnel Intake	Concrete with wood framed metal and plywood sheeted structure on top	30'
French Meadows - Hell Hole Tunnel Gatehouse	1) Cement block building with metal roof, metal doors. 2) Storage shed with metal siding, metal roof. 3) Propane tank, 200 gal. (estimated).	1) 10' 2) 0' 3) 20'
French Meadows - Hell Hole Tunnel Intake	Concrete	N/A
Hell Hole - Middle Fork Tunnel Gatehouse	Cement block with metal roof	40'
Hell Hole - Middle Fork Tunnel Intake	Concrete	50'
Middle Fork - Ralston Tunnel Intake and Gatehouse	Concrete block with metal roof	30'
Ralston - Oxbow Tunnel Intake	Concrete	N/A
Penstocks and Valve Houses		
French Meadows Powerhouse Penstock and Butterfly Valve House	Cement block with metal roof	20'
Middle Fork Powerhouse Penstock and Butterfly Valve House	Concrete block with metal roof	24'
Ralston Powerhouse Penstock and Butterfly Valve House	Chain link	N/A
Powerhouses, Switchyards, and Substations		
French Meadows Powerhouse and Switchyard	Cement block with metal roof	20'
Hell Hole Powerhouse	Cement block with metal roof and metal doors	20'

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Gaging Stations and Weirs		
Middle Fork Powerhouse and Upper and Lower Switchyards	1) Concrete block with metal roof 2) Metal electrical towers	1) 50' 2) 50'
Ralston Powerhouse and Switchyard	1) Concrete block with metal roof and doors 2) metal electrical towers	1) 25' 2) 25'
Oxbow Powerhouse and Switchyard	1) Concrete block with metal roof and doors 2) metal electrical towers	1) 50' 2) 50'
Hell Hole Substation	Cement block with metal roof	40'
Stream Gages and Weirs		
Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700)	Steel frame with metal sheeting	20'
Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750)	Steel frame with metal sheeting	40'
Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500)	Concrete	N/A
Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770)	Metal siding and roof	20'
Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760)	Metal siding and roof	30'
Middle Fork American River Gage below Oxbow Powerhouse (USGS Gage No. 11433300)	Cement with sheet metal structure	10'
North Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433085)	Metal siding and roof	50'
South Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433065)	Metal siding and roof	50'
Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800)	Concrete with sheet metal tower and catwalk	8'
Diversion Gages		
North Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433080)	Concrete base with metal siding and metal roof	N/A
South Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433060)	Concrete base with metal siding and metal roof	N/A

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Gaging Stations and Weirs (continued)		
Reservoir Gages		
French Meadows Reservoir Gage (USGS Gage No. 11427400)	Concrete	N/A
French Meadows Reservoir Staff Gage	Concrete	N/A
Hell Hole Reservoir Gage (USGS Gage No. 11428700)	Concrete with sheet metal structures	10'
Hell Hole Reservoir Staff Gage	Concrete with sheet metal structures	10'
Middle Fork Interbay Reservoir Gage		
Ralston Afterbay Reservoir Gage	Cement with sheet metal structure	20'
French Meadows Powerhouse Gage (USGS Gage No. 11427200)	Concrete with sheet metal structures	20'
Middle Fork Powerhouse Gage (USGS Gage No. 11428600)	Concrete with sheet metal structures	20'
Powerhouse Gages		
Oxbow Powerhouse Gage (USGS Gage No. 11433212)	Sheet metal exterior	20'
Ralston Powerhouse Gage (USGS Gage No. 11427765)	Sheet metal exterior	30'
Leakage Weirs		
French Meadows Dam Leakage Weirs Nos. 1-6	Concrete	N/A
Hell Hole Dam Leakage Weir	Concrete with exposed metal pipe	N/A
Project Communication Lines and Powerlines		
French Meadows Area		
French Meadows Dam Generator Building to French Meadows Dam Outlet Works Powerline	Wood pole	Variable
French Meadows Dam Generator Building to French Meadows Dam Spillway Gates Powerline	Wood pole	Variable
Hell Hole Area		
French Meadows Powerhouse to French Meadows Powerhouse Penstock and Butterfly Valve House Communication Line/Powerline	Wood Pole	Variable
French Meadows Powerhouse and Switchyard to Hell Hole - Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator's Cottages, and Hell Hole Powerhouse Communication Line/Powerline	Wood Pole	Variable
Dormitory and Cottages Water Supply Tank Powerline	Wood Pole	Variable

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Project Communication Lines and Powerlines (continued)		
Hell Hole Area (continued)		
Hell Hole Powerhouse to Rubicon River Gage and Weir below Hell Hole Dam Communication Line/Powerline	Wood Pole	Variable
Middle Fork Interbay Area		
Middle Fork Powerhouse to Middle Fork Powerhouse Butterfly Valve House Communication Line/Powerline	Wood Pole	Variable
Middle Fork Powerhouse Butterfly Valve House to Radio Repeater near Hell Hole - Middle Fork Tunnel Surge Tank (underground) Communication Line/Powerline	Wood Pole	Variable
Middle Fork Powerhouse to Middle Fork - Ralston Tunnel Intake and Gatehouse Communication Line/Powerline	Wood Pole	Variable
Middle Fork Powerhouse to Middle Fork American River Gage above Middle Fork Powerhouse Communication Line/Powerline	Wood Pole	Variable
Ralston - Oxbow Area		
Ralston - Oxbow Tunnel Intake to Ralston Powerhouse Communication Line	Wood pole	Variable
Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline	Wood pole	Variable
Ralston Afterbay Dam Generator Building to Ralston - Oxbow Tunnel Intake Communication Line/Powerline	Wood pole	Variable
Oxbow Powerhouse to Ralston Afterbay Dam Generator Building Communication Line/Powerline	Wood pole	Variable
Photovoltaic Poles and Powerlines		
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam	Metal photovoltaic pole with wood pole powerline	Variable
Photovoltaic Pole and Powerline at Duncan Creek Gage below Diversion Dam	Metal photovoltaic pole with wood pole powerline	Variable
Photovoltaic Pole and Powerline at Middle Fork American River Gage below French Meadows Dam	Wood pole	Variable
Photovoltaic Pole and Powerline at Middle Fork American River Gage above Middle Fork Powerhouse	1) Metal pole (photovoltaic pole) 2) wood pole (powerline)	Variable

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Photovoltaic Poles and Powerlines (continued)		
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage at Diversion Dam	Wood pole	Variable
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage at Diversion Dam	1) Metal pole (photovoltaic pole) 2) wood pole (powerline)	Variable
Photovoltaic Pole at Middle Fork American River Gage below Oxbow Powerhouse	Metal pole	5'
Microwave Reflectors and Radio Towers		
Passive Microwave Reflector Station above Middle Fork Interbay	Metal frame with metallic reflector	1'
Radio Communications Tower near French Meadows - Hell Hole Tunnel Gatehouse	Wood pole	8'
Radio Communications Tower and Repeater near Hell Hole - Middle Fork Tunnel Surge Shaft and Tank	Metal frame	10'
Passive Microwave Reflector Station above Ralston Afterbay	Metal frame with metallic reflector	10'
Disposal Sites		
Duncan Diversion Dam Sediment Disposal Area	Sediment	N/A
Long Canyon Crossing Sediment Disposal Area	Sediment / rock	N/A
Middle Fork Interbay Sediment Disposal Area	Sediment / rock	N/A
Ralston Ridge Sediment Disposal Area	Sediment / rock	N/A
Indian Bar Sediment Disposal Area	1) Sediment / rock 2) restrooms, cement vault type, 3 each	1) N/A 2) 10 to 15'
Ancillary Facilities		
French Meadows Dam Generator Building	Cement block with metal roof	50'
French Meadows Dam Staging Area	Native surface	N/A
Dormitory Facility	Vinyl siding with metal roof and non-vented eaves	10'
Dormitory and Cottages Water Supply Tank	Wood sided, metal roof	10'
Hell Hole Staging Areas	Native surface	N/A
Operator Cottages and Shop		
Ralston Afterbay Dam Generator Building	Concrete and cement block with metal roof	15'
Storage Building at Middle Fork - Ralston Tunnel Surge Shaft and Tank	Cement block with metal roof and doors	25'
Wabena Meadows Snow Course		
Miranda Cabin Snow Course		

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Ancillary Facilities (continued)		
Diamond Crossing Snow Course		
Talbot Camp Snow Course		
Project Fences		
Slope Fences		
French Meadows Powerhouse Penstock Rock Fence		N/A
French Meadows Powerhouse Slope Fence	Chain link	N/A
Long Canyon Crossing Slope Fence	Chain link	N/A
Middle Fork Powerhouse Upper Switchyard Slope Fence	Chain link	N/A
Middle Fork Interbay Dam Slope Fence	Chain link	N/A
Oxbow Powerhouse Slope Fence	Chain link	N/A
Ralston Powerhouse Penstock and Butterfly Valve House Slope Fences	Chain link	N/A
Ralston Powerhouse Slope Fence	Chain link	N/A
Public Safety Fences		
Dormitory Facility Barrier Fence/ Dormitory Facility Security Fence	Chain link with barbed wire	N/A
Hell Hole Dam General Parking Area Barrier Fence	Metal wire, 8'	N/A
North Fork Long Canyon Crossing Removable Section Barrier Fence	Chain Link with barbed wire (6')	N/A
Project Roads and Access Points		
Duncan Creek Area		
Duncan Creek Diversion Intake Road and Diversion Pool Access Point	Native surface	N/A
Duncan Creek Diversion Dam Road	Native surface	N/A
Duncan Creek Diversion Pool Road and Access Point	Native surface	N/A
French Meadows Area		
Duncan Creek - Middle Fork Tunnel Portal Road and Spillway Access Point	Native surface	N/A
French Meadows - Hell Hole Tunnel Gatehouse Road	Native surface	N/A
French Meadows Dam Outlet Works and Leakage Weirs Road	Native surface	N/A
French Meadows Dam Staging Area Road	Native surface	N/A

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Project Roads and Access Points (continued)		
French Meadows Area (continued)		
Middle Fork American River Gage and Weir below French Meadows Dam Road	Native surface	N/A
Hell Hole Area		
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point	Native surface	N/A
Rubicon River Gage and Weir below Hell Hole Dam Road	Native surface	N/A
Hell Hole Dam Leakage Weir Road	Native surface	N/A
Hell Hole Dam Spillway Northern Access Point	Native surface	N/A
French Meadows - Hell Hole Tunnel Portal Road		
French Meadows Powerhouse Road	Native surface	N/A
Hell Hole - Middle Fork Tunnel Gatehouse Road	Native surface	N/A
Dormitory Facility Road	Native surface	N/A
Hell Hole Dam Spillway Discharge Channel Road	Native surface	N/A
Long Canyon Area		
North Fork Long Canyon Diversion North Road	Native surface	N/A
North Fork Long Canyon Diversion South Road	Native surface	N/A
North Fork Long Canyon Diversion Drop Inlet Road	Native surface	N/A
South Fork Long Canyon Diversion and Drop Inlet Road	Native surface	N/A
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	Native surface	N/A
North Fork Long Canyon Crossing Removable Section South Road	Native surface	N/A
Middle Fork Interbay Area		
Middle Fork Powerhouse Butterfly Valve House Road	Native surface	N/A
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	Native surface	N/A
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	Native surface	N/A
Middle Fork Powerhouse Upper Switchyard Road	Native surface	N/A
Brushy Canyon Adit Road	Native surface	N/A

Table LAND 2-11. Construction Materials and Clearance Distances at Project Facilities (continued).

