

3. FIRE PLANS

- *Title 14CCR §918 (Fire protection plan is required on logging operations)*
- *Title 14CCR §918.1 (Fire protection plan filing procedures)*
- *Title 14CCR §918.2 (Fire plan contents)*

A fire plan is a document prepared by an industrial operator, a copy of which is filed with the responsible fire protection agency. The plan sets forth the manpower and equipment that can be used for fighting fire, the person to be contacted and means of contact, the location and extent of the operating area, and other pertinent data. Timber operators in California, on both federal and private land, and contractors to the California Department of Transportation and the U.S. Forest Service are required to file fire plans. All other industrial operators should file them for reasons of safety and liability.

Each operating company should prepare its own fire plan after consultation with the local fire protection agency. In this way, the resulting plan becomes a useful tool for the operator and the agency. A fire plan is most useful in achieving its purpose when it includes the personal commitment to fire safety of the owner or general manager of the operation.

3.1 Agency Input at Environmental Impact Report

Most large construction projects, such as gas pipeline, power line, or telephone line construction require an Environmental Impact Report (EIR) prior to the project inception. The fire agencies can set broad guidelines which may be needed to mitigate fires. These guidelines may go beyond what the law requires. Items which may be included in an EIR are:

1. Requirement of a water tender during extensive welding/cutting operations.
2. Requirement of a fire watch during hazardous operations and after the work has ceased for the day.
3. Requirement of the construction company to provide the funding for an inspector from the fire agency.
4. Equipment which provides company employees and fire agencies the ability to communicate with one another.
5. Restriction of work during "Red Flag" conditions.

After the EIR, meetings may occur with the construction company and fire agency to further discuss issues. Ultimately the construction company must include the precautions necessary in the final Fire Plan.

3.2 Outline of a Typical Fire Plan

The various items which should be included in a fire plan are discussed in this chapter. In addition, certain matters related to fire protection, but not usually specifically set forth in the fire plan, are covered at the end of the chapter.

I. Scope or Purpose

II. Responsibilities

A. Operator

This should include requirements of the operator that will be taken in the event of a fire on the operation site.

Also included here are the persons who are responsible for the operation and key contact

individuals who may act as Incident Commanders until the fire agency personnel arrive.

B. Protection Agency

This should include who the representative fire agency is and what type of fire response can be expected to any given fire or emergency incident.

III. Tools and Equipment

A. Tools

- **PRC §4427 (Tools required for welding/cutting/grinding)**
- **PRC §4428 (Fire tools required on industrial operation)**
- **PRC §4429 (Fireboxes required at camp or local headquarters for industrial operations)**
- **PRC §4431 (Gasoline powersaw and powertool, tool requirements)**
- **Title 14CCR §918.10 (Cable block requirements)**

California State law requires certain tools, reserved for firefighting purposes only, at certain locations. These should be considered as legal **minimums**. Many logging and construction contracts require more. Some operators, for their own self-protection, may provide additional tools. Special requirements are contained in various rules and regulations. Below is a composite listing of locations and tools recommended or required at those locations. Local laws and rules should be noted and observed.

Location	Required Tool(s)
Motor, torch, grinder, etc.	Shovel and 5-gallon backpack pump.
Log landing, construction field office or service area, mine headquarters, etc.	Fire toolbox with enough tools to equip each employee, plus chain saw and tractor headlights.
Motor vehicle, tractor, skidder, scraper, etc.	Shovel, axe, 4BC fire extinguisher or larger.
Portable power tools (including chain saw, tamper etc.)	Shovel and approved fire extinguisher.
Cable block	Shovel and 5-gallon backpack pump or 4A fire extinguisher.
Yarder, loader, crane, service truck, etc.	4 ABC fire extinguisher or larger
Helicopter refueling area.	20 ABC fire extinguisher or larger
Choker setter.	Shovel.
USFS ONLY - Mechanized-harvesting equipment with hydraulic systems powered by internal combustion engines (chipper, feller/buncher, harvester, forwarder, etc.), except tractors and skidders.	USFS ONLY - At least two 10 lb. 4A/60 B:C fire extinguishers or equivalent. Concentrations of wood dust shall be removed daily from equipment.



**Photograph 3-1.
Backpack Pump and Toolbox**



**Photograph 3-2.
4ABC Fire Extinguisher**

The fire plan should set forth the number and types of firefighting tools provided, their locations, and the person designated as responsible for ensuring their presence and operating condition.