Project Facility	Construction Materials	Clearance
Project Roads and Access Points (continued)		
Oxbow Powerhouse Road	Native surface	N/A
Ralston Powerhouse Butterfly Valve House Road	Partially paved with some native surface	N/A
Ralston - Oxbow Tunnel Intake Road	Native surface	N/A
Ralston Afterbay Road and Boat Ramp	Native surface (road), cement paving (boat ramp)	N/A
Ralston Afterbay Dam Road and Afterbay Access Point	Native surface	N/A
Ralston-Oxbow Area		
Ralston Afterbay Sediment Removal Access Point	Native surface	N/A
Project Trails		
Duncan Creek Area		
Duncan Creek Diversion Dam North Trail	Native surface	N/A
Duncan Creek Diversion Dam South Trail	Native surface	N/A
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail	Metal photovoltaic pole with wood pole powerline	Variable
Duncan Creek Gage and Weir above Diversion Trail	Steel frame with metal sheeting	30'
Duncan Creek Gage and Weir below Diversion Trail	Steel frame with metal sheeting	20'
French Meadows Area		
Middle Fork American River Gage and Weir below French Meadows Dam Trail	Native surface	N/A
Middle Fork Interbay Area		
Middle Fork American River Gage above Middle Fork	Native surface	N/A
Passive Microwave Reflector Station above Middle Fork Interbay Trail	Native surface	N/A
Ralston Afterbay Area		
Passive Microwave Reflector Station above Ralston Afterbay Trail	Native surface	N/A
Middle Fork American River Gage below Oxbow Powerhouse Trail	Native surface	N/A

Table LAND 2-12. Construction Materials and Clearance Distances at Project Recreation Facilities.

Project-related Recreation Facilities	Construction Materials	Clearance
Project Recreation Facilities		
French Meadows Area		
Ahart Campground	Restroom, wood siding, composition roof	20'
Coyote Group Campground	1) Restroom, wood siding, composition roof	10'
	2) restroom, wood siding, wood shingle roof	3'
	3) restroom, wood siding, wood shingle roof	3'
	4) restroom, wood siding, wood shingle roof	3"
Poppy Campground	1) restroom, wood siding, wood shingle roof	3'
	2) restroom, wood siding, wood shingle roof	3'
French Meadows Campground	1) Storage shed, wood siding, composition roof	20'
	2) propane tank, 200 gal. (estimated)	20'
	3) restroom, wood siding, wood shingle roof	10'
	4) restroom, wood siding, composition roof	20'
	5) restroom, wood siding, composition roof	20'
	6) restroom, wood siding, wood shingle roof	8'
	7) restroom, wood siding, wood shingle roof	10'
	8) restroom, wood siding, composition roof	10'
Gates Group Campground	1) restroom, wood siding, wood shingle roof	4'
	2) restroom, wood siding, wood shingle roof	4'
Lewis Campground	1) restroom, wood siding composition roof	100'
	2) storage shed, wood siding, composition roof	5'
	3) restroom, wood siding wood shingle roof	8'
	4) restroom, wood siding, composition roof	5'
	5) restroom, wood siding, wood shingle roof	5'
French Meadows Picnic Area	Native vegetation	N/A
McGuire Picnic Area	1) Restroom, wood siding, composition roof	25'
	2) restroom, wood siding, wood shingle roof	10'
	3) restroom, wood siding, wood shingle roof	10'
	4) restroom, wood siding, wood shingle roof	10'
French Meadows Boat Ramp	Concrete pavement	N/A
McGuire Boat Ramp	Cement pavement	N/A

Table LAND 2-12. Construction Materials and Clearance Distances at Project Recreation Facilities (continued).

Project-related Recreation Facilities	Construction materials	Clearance
Hell Hole Area		
Big Meadows Campground	1) Restrooms, 7 each, concrete vault type 2) restroom, wood siding, composition roof	>8' 10'
Hell Hole Campground	Restroom, concrete vault type	20'
Upper Hell Hole Campground	Restroom, concrete vault type	10'
Hell Hole Vista	1) Concrete/rock wall 2) restroom, concrete vault type	N/A 20'
Hell Hole General Parking Area	1) Both native surface and cement pavement 2) restroom, concrete vault type	N/A 30'
Hell Hole Boat Ramp Parking Area	Native surface	N/A
Hell Hole Boat Ramp	Cement paving with cement/rock features at parking area	N/A
Ralston Afterbay Area		
Ralston Picnic Area	Restroom, cement vault type	15'
Ralston Picnic Area Cartop Boat Ramp		
Indian Bar Rafting Access and General Parking	Native surface	N/A
Long Canyon Area		
Middle Meadows Group Campground	1) Restroom, concrete vault type 2) restroom, concrete vault type 3) concrete stream ford	10' 25' N/A
Project Recreation Facility Features		
Project Recreation Facility Water Supplies and Associated Maintenance Trails		
Dolly Creek Water Supply	1) water tank, cement 2) cement block building with metal roof and metal doors 3) chain link fence (6')	5' 6' 0'
French Meadows Campground Water Supply and Trail	1) water supply: concrete 2) trail: native surface	10' N/A
Big Meadows Campground Water Supply and Trail	Concrete tank	5'
Middle Meadows Group Campground Water Supply, Fence, and Trail	1) concrete tank 2) metal wire 3) native surface trail	10' 0' N/A

Table LAND 2-13. Vegetation Management Activities at Project Facilities.

Existing Project Facilities and Features	Vegetation Management	
	Trimming by Hand	Herbicide Use
Dams, Reservoirs, and Diversion Pools		
Large Dams		
French Meadows Dam and Outlet Works	A	
Hell Hole Dam and Outlet Works	A	
Medium Dams		
Middle Fork Interbay Dam	A	
Ralston Afterbay Dam	A	
Small Dams		
Duncan Creek Diversion Dam		
North Fork Long Canyon Diversion Dam		
South Fork Long Canyon Diversion Dam		
Large Reservoirs		
French Meadows Reservoir		
Hell Hole Reservoir		
Medium Reservoirs		
Middle Fork Interbay		
Ralston Afterbay		
Small Diversion Pools		
Duncan Creek Diversion Pool		
North Fork Long Canyon Diversion Pool		
South Fork Long Canyon Diversion Pool		
Water Conveyance Systems		
Tunnels		
Duncan Creek – Middle Fork Tunnel		
French Meadows – Hell Hole Tunnel		
Hell Hole – Middle Fork Tunnel		
Middle Fork – Ralston Tunnel		
Ralston – Oxbow Tunnel		
Diversion Pipes and Drop Inlets		
North Fork Long Canyon Diversion Pipe and Drop Inlet		
South Fork Long Canyon Diversion Pipe and Drop Inlet		
Surge Shafts and Adits		
Brushy Canyon Adit	A	
Hell Hole – Middle Fork Tunnel Surge Shaft and Tank	A	
Middle Fork – Ralston Tunnel Surge Shaft and Tank	A	
Removable Sections and Portals		
Duncan Creek – Middle Fork Tunnel Portal	A	
French Meadows – Hell Hole Tunnel Removable Section	A	
Hell Hole – Middle Fork Tunnel Removable Section	A	
Middle Fork – Ralston Tunnel Removable Section	A	
North Fork Long Canyon Crossing Removable Section	A	

Table LAND 2-13. Vegetation Management Activities at Project Facilities (continued).

Existing Project Facilities and Features	Vegetation Management	
	Trimming by Hand	Herbicide Use
Water Conveyance Systems (continued)		
Intakes and Gatehouses		
Duncan Creek – Middle Fork Tunnel Intake	A	
French Meadows – Hell Hole Tunnel Gatehouse	A	
French Meadows – Hell Hole Tunnel Intake	A	
Hell Hole – Middle Fork Tunnel Gatehouse	A	
Hell Hole – Middle Fork Tunnel Intake	A	
Middle Fork – Ralston Tunnel Intake and Gatehouse	A	
Ralston – Oxbow Tunnel Intake	A	
Penstocks and Valve Houses		
French Meadows Powerhouse Penstock and Butterfly Valve House	A	
Middle Fork Powerhouse Penstock and Butterfly Valve House	A	
Ralston Powerhouse Penstock and Butterfly Valve House	A	
Powerhouses, Switchyards, and Substations		
French Meadows Powerhouse and Switchyard	A	
Hell Hole Powerhouse	A	
Middle Fork Powerhouse and Upper and Lower Switchyards	A	A
Ralston Powerhouse and Switchyard	A	A
Oxbow Powerhouse and Switchyard	A	A
Hell Hole Substation	A	
Gaging Stations and Weirs		
Stream Gages and Weirs		
Duncan Creek Gage and Weir above Diversion Dam (USGS Gage and Weir No. 11427700)		
Duncan Creek Gage and Weir below Diversion Dam (USGS Gage and Weir No. 11427750)		
Middle Fork American River Gage and Weir below French Meadows Dam (USGS Gage and Weir No. 11427500)		
Middle Fork American River Gage at Interbay Dam (USGS Gage No. 11427770)		
Middle Fork American River Gage above Middle Fork Powerhouse (USGS Gage No. 11427760)		
Middle Fork American River Gage below Oxbow Powerhouse (USGS Gage No. 11433300)		
North Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433085)		
South Fork Long Canyon Gage and Weir at Diversion Dam (USGS Gage and Weir No. 11433065)		
Rubicon River Gage and Weir below Hell Hole Dam (USGS Gage and Weir No. 11428800)		

Table LAND 2-13. Vegetation Management Activities at Project Facilities (continued).

Existing Project Facilities and Features	Vegetation Management	
	Trimming by Hand	Herbicide Use
Gaging Stations and Weirs (continued)		
Diversion Gages		
North Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433080)		
South Fork Long Canyon Gage at Diversion Dam (USGS Gage No. 11433060)		
Reservoir Gages		
French Meadows Reservoir Gage (USGS Gage No. 11427400)		
French Meadows Reservoir Staff Gage		
Hell Hole Reservoir Gage (USGS Gage No. 11428700)		
Hell Hole Reservoir Staff Gage		
Middle Fork Interbay Reservoir Gage		
Ralston Afterbay Reservoir Gage		
Powerhouse Gages		
French Meadows Powerhouse Gage (USGS Gage No. 11427200)		
Middle Fork Powerhouse Gage (USGS Gage No. 11428600)		
Oxbow Powerhouse Gage (USGS Gage No. 11433212)		
Ralston Powerhouse Gage (USGS Gage No. 11427765)		
Leakage Weirs		
French Meadows Dam Leakage Weirs Nos. 1–6		
Hell Hole Dam Leakage Weir		
Project Communication Lines and Powerlines		
French Meadows Area		
French Meadows Dam Generator Building to French Meadows Dam Outlet Works Powerline	A	
French Meadows Dam Generator Building to French Meadows Dam Spillway Gates Powerline	A	
Hell Hole Area		
French Meadows Powerhouse to French Meadows Powerhouse Penstock and Butterfly Valve House Communication Line/Powerline	A	
French Meadows Powerhouse and Switchyard to Hell Hole – Middle Fork Tunnel Gatehouse, Dormitory Facility, Operator's Cottages, and Hell Hole Powerhouse Communication Line/Powerline	A	
Dormitory and Cottages Water Supply Tank Powerline	A	
Hell Hole Powerhouse to Rubicon River Gage and Weir below Hell Hole Dam Communication Line/Powerline	A	

Table LAND 2-13. Vegetation Management Activities at Project Facilities (continued).

Existing Project Facilities and Features	Vegetation Management	
	Trimming by Hand	Herbicide Use
Project Communication Lines and Powerlines (continued)		
Middle Fork Interbay Area		
Middle Fork Powerhouse to Middle Fork Powerhouse Butterfly Valve House Communication Line/Powerline	A	
Middle Fork Powerhouse Butterfly Valve House to Radio Repeater near Hell Hole – Middle Fork Tunnel Surge Tank (underground) Communication Line/Powerline	A	
Middle Fork Powerhouse to Middle Fork – Ralston Tunnel Intake and Gatehouse Communication Line/Powerline	A	
Middle Fork Powerhouse to Middle Fork American River Gage above Middle Fork Powerhouse Communication Line/Powerline	A	
Ralston – Oxbow Area		
Ralston – Oxbow Tunnel Intake to Ralston Powerhouse Communication Line	A	
Ralston Powerhouse to Ralston Powerhouse Butterfly Valve House Communication Line/Powerline	A	
Ralston Afterbay Dam Generator Building to Ralston – Oxbow Tunnel Intake Communication Line/Powerline	A	
Oxbow Powerhouse to Ralston Afterbay Dam Generator Building Communication Line/Powerline	A	
Photovoltaic Poles and Powerlines		
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam	A	
Photovoltaic Pole and Powerline at Duncan Creek Gage below Diversion Dam	A	
Photovoltaic Pole and Powerline at Middle Fork American River Gage below French Meadows Dam	A	
Photovoltaic Pole and Powerline at Middle Fork American River Gage above Middle Fork Powerhouse	A	
Photovoltaic Pole and Powerline at North Fork Long Canyon Gage at Diversion Dam	A	
Photovoltaic Pole and Powerline at South Fork Long Canyon Gage at Diversion Dam	A	
Photovoltaic Pole at Middle Fork American River Gage below Oxbow Powerhouse	A	
Microwave Reflectors and Radio Towers		
Passive Microwave Reflector Station above Middle Fork Interbay	I	
Radio Communications Tower near French Meadows – Hell Hole Tunnel Gatehouse	I	

Table LAND 2-13. Vegetation Management Activities at Project Facilities (continued).

Existing Project Facilities and Features	Vegetation Management	
	Trimming by Hand	Herbicide Use
Microwave Reflectors and Radio Towers (continued)		
Radio Communications Tower and Repeater near Hell Hole – Middle Fork Tunnel Surge Shaft and Tank	I	
Passive Microwave Reflector Station above Ralston Afterbay	I	
Disposal Sites		
Duncan Diversion Dam Sediment Disposal Area		
North Fork Long Canyon Crossing Sediment Disposal Area		
Middle Fork Interbay Sediment Disposal Area		
Ralston Ridge Sediment Disposal Area		
Indian Bar Sediment Disposal Area		
Ancillary Facilities		
French Meadows Dam Generator Building	A	
French Meadows Dam Staging Area		
Dormitory Facility	A	
Dormitory and Cottages Water Supply Tank	A	
Hell Hole Staging Areas		
Operator Cottages and Shop	A	
Ralston Afterbay Dam Generator Building	A	
Storage Building at Middle Fork – Ralston Tunnel Surge Shaft and Tank	A	
Wabena Meadows Snow Course	A	
Miranda Cabin Snow Course	A	
Diamond Crossing Snow Course	A	
Talbot Camp Snow Course	A	
Project Fences		
Slope Fences		
French Meadows Powerhouse Penstock Rock Fence		
French Meadows Powerhouse Slope Fence	I	
Long Canyon Crossing Slope Fence	I	
Middle Fork Powerhouse Upper Switchyard Slope Fence		
Middle Fork Interbay Dam Slope Fence		
Oxbow Powerhouse Slope Fence		
Ralston Powerhouse Penstock and Butterfly Valve House Slope Fences		
Ralston Powerhouse Slope Fence		
Public Safety Fences		
Dormitory Facility Barrier Fence		
Hell Hole Dam General Parking Area Barrier Fence		
North Fork Long Canyon Crossing Removable Section Barrier Fence		

Table LAND 2-13. Vegetation Management Activities at Project Facilities (continued).

Existing Project Facilities and Features	Vegetation Management	
	Trimming by Hand	Herbicide Use
Project Roads and Access Points		
Duncan Creek Area		
Duncan Creek Diversion Intake Road and Diversion Pool Access Point	A	
Duncan Creek Diversion Dam Road	A	
Duncan Creek Diversion Pool Road and Access Point	A	
French Meadows Area		
Duncan Creek – Middle Fork Tunnel Portal Road and Spillway Access Point		
French Meadows – Hell Hole Tunnel Gatehouse Road	A	
French Meadows Dam Outlet Works and Leakage Weirs Road	A	
French Meadows Dam Staging Area Road	A	
Middle Fork American River Gage and Weir below French Meadows Dam Road	A	
Hell Hole Area		
Hell Hole Dam and Powerhouse Road and Spillway Southern Access Point	A	
Rubicon River Gage and Weir below Hell Hole Dam Road	A	
Hell Hole Dam Leakage Weir Road	A	
Hell Hole Dam Spillway Northern Access Point	A	
French Meadows – Hell Hole Tunnel Portal Road	A	
French Meadows Powerhouse Road A		
Hell Hole – Middle Fork Tunnel Gatehouse Road	A	
Dormitory Facility Road	A	
Hell Hole Dam Spillway Discharge Channel Road	A	
Long Canyon Area		
North Fork Long Canyon Diversion North Road	A	
North Fork Long Canyon Diversion South Road	A	
North Fork Long Canyon Diversion Drop Inlet Road	A	
South Fork Long Canyon Diversion and Drop Inlet Road	A	
North Fork Long Canyon Crossing Removable Section North Road and Parking Area	A	
North Fork Long Canyon Crossing Removable Section South Road	A	
Middle Fork Interbay Area		
Middle Fork Powerhouse Butterfly Valve House Road	A	
Middle Fork Powerhouse Penstock and Butterfly Valve House Road	A	
Middle Fork Interbay Dam and Powerhouse Road and Interbay Access Points	A	
Middle Fork Powerhouse Upper Switchyard Road	A	

Table LAND 2-13. Vegetation Management Activities at Project Facilities (continued).

Existing Project Facilities and Features	Vegetation Management	
	Trimming by Hand	Herbicide Use
Project Roads and Access Points (continued)		
Ralston–Oxbow Area		
Brushy Canyon Adit Road		
Oxbow Powerhouse Road	A	
Ralston Powerhouse Butterfly Valve House Road	A	
Ralston – Oxbow Tunnel Intake Road	A	
Ralston Afterbay Road and Boat Ramp	A	
Ralston Afterbay Dam Road and Afterbay Access Point	A	
Ralston Afterbay Sediment Removal Access Point	A	
Project Trails		
Duncan Creek Area		
Duncan Creek Diversion Dam North Trail	A	
Duncan Creek Diversion Dam South Trail	A	
Photovoltaic Poles and Powerline to Duncan Creek Gage above Diversion Dam Trail	A	
Duncan Creek Gage and Weir above Diversion Trail	A	
Duncan Creek Gage and Weir below Diversion Trail	A	
French Meadows Area		
Middle Fork American River Gage and Weir below French Meadows Dam Trail	A	
Middle Fork Interbay Area		
Middle Fork American River Gage above Middle Fork Powerhouse Trail	A	
Passive Microwave Reflector Station above Middle Fork Interbay Trail	A	
Ralston Afterbay Area		
Passive Microwave Reflector Station above Ralston Afterbay Trail	A	
Middle Fork American River Gage below Oxbow Powerhouse Trail	A	

A = Activity occurs on an annual basis.

I = Activity occurs on an infrequent basis.

Table LAND 2-14. Vegetation Management Activities at Project Recreation Facilities and Features.

Project Recreation Facilities	Vegetation Management	
	Trimming by Hand	Fungicide Use
French Meadows Area		
Ahart Campground	A	I
Coyote Group Campground	A	I
Poppy Campground	A	I
French Meadows Campground	A	I
Gates Group Campground	A	I
Lewis Campground	A	I
French Meadows Picnic Area		
McGuire Picnic Area		
French Meadows Boat Ramp		
McGuire Boat Ramp		
Dolly Creek Water Supply	I	
French Meadows Campground Water Supply	I	
Hell Hole Area		
Big Meadows Campground	A	I
Hell Hole Campground	A	I
Upper Hell Hole Campground	A	I
Hell Hole Vista	A	I
Hell Hole General Parking Area	A	
Hell Hole Boat Ramp Parking Area	A	
Hell Hole Boat Ramp	A	
Big Meadows Campground Water Supply	I	
Ralston Afterbay Area		
Ralston Picnic Area	A	
Ralston Picnic Area Cartop Boat Ramp	A	
Indian Bar Rafting Access and General Parking	A	
Long Canyon Area		
Middle Meadows Group Campground	A	
Middle Meadows Group Campground Water Supply	I	

A = Activity occurs on an annual basis.

I = Activity occurs on an infrequent basis.

Table LAND 2-15. Fire Hazard and Fire Risk Ratings at Project Recreation Facilities and Dispersed Concentrated Use Areas.

Project Facility	Fire Hazard	Fire Risk
Project Recreation Facility		
French Meadows Area		
Ahart Campground	NA	NA
Coyote Group Campground	NA	NA
Poppy Campground	NA	NA
French Meadows Campground	NA	NA
Gates Group Campground	NA	NA
Lewis Campground	NA	NA
French Meadows Picnic Area	NA	NA
McGuire Picnic Area	NA	NA
French Meadows Boat Ramp	NA	NA
McGuire Boat Ramp	NA	NA
Hell Hole Area		
Big Meadows Campground	Extreme	High
Hell Hole Campground	Very High	High
Upper Hell Hole Campground	Very High	High
Hell Hole Vista	Very High	High
Hell Hole General Parking Area	Very High	High
Hell Hole Boat Ramp Parking Area	Very High	High
Hell Hole Boat Ramp	Very High	High
Ralston Afterbay Area		
Ralston Picnic Area	NA	NA
Ralston Picnic Area Cartop Boat Ramp	NA	NA
Indian Bar Rafting Access and General Parking	NA	NA
Long Canyon Area		
Middle Meadows Group Campground	Extreme	High
Project Recreation Facility Features		
Project Recreation Facility Water Supplies and Associated Maintenance Trails		
Dolly Creek Water Supply	NA	NA
French Meadows Campground Water Supply and Trail	NA	NA
Big Meadows Campground Water Supply and Trail	Extreme	High
Middle Meadows Group Campground Water Supply and Trail	Extreme	High