B. Equipment

All equipment under the operator's control, which is either specifically designed for or capable of being adapted to fighting wildland fires, should be listed in the fire plan. The specifically designed equipment (e.g., fire trucks, water trailers with pumps and hose) is obvious.

The adaptable equipment may not be obvious. Bulldozers and chain saws can be used on most wildland fire. Road-watering tank trucks are not as useful unless equipped with pumps and hose. In areas where trees, heavy slash and surface rocks are not too prevalent, and where the terrain is not too steep, motor graders are excellent firefighting machines. These are but a few examples. In preparing this section of the fire plan, an operator should exercise resourcefulness and seek the advice of fire protection agency personnel.



**Photograph 3-3.
Company Fuel Truck**

In addition to firefighting equipment, the fire plan should list support equipment. This category would include, but not be restricted to: fueling and lubricating vehicles, transport vehicles (e.g., low beds, buses, flat beds), communications links (e.g., radio-equipped vehicles, portable radios, radio-telephones), portable electric generators, etc.



**Photograph 3-4.
Fire Trailer**

All equipment listed should be designated as “with operator” or “without operator.” The location and means of contacting as well as other pertinent and useful information should also be listed.

IV. General

- A. Laws and Local Ordinances.
- B. Permits for Burning, Welding, and Blasting.
- C. Smoking and Fire Rules.
- D. Storage and Parking Areas.

V. Emergency Measures

- A. Curtailment of Activities.

Because of dispersion and loss of available staffing, it is seldom wise to completely shut down industrial operations in the wildland during fire season.

On the other hand, it is foolhardy to continue normal operations when fuel and weather conditions reach “very high” and “extreme” ranges. Therefore, the fire plan should set forth those high-risk activities that will be curtailed or stopped entirely at various levels of fire danger. This is common practice with large timber operators and public utilities. It should be incorporated into all industrial operation fire plans. (See Appendix C)

Specific activities which should be considered for curtailment include: smoking, open fires, welding and cutting, blasting, operating chain saws, use of feller/bunchers with saws, (or any powered equipment) on or near any dead wood, and voluntary shutdowns, etc. Those that are normally safe to continue are servicing of equipment, watering roads, loading trucks, etc.

There are several systems of determining when and where such curtailments should take place. Some are based on adjective ratings (e.g., high, very high, or extreme), some on codes indicated by numbers (e.g., activity level, burning index, fire load index, and drought index), and some on special conditions (e.g., “Red Flag” conditions). Others are based on predicted conditions, existing observed conditions, or both. In most cases, the information is obtained from the protection agency. In others, the operator establishes the weather monitoring system.

The most technically correct system is the National Fire Danger Rating System—1978 (NFDRS—1978). It provides both current and predicted indexes of lightning-caused fire occurrence, human-caused fire occurrence, burning (spread and energy release components) and total fire suppression workload. It is based on weather, fuel and topography factors at the site in question (or a nearby representative station), and observations and predictions of the Fire Weather Forecasters of the National Weather Service. The system was developed through computer correlation and analysis of the factors affecting the ignition and burning of actual fires. Most wildland fire protection agencies have computer terminal access to this system. Private operators can get the information from the agencies.

Regardless of which fire danger rating system is used, it should be specified in the fire plan along with the types of operations to be regulated by it and the levels at which the regulations will become effective.

- B. Patrol Person.
- C. Weather Station.
- D. Company Action upon Report of Fire.

VI. Detection and Alarm Systems

- *Title 14CCR §918.6 (Posting fire rules)*
- *Title 14CCR §918.8 (Inspection for fire)*

The fire plan should also set forth the method the operator and his/her employees will use to detect and report wildfires originating on or near the operating area to the protection agency. A system to be used for contacting the operator's employees in case of emergency must also be detailed in the plan.

Fire detection can be accomplished in any of several ways; therefore, the plan should incorporate two or more methods. The same can be said for alarm or communication systems.

Certain laws, regulations and contract provisions require a person to watch for fires at designated times and places (e.g., after daily logging operations or after blasting). Some of the larger operations may require full-time employees for this purpose. Smaller operators are often able to meet their legal and contract responsibilities by assigning employees hired basically for other duties to this activity at the times and places required. This usually requires either an offset work shift or the payment of overtime. In any event, during the time any person is performing as a fire watch, he/she must not have any other assigned duties nor be allowed to engage in any activity which may divert his/her attention.

People watching for fires are often alone at an operating area. For this reason it is important that they are provided with effective and reliable means of communication. This is necessary for fire reporting purposes as well as for personal safety. A person assigned to watch for fire must be mobile. The best and most common way is to provide them with radio-equipped vehicles reporting to a manned base station.