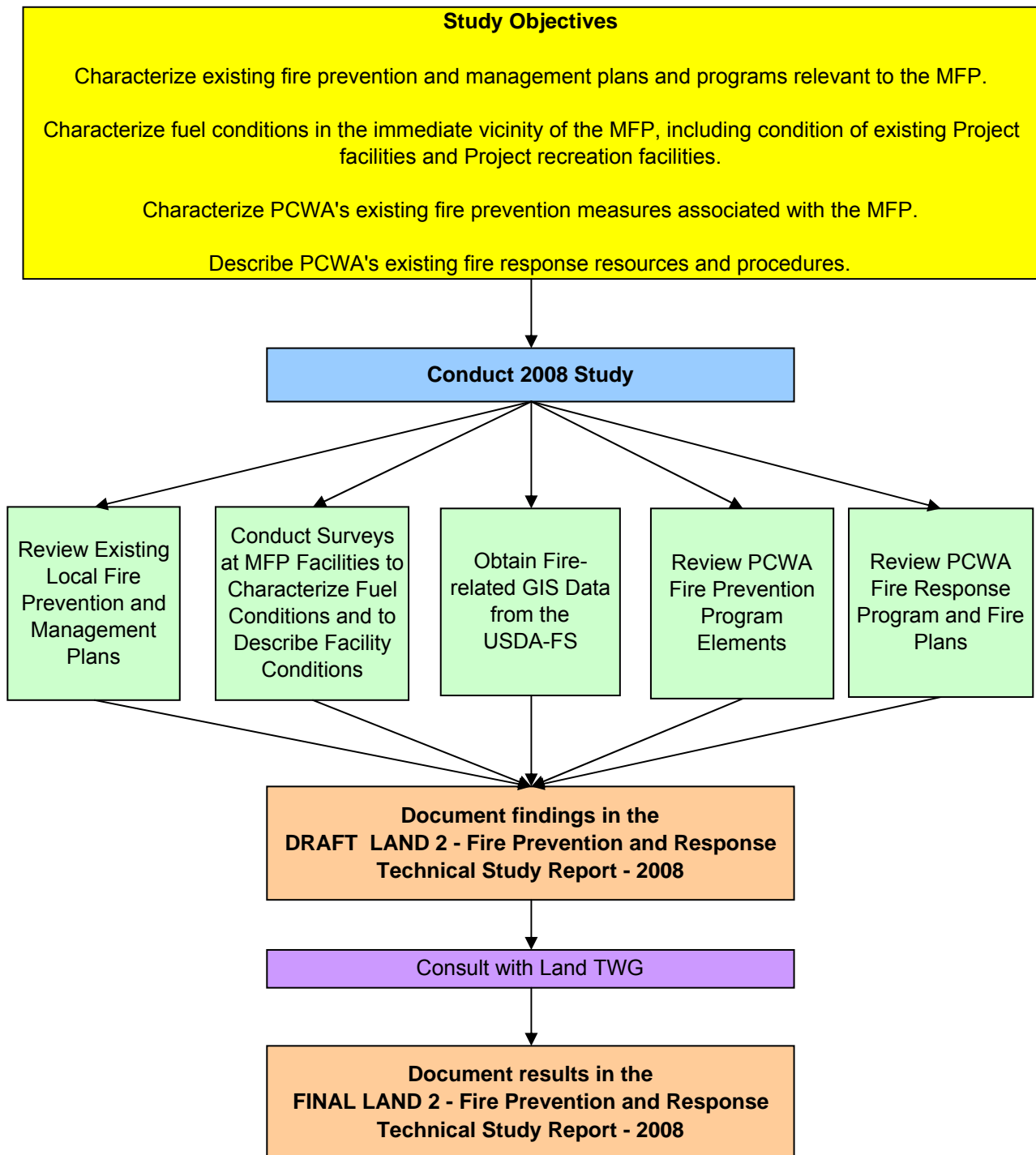
Table LAND 2-15. Fire Hazard and Fire Risk Ratings at Project Recreation Facilities and Dispersed Concentrated Use Areas (continued).

Project Facility	Fire Hazard	Fire Risk
Dispersed Concentrated Use Areas		
French Meadows Reservoir Area		
Area near French Meadows-Hell Hole Tunnel Gatehouse	NA	NA
Area immediately downstream of French Meadows Dam (both sides of river)	NA	NA
Area located immediately northwest of French Meadows Dam	NA	NA
Area near bridge over the Middle Fork American River, upstream French Meadows Reservoir	NA	NA
Duncan Creek Diversion Dam Area		
Area on north side of Duncan Creek Diversion Dam	NA	NA
Area near Duncan Creek Gage and Weir, upstream of Duncan Creek Diversion Dam	NA	NA
Area near new bridge crossing Duncan Canyon on the road to the Grizzly, etc.	NA	NA
Hell Hole Reservoir Area		
Area on west side of Hell Hole Reservoir, between dam and Hell Hole Boat Ramp	Very High	High
Grey Horse Area	Very High	High
Long Canyon Area		
Area surrounding South Fork Long Canyon Diversion Dam	Extreme	High
Areas along South Fork Long Canyon Creek, downstream of South Fork Long Canyon Diversion Dam	Extreme	High
Middle Fork Interbay Area		
Shoreline area surrounding Middle Fork Interbay	Extreme	Moderate
Ralston Afterbay Area		
Ralston Afterbay Sediment Disposal Area	Extreme	Moderate
Shoreline area surrounding Ralston Afterbay	Extreme	High
Area along Middle Fork American River, between Ralston Picnic Area and the new gage	NA	NA
Area at confluence of North Fork of the Middle Fork American River and Middle Fork American River	NA	NA
Indian Bar, Willow Bar, and Junction Bar Areas	Extreme	High

NA = Rating Not Available

FIGURES

Figure LAND 2-1. Fire Prevention and Response Objectives and Related Study Elements and Reports.



MAPS

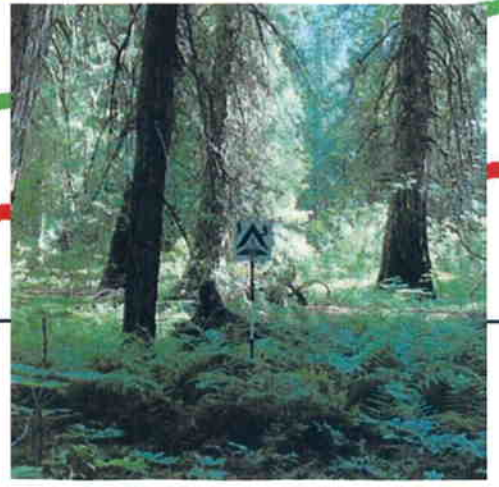
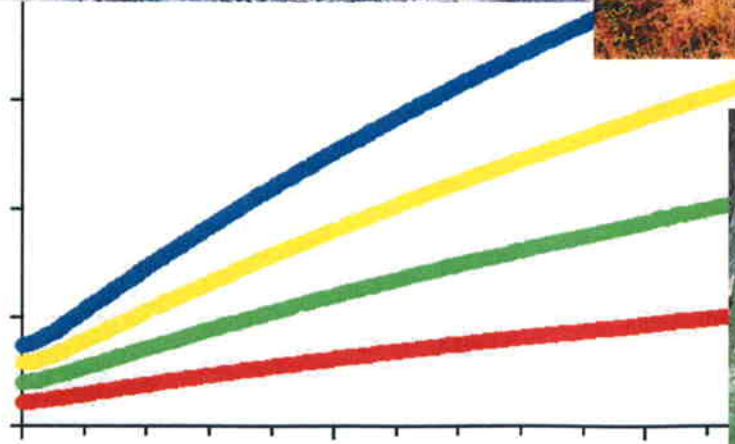
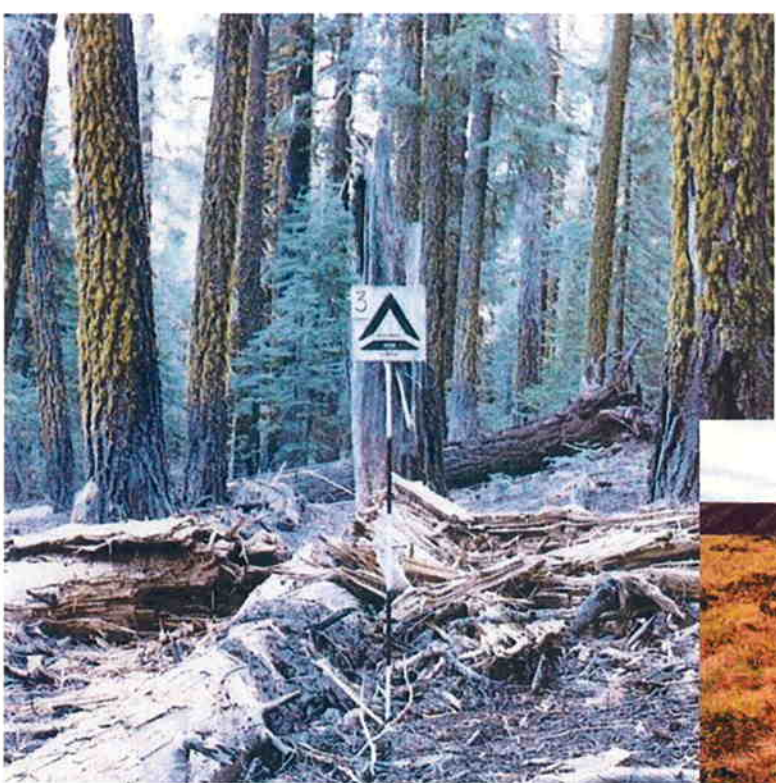
APPENDIX A

**Surface Fuel Models Observed within the Middle Fork Project as Described in
*Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with
Rothermel's Surface Fire Spread Model*, Scott and Burgan 2005 (excerpt)**



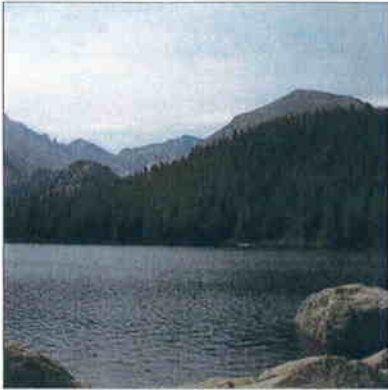
Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model

Joe H. Scott
Robert E. Burgan



NB8 (98)

Open Water



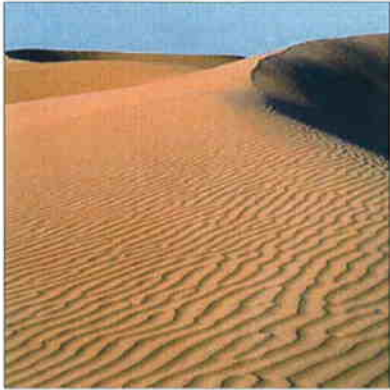
Description: Land covered by open bodies of water such as lakes, rivers and oceans comprises NB8.

Expected fire behavior:

No fire spread

NB9 (99)

Bare Ground



Description: Land devoid of enough fuel to support wildland fire spread is covered by fuel model NB9. Such areas may include gravel pits, arid deserts with little vegetation, sand dunes, rock outcroppings, beaches, and so forth.

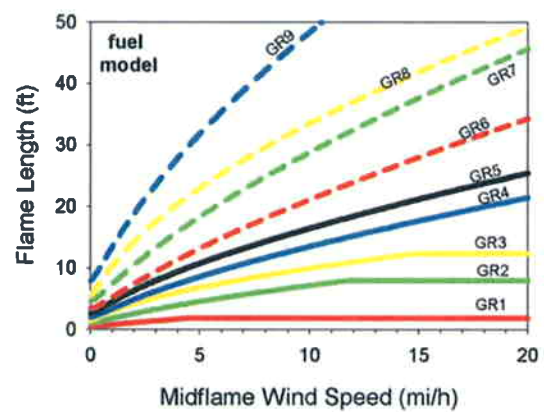
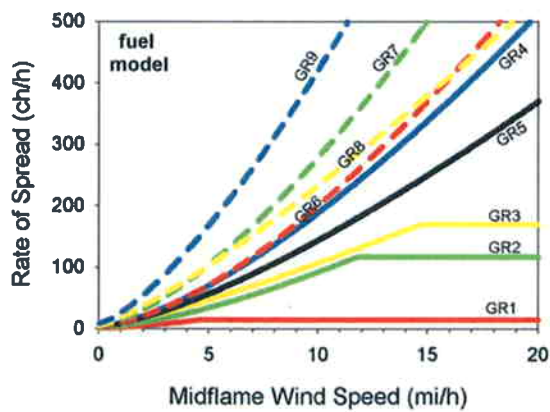
Expected fire behavior:

No fire spread

Grass Fuel Type Models (GR)

The primary carrier of fire in the GR fuel models is grass. Grass fuels can vary from heavily grazed grass stubble or sparse natural grass to dense grass more than 6 feet tall. Fire behavior varies from moderate spread rate and low flame length in the sparse grass to extreme spread rate and flame length in the tall grass models.

All GR fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong.



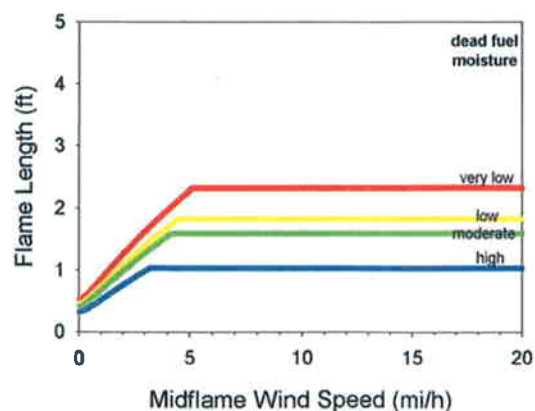
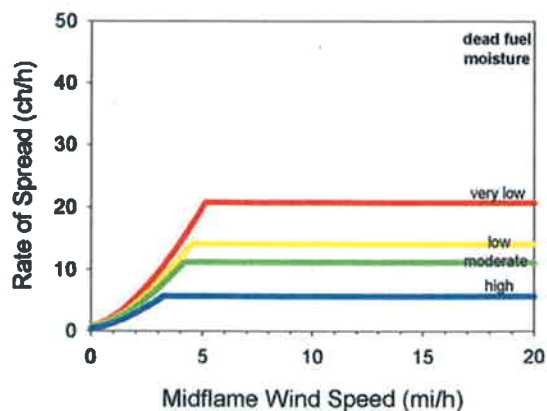
GR1 (101)

Short, Sparse Dry Climate Grass (Dynamic)



Description: The primary carrier of fire in GR1 is sparse grass, though small amounts of fine dead fuel may be present. The grass in GR1 is generally short, either naturally or by grazing, and may be sparse or discontinuous. The moisture of extinction of GR1 is indicative of a dry climate fuelbed, but GR1 may also be applied in high-extinction moisture fuelbeds because in both cases predicted spread rate and flame length are low compared to other GR models.

Fine fuel load (t/ac)	0.40
Characteristic SAV (ft-1)	2054
Packing ratio (dimensionless)	0.00143
Extinction moisture content (percent)	15



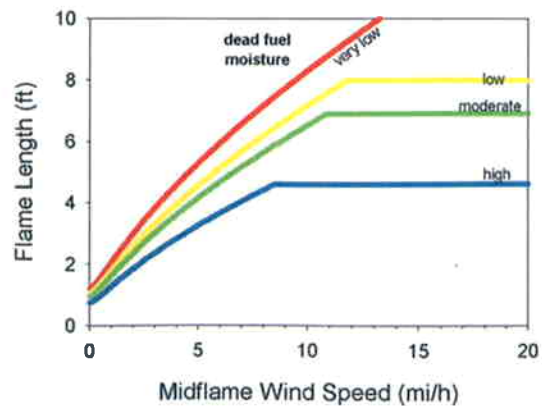
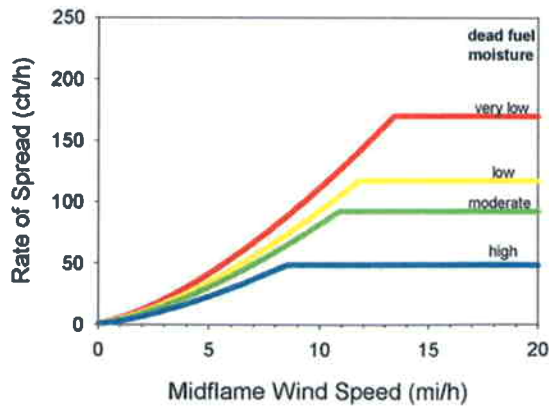
GR2 (102)

Low Load, Dry Climate Grass (Dynamic)



Description: The primary carrier of fire in GR2 is grass, though small amounts of fine dead fuel may be present. Load is greater than GR1, and fuelbed may be more continuous. Shrubs, if present, do not affect fire behavior.

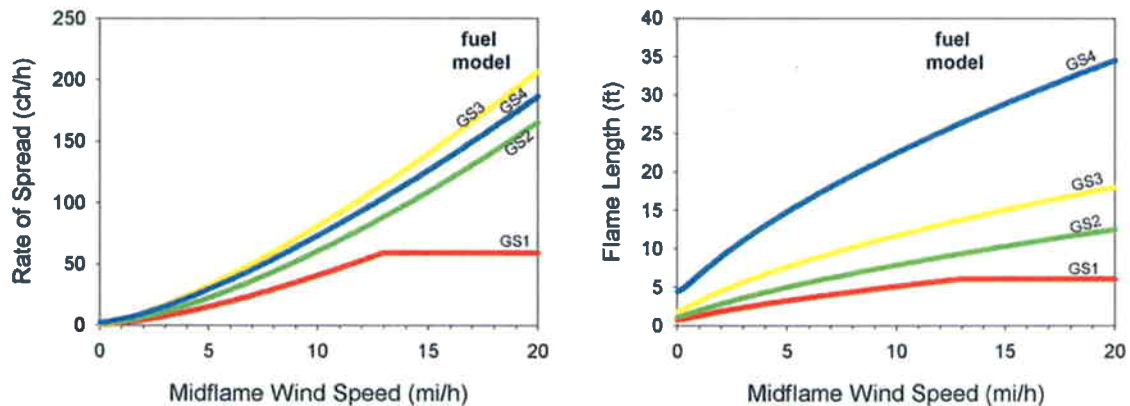
Fine fuel load (t/ac)	1.10
Characteristic SAV (ft-1)	1820
Packing ratio (dimensionless)	0.00158
Extinction moisture content (percent)	15



Grass-Shrub Fuel Type Models (GS)

The primary carrier of fire in the GS fuel models is grass and shrubs combined; both components are important in determining fire behavior.

All GS fuel models are dynamic, meaning that their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content. The effect of live herbaceous moisture content on spread rate and intensity is strong and depends on the relative amount of grass and shrub load in the fuel model.



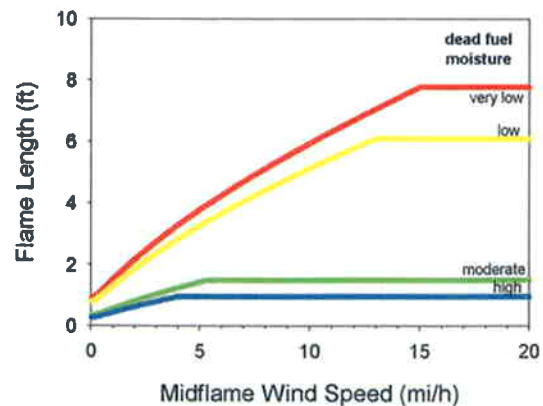
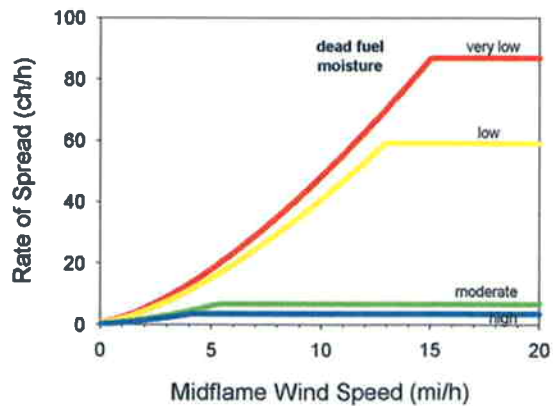
GS1 (121)

Low Load, Dry Climate Grass-Shrub (Dynamic)



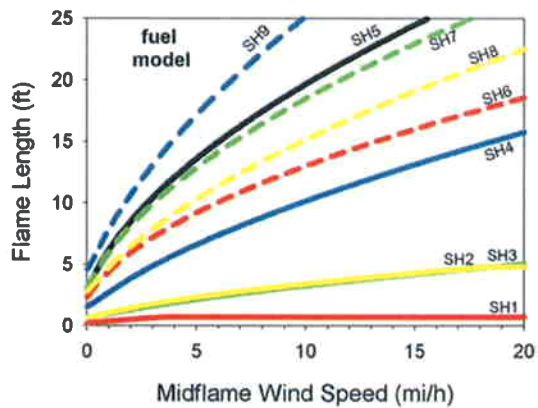
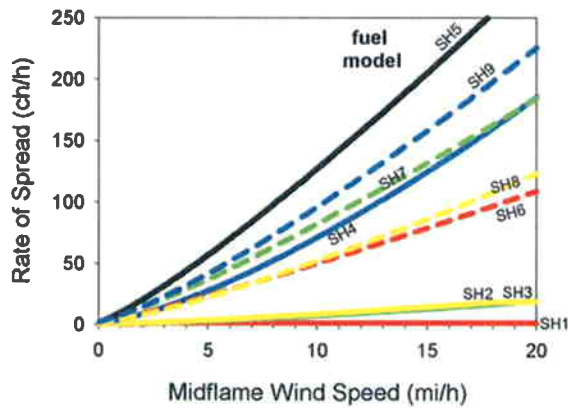
Description: The primary carrier of fire in GS1 is grass and shrubs combined. Shrubs are about 1 foot high, grass load is low. Spread rate is moderate; flame length low. Moisture of extinction is low.

Fine fuel load (t/ac)	1.35
Characteristic SAV (ft-1)	1832
Packing ratio (dimensionless)	0.00215
Extinction moisture content (percent)	15



Shrub Fuel Type Models (SH)

The primary carrier of fire in the SH fuel models is live and dead shrub twigs and foliage in combination with dead and down shrub litter. A small amount of herbaceous fuel may be present, especially in SH1 and SH9, which are dynamic models (their live herbaceous fuel load shifts from live to dead as a function of live herbaceous moisture content). The effect of live herbaceous moisture content on spread rate and flame length can be strong in those dynamic SH models.



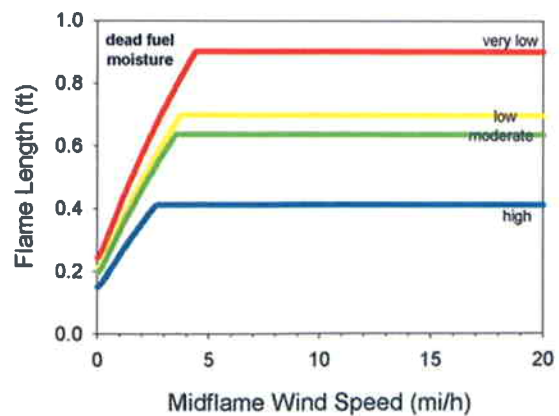
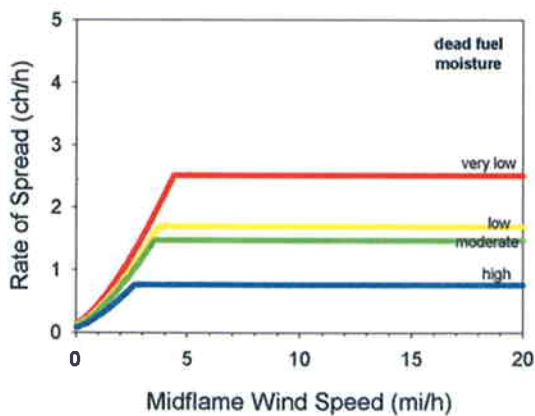
SH1 (141)

Low Load Dry Climate Shrub (Dynamic)



Description: The primary carrier of fire in SH1 is woody shrubs and shrub litter. Low shrub fuel load, fuelbed depth about 1 foot; some grass may be present. Spread rate is very low; flame length very low.