The fire-watcher should be made responsible not only for detecting and reporting fires but also for taking initial suppression action on any fires they discover. Therefore, they should be physically fit, equipped with firefighting tools and equipment, and fully trained in the effective use of such tools and equipment.

It is good insurance to assign other personnel additional duties as auxiliary fire-watchers. These people, who might be on the operating area outside of normal working hours (e.g., equipment service personnel, security guards), however, will not be accepted as substitutes for, or in lieu of, the fire-watchers required by law or contract.

Detection of fires can also be accomplished by fixed lookouts and aerial patrols. Both systems are used by the protection agencies and by some large timber operators and timber landowners. Both are adapted to broad area coverage, are rather expensive, and have blind spots as well as certain times when they are not effective. Their best use, therefore, is as supplemental or backup systems to on-the-ground fire-watchers. In most cases, their costs are borne cooperatively by multiple adjoining or intermingled owners and operators.

Infrared scanners are used increase the effectiveness of aerial patrols. Originally developed for military purposes, this equipment was adapted by public agencies for wildfire control and detection purposes. Several timber operators and agency fire management officers are using portable hand-held infrared detection equipment for slash burning surveillance to reduce the cost of maintaining holding crews, mop up crews, and equipment. Such equipment is also useful for detecting the presence of any other ignition source when smoke or darkness makes

other means of detection difficult or ineffective. However, it will not work through atmospheric moisture (i.e., fog or clouds). Several hand-held models are also now commercially available.

The fire plan should set forth not only the communications system(s) that will be employed to report fires but also will be used to alert or call in their employees in case of fire. This is particularly important on logging and construction projects where many employees are operating noisy equipment in isolated locations. It is seldom practical to equip all of them with portable or mobile radios. Often they could not hear a radio unless wearing earphones. Yet both personal safety and fire control effectiveness may dictate quick notification. Beepers with very high or very low frequency sound or with distinctive light emissions might be effective. Radio-controlled horns on cable log yarders are excellent for this purpose.

VII. Manpower

Wildland fire suppression is an extremely labor-intensive undertaking. A fire larger than a few acres in size, particularly in heavily timbered areas, may require hundreds of men and women, working for days, to suppress and mop up. Fire protection agencies cannot afford to keep the large numbers of personnel needed to fight major fires on their payrolls. Firefighting crews are often transported from across several states to suppress large fires. Therefore, the fire plan needs to list the number of people locally available by various skills, day or night, weekends, etc. This allows for quick response by the operator's personnel to assist the fire protection agency until sufficient help arrives to completely suppress and mop up the wildfire.



**Photograph 3-5.
Firefighting Bulldozer**

Except for persons who, by virtue of fire control training and experience, are designated as crew leaders, it is usually unnecessary to list employees and subcontractors by name in the fire plan. However, particularly in timber country, certain skills (e.g., timber fallers, bulldozer operators,

pump operators) are more critical than laborers. The special skills involved are those related to firefighting and not to the primary activity of the operation. For instance, operating a bulldozer to fight fire is not the same as operating one to yard logs, build a road or excavate ore. With this in mind, the number of personnel available should be listed by various skills.

Availability does not remain constant over time. A maximum number will normally be available during regular working hours. Somewhat less can be expected to respond at night. Even fewer will be available on weekends and holidays. Therefore, the fire plan should indicate expected availability in, at least, the above categories. Several large timber operators maintain rotating standby schedules, particularly for supervisory personnel, for weekends and holidays.

Also, because of the extended duration of many wildland fires, the need for and availability of relief personnel should be provided for in the fire plan. Bulldozer operators, for instance, have been known to work on fire lines for 36 or more hours without relief. This endurance displays a remarkable dedication but is, in fact, counterproductive. They not only lose much of their effectiveness but also become high safety risks after approximately 12 hours. Thus, the fire plan should provide at least two people for each position: one for immediate response and one for relief on the next shift. This may not be necessary for laborers as their relief may be transported in from a considerable distance. However, for the operators of machinery it is quite important.

VIII. Map

The map is an integral part of a complete fire plan. It should be of sufficiently large scale and accurate enough to be of real use. Contours are not necessary but should normally be provided. Main ridges and drainages should be indicated. U.S.G.S. quadrangle maps (7.5-minute size) are usually good base maps. Property boundaries and operating area boundaries should be shown. All roads, landings, equipment servicing areas, field offices and other structures, and other significant manmade features should be indicated. Reasonable accuracy of scale, distance, direction, etc., is important.