Fine fuel load (t/ac)	1.7
Characteristic SAV (ft-1)	1674
Packing ratio (dimensionless)	0.00280
Extinction moisture content (percent)	15



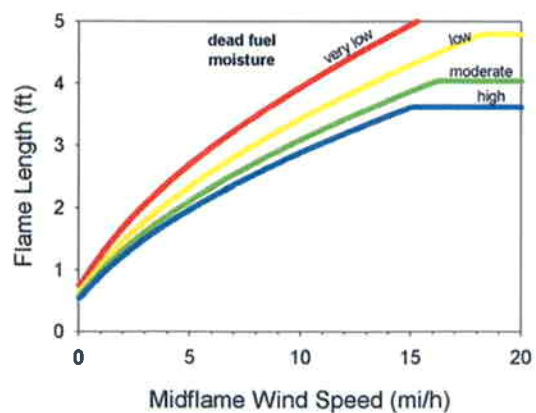
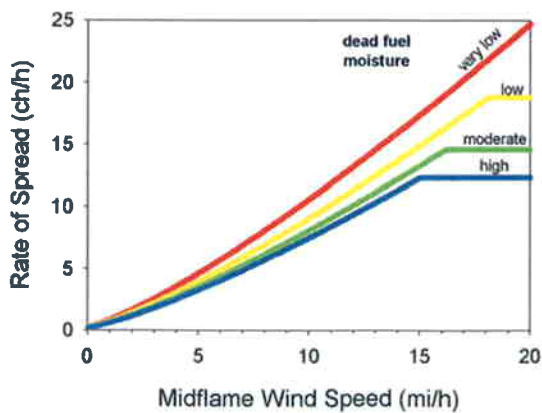
SH3 (143)

Moderate Load, Humid Climate Shrub



Description: The primary carrier of fire in SH3 is woody shrubs and shrub litter. Moderate shrub load, possibly with pine overstory or herbaceous fuel, fuel bed depth 2 to 3 feet. Spread rate is low; flame length low.

Fine fuel load (t/ac)	6.65
Characteristic SAV (ft-1)	1371
Packing ratio (dimensionless)	0.00577
Extinction moisture content (percent)	40



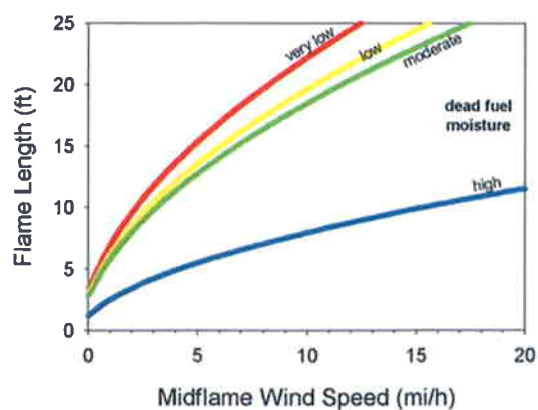
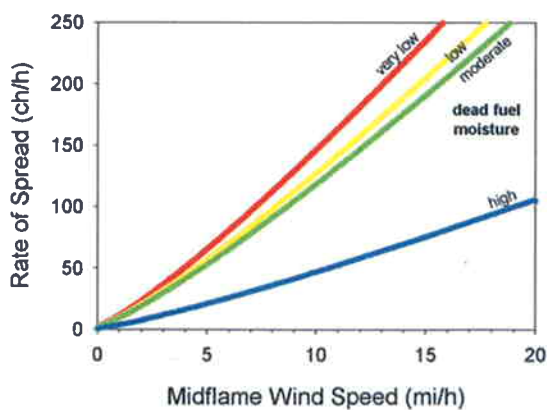
SH5 (145)

High Load, Dry Climate Shrub



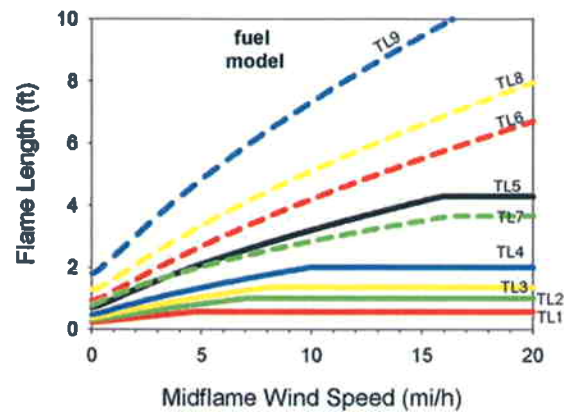
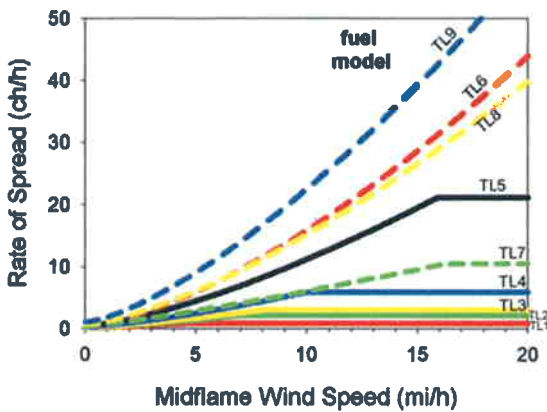
Description: The primary carrier of fire in SH5 is woody shrubs and shrub litter. Heavy shrub load, depth 4-6 feet. Spread rate very high; flame length very high. Moisture of extinction is high.

Fine fuel load (t/ac)	6.5
Characteristic SAV (ft-1)	1252
Packing ratio (dimensionless)	0.00206
Extinction moisture content (percent)	15



Timber Litter Fuel Type Models (TL)

The primary carrier of fire in the TL fuel models is dead and down woody fuel. Live fuel, if present, has little effect on fire behavior.



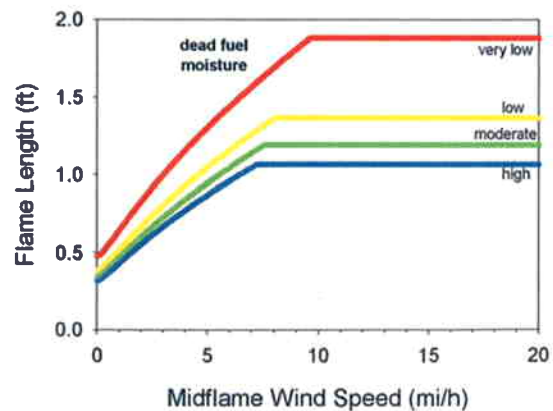
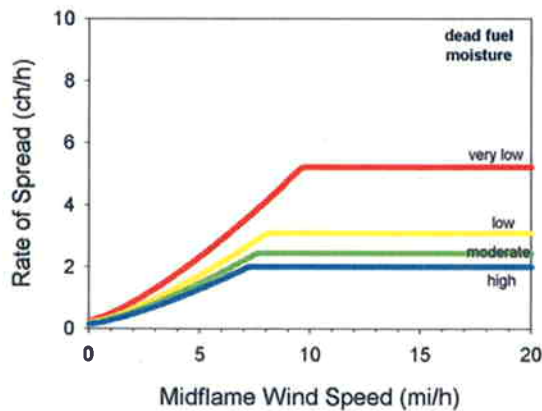
TL3 (183)

Moderate Load Conifer Litter



Description: The primary carrier of fire in TL3 is moderate load conifer litter, light load of coarse fuels. Spread rate is very low; flame length low.

Fine fuel load (t/ac)	0.50
Characteristic SAV (ft-1)	1532
Packing ratio (dimensionless)	0.02630
Extinction moisture content (percent)	20



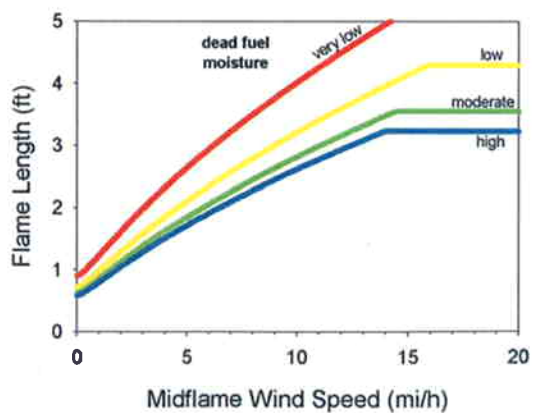
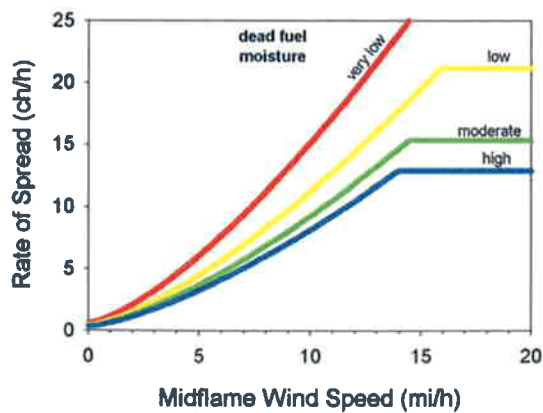
TL5 (185)

High Load Conifer Litter



Description: The primary carrier of fire in TL5 is high load conifer litter; light slash or mortality fuel. Spread rate is low; flame length low.

Fine fuel load (t/ac)	1.15
Characteristic SAV (ft-1)	1713
Packing ratio (dimensionless)	0.01925
Extinction moisture content (percent)	25



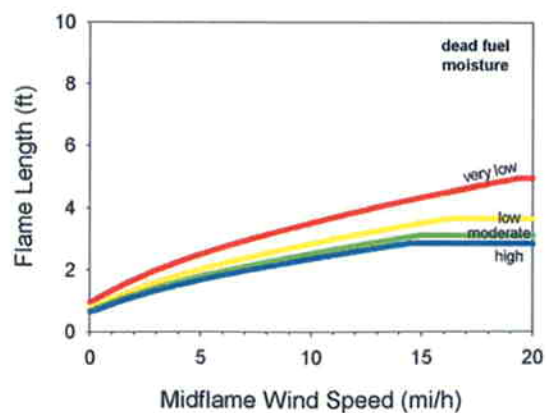
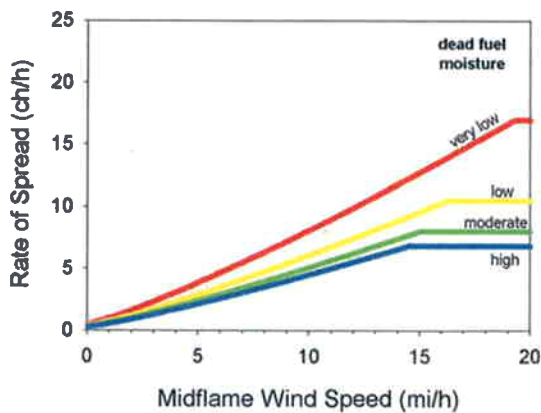
TL7 (187)

Large Downed Logs



Description: The primary carrier of fire in TL7 is heavy load forest litter, includes larger diameter downed logs. Spread rate low; flame length low.

Fine fuel load (t/ac)	0.30
Characteristic SAV (ft-1)	1229
Packing ratio (dimensionless)	0.03515
Extinction moisture content (percent)	25



APPENDIX B
Ladder and Aerial Fuel Combinations Descriptions

LAND 2 - Appendix B. Ladder and Aerial Fuel Combinations Descriptions.

Total Height (ft)	Height to Live Crown (ft)	Canopy Cover (%)	Crown Bulk Density (kg/m³)	Description
0	0	0	0	No ladder or aerial fuels.
80	3	70	0.25	Thick understory with heavy areal fuels likely to exhibit both passive and active crown fire activity.
80	10	70	0.25	Relatively thick understory with heavy areal fuels likely to exhibit passive crown fire activity with occasional active crown fire activity.
30	10	80	0.15	Light understory with high height to live crown ratio likely to exhibit surface fire with occasional passive crown fire.
80	10	30	0.15	Light understory with high height to live crown ratio likely to exhibit surface fire with occasional passive crown fire.
50	5	20	0.15	Light understory with high height to live crown ratio likely to exhibit surface fire with occasional passive crown fire.
30	5	80	0.25	Thick understory with heavy areal fuels likely to exhibit both passive and active crown fire activity.
80	8	70	0.15	Light understory with high height to live crown ratio likely to exhibit surface fire with occasional passive crown fire.

APPENDIX C
Wildland Urban Intermix Zone Descriptions

Appendix C. Wildland Urban Intermix Zone

A wildland urban intermix zone (WUI) is an area where human habitation is mixed with areas of flammable wildland vegetation. It extends out from the edge of developed private land into Federal, private, and State jurisdictions. A WUI may be comprised of two zones: a defense zone and a threat zone.

Designation: Defense Zones

A WUI defense zone comprises a buffer in close proximity to communities, areas with higher densities of residences, commercial buildings, and/or administrative sites with facilities. Defense zones generally extend roughly ¼ mile out from these areas; however, actual defense zone boundaries are determined at the project level following national, regional, and forest policy. In particular, the Healthy Forest Restoration Act of 2003 identifies areas to be considered WUI. Local fire management specialists determine the extent, treatment orientation, and prescriptions for the WUI based on historical fire spread and intensity, historical weather patterns, topography, and access. Defense zones should be of sufficient extent that fuel treatments within them will reduce wildland fire spread and intensity sufficiently for suppression forces to succeed in protecting human life and property.

Designation: Threat Zones

A WUI threat zone typically buffers the defense zone; however, a threat zone may be delineated in the absence of a defense zone under certain conditions, including situations where the structure density and location do not provide a reasonable opportunity for direct suppression on public land, but suppression on the private land would be enhanced by fire behavior modification on the adjacent public land.

Threat zone boundaries are determined at the project level following national, regional, and forest policy. Threat zones generally extend approximately 1¼ miles out from the defense zone boundary; however, actual extents of threat zones are based on fire history, local fuel conditions, weather, topography, existing and proposed fuel treatments, and natural barriers to fire. Fuel treatments in these zones are designed to reduce wildfire spread and intensity. Strategic landscape features, such as roads, changes in fuel types, and topography may be used in delineating the physical boundary of the threat zone.

For additional information see:

<http://www.fs.fed.us/r5/snfpa/final-seis/rod/appendix-a/gials-strategies/fire-fuels.html>

APPENDIX D

Fire Behavior Descriptions for Surface, Ladder, and Aerial Fuel Combinations

Appendix D. Fire Behavior Descriptions for Surface, Ladder, and Aerial Fuel Combinations.

MFP Fuel Model Identification Number	Surface Fuel Condition (Model)	Ladder and Aerial Fuel Condition: Canopy Characteristics				Potential Fire Behavior
		Canopy Cover (%)	Total Height (feet)	Height to Live Crown (feet)	Crown Bulk Density (kg/m ³)	
1	GR1	0	0	0	0	Surface Fuels: Low rate of spread, low flame length (in relation to other grass fuel types). Potential Crown Fire Activity: None (no overstory present)
2	NB9	0	0	0	0	Non-burnable (water, bare ground, rock, or pavement)
3	GS1	70	80	3	0.25	Surface Fuels: High rate of spread, Moderate flame length . Potential Crown Fire Activity: Likely to exhibit both passive and active crown fire activity.
4	TL3	70	80	10	0.25	Surface Fuels: Very low rate of spread, low flame length . Potential Crown Fire Activity: Likely to exhibit passive with occasional active crown fire activity.
5	TL3	80	30	10	0.15	Surface Fuels: Very low rate of spread, low flame length . Potential Crown Fire Activity: Likely to exhibit occasional passive crown fire activity.
6	GR2	30	80	10	0.15	Surface Fuels: Moderate rate of spread, low flame length. Potential Crown Fire Activity: Likely to exhibit occasional passive crown fire activity.
7	TL5	70	80	3	0.25	Surface Fuels: Low rate of spread, low flame length. Potential Crown Fire Activity: Likely to exhibit both passive and active crown fire activity.
8	SH3	20	50	5	0.15	Surface Fuels: Moderate rate of spread, low flame length. Potential Crown Fire Activity: Likely to exhibit occasional passive crown fire activity.
9	TL7	80	30	5	0.25	Surface Fuels: Low rate of spread, low flame length. Potential Crown Fire Activity: Likely to exhibit both passive and active crown fire activity.
10	SH1	0	0	0	0	Surface Fuels: High rate of spread, moderate flame length. Potential Crown Fire Activity: None (no overstory present)
11	SH5	0	0	0	0	Surface Fuels: Very high rate of spread, very high flame length. Potential Crown Fire Activity: None (no overstory present)
12	TL5	70	80	8	0.15	Surface Fuels: Low rate of spread, low flame length. Potential Crown Fire Activity: Likely to exhibit occasional passive crown fire activity.
13	SH5	20	50	3	0.15	Surface Fuels: Very high rate of spread, very high flame length. Potential Crown Fire Activity: Likely to exhibit both passive and active crown fire activity.

APPENDIX E
Tahoe National Forest Construction and Service Contracts

FIRE PLAN FOR CONSTRUCTION AND SERVICE CONTRACTS

6-14-2006

(Ref: FSH 6309.32 and 6309.11)

1. **SCOPE:**

The provisions set forth below outline the responsibility for fire prevention and suppression activities and establish a suppression plan for fires within the contract area. The contract area is delineated by map in the contract. The provisions set forth below also specify conditions under which contract activities will be curtailed or shut down.

2. **RESPONSIBILITIES:**

A. Contractor

- (1) Shall abide by the requirements of this Fire Plan.
- (2) Shall take all steps necessary to prevent his/her employees, subcontractors and their employees from setting fires not required in completion of the contract, shall be responsible for preventing the escape of fires set directly or indirectly as a result of contract operations, and shall extinguish all such fires which may escape.
- (3) Shall permit and assist in periodic testing and inspection of required fire equipment. Contractor shall certify compliance with specific fire precautionary measures in the fire plan, before beginning operations during Fire Precautionary Period and shall update such certification when operations change.
- (4) Shall designate in the fire plan and furnish on Contract Area during operating hours a qualified fire supervisor authorized to act on behalf of Contractor in fire prevention and suppression matters.

Shall complete the Contractor's Plan Regarding Personnel and shall furnish the Contracting Officer (CO) with a copy prior to commencing work at the site. Shall currently advise the CO of any changes in personnel as the changes occur. Shall revise Section 6.B to reflect current activities upon request of the CO.

B. Forest Service

The Forest Service may conduct one or more inspections for compliance with the fire plan. The number, timing, and scope of such inspections will be at the discretion of agency employees responsible for contract administration. Such inspections do not relieve the Contractor of responsibility for correcting violations of the fire plan or for fire safety in general, as outlined in paragraph 2.A above.

3. **TOOLS AND EQUIPMENT:**

- A. The Contractor shall comply with the following requirements during the fire precautionary period as defined by unit administering contracts unless waived in writing:

The Fire Precautionary Period is May 15 to October 15.

Contractor shall equip each operating tractor and any other internal combustion engine with a spark arrester, except for motor vehicles equipped with a maintained muffler as defined in C.P.R.C. Section 4442 or tractors with exhaust-operated turbochargers. Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the National Wildlife Coordinating Group Spark Arrester Guide, Volumes 1 and 2, and shall be maintained in good operating condition.

Contractor shall meet minimum requirements of Sections 4427 and 4428 of the California Public Resources Code (C.P.R.C.). Fire tools kept at each operating landing shall be sufficient to equip all employees in the felling, yarding, loading, chipping, and material processing operations associated with each landing. Fire equipment shall include two tractor headlights for each tractor dozer used in

Contractor's Operations. Tractor headlights shall be attachable to each tractor and served by an adequate power source.

Where cable yarding is used, Contractor shall provide a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (4 or 5 gallon) with hand pump within 10 feet of each tail and corner block.

Trucks, tractors, pickups and other similar mobile equipment shall be equipped with and carry at all times a size 0 or larger shovel with an overall length of not less than 46 inches and a 2-1/2 pound axe or larger with an overall length of not less than 28 inches.

Contractor shall equip each internal combustion yarder, fuel truck, and loader with a fire extinguisher for oil and grease fires (4-A:60-B:C).

Contractor shall equip each mechanized harvesting machine with hydraulic systems, powered by an internal combustion engine (chipper, feller/buncher, harvester, forwarder, hot saws, stroke delimeter, etc), except tractors and skidders, with at least two 4-A:60-B:C fire extinguishers or equivalent. In addition, concentrations of wood dust and debris shall be removed from such equipment daily. Additional extinguishers and sizes may be required at landings in accordance with Section 5.

Each power saw shall be equipped with a spark arrester approved according to C.P.R.C. Section 4442 or 4443 and shall be maintained in effective working order. One fire extinguisher meeting specifications of C.P.R.C. Section 4431 shall be kept with each operating power saw. A size 0 or larger shovel with an overall length of not less than 38 inches shall be kept with each gas can but not more than 300 feet from each power saw when used off cleared landing areas.

Contractor shall meet minimum requirements of Section 4430 of the California Public Resources Code (C.P.R.C.). Contractor shall provide a water tank truck or trailer on or in proximity to Contract Area during Contractor's Operations hereunder during Fire Precautionary Period unless otherwise agreed. When Project Activity Level B or higher is in effect, a tank truck or trailer shall be on or immediately adjacent to each active landing unless otherwise excepted when hot saw technology is being used. See Section 5 for specific contract requirements.

The tank shall contain at least 300 gallons of water available for fire suppression. A water sprinkling tank truck will meet this requirement if provision is made to insure that the minimum of 300 gallons is available for fire suppression at all times. Ample power and hitch shall be readily available for promptly and safely moving tank over roads serving Contract Area. Tank truck or trailer shall be equipped with following:

- (1) Pump, which at sea level, can deliver 23 gallons per minute at 175 pounds per square inch measured at the pump outlet. Pumps shall be tested on Contract Area using a 5/16 inch orifice in the Forester One Inch In-Line Gauge test kit. Pump shall meet or exceed the pressure value in the following table for nearest temperature and elevation:

Temp	Sea Level	1000 Feet	2000 Feet	3000 Feet	4000 Feet	5000 Feet	6000 Feet	7000 Feet	8000 Feet	9000 Feet	10000 Feet
55	179 23	174 23	169 23	165 22	161 22	157 22	153 22	150 21	146 21	142 21	139 21
70	175 23	171 23	166 22	162 22	158 22	154 22	150 21	147 21	143 21	139 21	136 20
85	171 23	168 23	163 22	159 22	155 22	151 21	147 21	144 21	140 21	136 20	133 20
100	168 23	164 23	159 22	155 22	152 22	148 21	144 21	141 21	137 20	133 20	131 20
	P S I	G P M	P S I	G P M	P S I	G P M	P S I	G P M	P S I	G P M	P S I

The pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. A bypass or pressure relief valve shall be provided for other than centrifugal pumps.

- (2) 300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than approximately 50 feet, when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic). One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.
- (3) A shut-off combination nozzle that meets the following minimum performance standards when measured at 100 P.S.I. at the nozzle:

	G.P.M.	Horizontal Range
Straight Stream	10	38 feet
Fog Spray	6 - 20	N/A

- (4) Sufficient fuel to run pump at least 2 hours and necessary service accessories to facilitate efficient operation of the pump.

When Contractor is using Hot Saw Technology, an additional 500 feet of not less than one (1) inch outside diameter serviceable hard rubber poly or rubber lined or fiber jacket rubber lined (FJRL) hose shall be immediately available for use and be capable of connecting to the 300 feet of hose and appurturances in (2) and (3) above. Synthetic hose may be used by agreement.

B Any additional fire plan requirements:

None

4. **GENERAL**

- A. **State Law.** The Contractor shall comply with all applicable laws of the State of California. In particular, see California Public Resource Codes.
- B. **Permits Required.** The Contractor must secure a special written permit from the District Ranger or designated representative before engaging in any of the activities listed below. The terms and conditions of any of the permits required for this contract are as shown on copies attached to the Fire Plan.
 - (1) Blasting and Storage of Explosives and Detonators. (Explosives Permit required by California Health & Safety Code, Section 12101.)
 - (2) Burning.
 - (3) Air Pollution. (Issued by local State or County Air Pollution Control Districts, as applicable.)
 - (4) Camp, Lunch and Warming Fires.
 - (5) Welding and Cutting.
- C. **Regulations for Burning.** Before setting any fires whatsoever, the Contractor shall notify the CO of his/her intentions. Special care shall be taken to prevent scorching or causing any damage to adjacent structures, trees, and shrubbery. Piles of material to be burned shall be of such size and so placed that during burning no damage shall result to adjacent objects.
- D. **Smoking and Fire Rules.** Smoking shall not be permitted during fire season, except in a barren area or in an area cleared to mineral soil at least three feet in diameter (CPRC 4423.4). In areas closed to smoking, the

CO may approve special areas to be used for smoking. The Contractor shall sign designated smoking areas. Contractor shall post signs regarding smoking and fire rules in conspicuous places for all employees to see. Contractor's supervisory personnel shall require compliance with these rules. Under no circumstances shall smoking be permitted during fire season while employees are operating light or heavy equipment, or walking or working in grass and woodlands.

- E. **Storage and Parking Areas.** Equipment service areas, parking areas, and gas and oil storage areas shall be cleared of all flammable material for a radius of at least 10 feet unless otherwise specified by local administrative unit. Small mobile or stationary internal combustion engine sites shall be cleared of flammable material for a slope distance of at least 10 feet from such engine. The COR shall approve such sites in writing.
- F. **Welding.** Contractor shall confine welding activity to cleared areas having a minimum radius of ten feet measured from place of welding.
- G. **Blasting.** Contractor shall use electric caps only unless otherwise agreed in writing. When blasting is necessary in slash areas, a watchperson equipped with a size 0 or larger shovel with an overall length of not less than 46 inches and a filled backpack can (4 or 5 gallon) with hand pump shall remain in the immediate area for an hour after blasting has been completed.
- H. **Oil Filter and Glass Jugs.** Contractor shall remove from National Forest lands oily rags and used oil filters and shall prohibit use of glass bottles and jugs in Contractor's Operations.
- I. **Reporting Fires.** As soon as feasible but no later than 15 minutes after initial discovery, Contractor shall notify Forest Service of any fires on Contract Area or along roads used by Contractor.
- J. **Communications.** Contractor shall furnish a serviceable telephone, radio-telephone or radio system connecting each operating side with Contractor's headquarters. When such headquarters is at a location which makes communication to it clearly impractical, Forest Service may accept a reasonable alternative location. The communication system shall provide prompt and reliable communications between Contractor's headquarters (or agreed to alternative) and Forest Service via commercial or Forest Service telephone. The communications system shall be operable during Contractor's Operations in Fire Precautionary Period described in Section 3 and during the time fire patrolperson service is required. A radio-equipped fire patrolperson vehicle will satisfy this requirement if in operation during the time required except during PAL levels "D" and "Ev". See Section 5 for other communication requirements when operating on "D" and "Ev" days with hot saw technology. A CB is not acceptable communication because FCC Regulations prohibit commercial use.
- K. **Fire Patrol Person.** Contractor shall furnish a qualified fire patrolperson each operating day when Project Activity Level B or higher is in effect. When on duty, sole responsibility of patrolperson shall be to patrol the operation for prevention and detection of fires, take suppression action where necessary and notify the Forest Service as required by Section 5.

By agreement, one patrolperson may provide patrol on this and adjacent projects or sales. No patrolperson shall be required on Specified Road construction jobs except during clearing operations unless otherwise specified.
- L. **Time of Snag Felling.** Unless the felling of dead trees would interfere with the felling, skidding or yarding of green timber or be a safety hazard, or be prevented under Section 5, required felling of dead trees shall be concurrent with the felling of live timber. There shall be reasonably timely felling of dead trees to facilitate utilization and protection from fire.

M. **Clearing of Fuels.** Contractor shall clear away, and keep clear, fuels and logging debris as follows:

Welding equipment and stationary log loaders, yarders and other equipment listed in California State Law:	10 feet slope radius
Tail or corner haulback blocks:	5 feet slope radius
Lines near, between or above blocks:	Sufficient clearing to prevent line from rubbing on snags, down logs and other dead woody material

5. **EMERGENCY MEASURES**

The table set forth below establishes work restrictions and fire precautions that the Contractor must observe at each activity level. The restrictions are cumulative at each level.

The Forest Service, in its sole discretion, may change the predicted activity level if the current fire suppression situation, weather and vegetation conditions warrant additional restriction of activities. Contractor shall obtain the predicted Project Activity Level by calling the following phone number **530-367-2224 Extension 502** before starting work each day. If practicable, Forest Service will determine the following day’s activity level by 6:00 PM local time. If predictions made after 6:00 PM are significantly different than originally estimated, Forest Service will inform Contractor when changes in restrictions or industrial precautions are indicated.

The following definitions shall apply to these Project Activity Levels:

Cable Yarding Systems: A yarding system that takes logs from the stump area to a landing using an overhead system of winch-driven cables to which logs are attached with chokers or grapples.

Hot Saw Technology: A harvesting system that employs a high-speed (>1100 rpm) rotation felling heads (i.e., full rotation lateral tilt head).

Sunset: The time that sunset is reported in the local newspaper for that day.

Except for Project Activity Level days “Ev after 1:00 PM local time” and “E”, Forest Service may issue substitute precautions(s) of the requirements below. Such agreements shall prescribe measures to be taken by Contractor to reduce risk of ignition and/or spread of fire.

Forest Service may change the Project Activity Levels to other values upon revision of the National Fire Danger Rating System and may change the specific Project Activity Levels and/or requirements when such changes are necessary for the protection of the National Forest. When sent to Contractor, the revised Project Activity Levels will supersede the levels below.

PROJECT ACTIVITY LEVEL –EMERGENCY PRECAUTIONS*Table version 6/13/2006***PROJECT ACTIVITY LEVEL**

Level	Project Activity Requirements
A	<p>Minimum required by Section 3</p> <ol style="list-style-type: none"> 1. PAL levels are cumulative, Ev level would include all preceding PAL requirements.
B	<ol style="list-style-type: none"> 1. A fire patrolperson is required for mechanical operations from cessation of operations until 2 hours after operations cease or sunset, which ever occurs first. 2. Tank truck or trailer shall be on or adjacent to each active landing. 3. When hot saw technology is being used, the tank truck or trailer (B2 above) may serve dual purpose as active landing tank truck provided it shall be kept readily available for use as follows: <ol style="list-style-type: none"> a. Within one quarter mile of the operating hot saw technology; and b. Within 10 minutes of the active landing; and c. Effective communications exist between hot saw technology and active landing. <p>Otherwise, there shall be a tank truck or trailer at both the active landing and within one quarter mile of the operating hot saw technology.</p> 4. (Additional restrictions specified by the forest.)
C	<ol style="list-style-type: none"> 1. The following operations are prohibited from 1:00 PM until 8:00 PM local time: <ol style="list-style-type: none"> a. Blasting 2. Operations using hot saw technology are prohibited between 1:00 PM and sunset local time. Hot saw technology operations may continue if Contractor provides a portable fire suppression system capable of extinguishing a 20-foot by 20-foot wild land fire within five (5) minutes of discovery. The following equipment will meet the requirements above: <ol style="list-style-type: none"> a. Compressed Air Foam System with minimum requirements of 20 gallons stored energy, 100 feet of 1 inch hose and adjustable 1 inch nozzle, minimum discharge range of 60 feet and 1 spare air cylinder; or b. All terrain tank truck or equivalent capable of traveling throughout the cutting unit, containing not less than 300 gallons of water and complies with all tank truck requirements of Section 3. All terrain tank truck or equivalent may serve dual purpose as active landing tank truck provided: <ol style="list-style-type: none"> 1) Tank truck or equivalent shall be kept readily available to extinguish a fire within 5 minutes of discovery of the operating hot saw technology, 2) Tank truck or equivalent shall be no further than 10 minutes travel time to the active landing, 3) A 4-A:80-B:C extinguisher is maintained at the landing fire tool box and, 4) Effective communications exist between the hot saw technology, active landing and all terrain tank truck or equivalent. <p>Otherwise there shall be a tank truck at the active landing and an all terrain tank truck or equivalent with the hot saw technology.</p> 3. (Additional restrictions specified by the forest.)

<p>D</p>	<ol style="list-style-type: none"> 1. The following restrictions apply: <ol style="list-style-type: none"> a. No blasting after 10:00 AM b. Welding or cutting of metal only by special permit c. No Burning without a permit 2. The following activities may not operate after 1:00 PM local time unless fire patrolperson(s) walks all areas operated that day once per hour until sunset local time and has the capability of notifying the designated Forest Service Dispatch Center within fifteen (15) minutes of discovery of a fire: <ol style="list-style-type: none"> a. Track-laying equipment b. Chipping outside of landings and roadbeds c. Equipment using Hot Saw Technology d. Chainsaw operations outside of landings and roadbeds e. Tree felling operations f. Ripping roads and landings g. Mastication h. Cable-yarding employing motorized carriages. 3. (Additional restrictions specified by the forest.)
<p>Ev</p>	<ol style="list-style-type: none"> 1. The following operations are prohibited: <ol style="list-style-type: none"> a. Blasting b. Welding or cutting metal c. Burning 2. Following activities may operate when fire patrolperson walks from 9:00 AM until local sunset all areas once per hour that were mechanically operated that day. <ol style="list-style-type: none"> A. Activities that may operate all day: <ol style="list-style-type: none"> 1. Hauling and loading of logs decked at approved landings. 2. Hauling and loading of chips piled at approved landings. 3. Equipment servicing at approved sites. 4. Roads: Dust abatement or rock aggregate installation (does not include pit or quarry development) 5. Chainsaw or stroke delimeter operation associated with loading at approved landing sites. B. All other Operations are permitted until 1:00 PM local time subject to the following: <ol style="list-style-type: none"> 1. When hot saw technology is being used a tractor or other equipment with blade capable of constructing fire line, shall be on standby and immediately available. Tractor will have effective communications with hot saw technology and be within one quarter mile of hot saw technology to quickly reach and effectively attack a fire start. C. (Additional restrictions specified by the forest.)
<p>E</p>	<p>The following activities may operate subject to B1. and B2.</p> <ol style="list-style-type: none"> 1. Hauling and loading of logs decked at approved landings. 2. Hauling and loading of chips piled at approved landings. 3. Equipment at approved sites may be serviced. 4. Roads: Dust abatement or rock aggregate installation (does not include pit development). 5. Chainsaw operation associated with loading at approved landings.

6. REPORTING ALL WILD FIRES

A. Contractor's employees shall report all fires as soon as possible but no later than 15 minutes after initial discovery to any of the following Forest Service facilities and/or personnel listed below, but not necessarily in the order shown:

	Name	Office Address and/or telephone	Home address and/or telephone
Dispatch Center	Grass Valley	530-477-7237	
Nearest FS Station	Foresthill, CA	530-367-2224	
Inspector	Carolyn Sipes	530-367-2224, ext 253	
COR	Scott Husmann	530-367-2224, ext 243	
District Ranger	Jan Cutts	530-367-2224	
D.R. Designated Rep	Tony Rodarte	530-367-2224, ext 246	

When reporting a fire, provide the following information;

- Your Name;
- Call back telephone number;
- Project name;
- Location;
 - Legal description (Township, Range, Section); and
 - Descriptive location (Reference point);
- Fire Information;
 - Acres;
 - Rate of Spread; and
 - Wind Conditions.

B. **Contractor's Plan Regarding Personnel.** The Contractor shall, prior to commencing work, furnish the following information relating to key personnel

<u>Title</u>	<u>Name</u>	<u>Address and/or telephone</u>
Fire Supervisor		
Fire Patrolperson		