

Wildfire Prevention Industrial Operations

Industrial operations of various kinds in the forests, rangelands and watersheds have been an integral and important part of the economy of this country since colonial times. During the past 25 years, large-scale housing development has accelerated and moved into wildlands and leveling of land for agriculture and construction of canals and pipelines for water distribution has moved from the valleys into the foothills and mountains necessitating the use of heavy earth-moving and construction equipment. Activities that have taken place during the past years include construction, drilling and operating geothermal steam wells and power plants, construction of nuclear power plants, and oil, gas and mineral exploration operations.

Historically, these activities have not resulted in an unusual number of wildfires compared to other causes. However, several large fires have been caused by operation of machinery. This has led to aggressive fire prevention programs by fire protection agencies and industry in order to reduce fire losses and save money. Many aspects of machine use may start vegetation fires. These include exhaust sparks, hot exhaust manifolds and pipes, fuel leaks, overheating, track and blade sparks, short circuits, brakes, belts and pulleys, accumulated debris, and broken hydraulic line spilling on hot engine parts.

This is where communication relating to engineering is crucially important. Wildland fire prevention engineering is the process of reducing risks and hazards by shielding or removing heat sources, or by removing fuels. Prevention engineering includes activities such as moving fuel away from roadways, removing vegetation from around a structure, creating firebreaks around campgrounds, and using spark arrestors on internal combustion engines and fireplaces. Burning of natural debris and vegetation for land management purposes is becoming more common. The specific purposes may include fire hazard reduction, seed bed or planting site preparation, land clearing prior to construction, mining or drilling, etc. In any event, past wildland suppression policies have led to an unnaturally heavy vegetative fuel loading in many cases, thus making some burning operations quite hazardous. Unless conducted under properly prescribed and controlled conditions, such burning can escape and become a wildfire. If well done, it cannot only produce the desired land management purpose, but also reduce the likelihood and severity of future wildfires.

The information in this section is designed to give an overview of some of the many types of equipment that need to be monitored in order to prevent wildfires. Because the equipment and ways to safeguard them are constantly changing, it is important to ensure that your patrol team is up to date on the most recent information.

Enforcement

Fire prevention enforcement is an important aspect when considering industrial operations, but it should be practiced at the minimum level necessary to gain compliance with fire laws and regulations. The inadvertent or intentional ignition of wildland fuels by humans is a crime, and many times it is caused by a piece of equipment that has not been properly monitored. All wildland fire will be investigated at the earliest possible time. The investigation may range from a documented determination of cause by the initial attack fire crew to criminal investigation by a qualified arson investigator. The primary job in investigation will be to obtain all the information and evidence possible to identify the responsible party. The initial actions by the fire crew on the fire will affect the investigation's chance for success. Every initial attack fire fighter needs to receive minimal training in finding and protecting the point of origin. They must also understand how to protect the point of origin and any possible evidence. Much of this is covered in the Wildfire Cause Determination Handbook of the NWCG. All violators will be held liable for civil costs and for appropriate criminal action when laws or regulations have been violated.

Public Use Restrictions

The land management officer has the authority to impose public use and access restrictions in times of high fire danger. These public use restrictions could include:

- Restricted fire use, i.e., no fires outside developed sites, no fires in back-country, etc.
- Restriction of public use activities, i.e., off-road vehicles, back-country access, etc.
- Restriction of refuge operations or contract activities, i.e., construction, blasting, chain saw use, etc.

Communication Objectives

The basic objective of industrial operations fire prevention is to prevent uncontrolled fires, prevent loss of life and minimize loss of property and natural/cultural resources and the disruption of commercial operations as a result of wildfires. The most effective means of attaining this objective is a cooperative approach. The ways in which cooperation can be implemented can include, but certainly are not limited to, coordinated communications, joint training sessions, joint inspections, notification of critical fire weather, sharing of research and other information and supplemental fire detection. Fire protection agencies can no longer afford to maintain the personnel and equipment required to prevent all seriously damaging fires. It is, therefore, necessary for industry to assume some of the burden created by their activities. In addition, industry may be liable for damages resulting from fires caused by their operations. Joint reviews provide excellent on-the-job training and promote mutual understanding and trust. It is easier to discuss and explain a situation or condition while looking at it.

Wildland fire agencies, in cooperation with the National Weather Service, have a system for keeping informed of fire weather conditions, including critical situations. While this information is available on request to anyone needing it, it is computed for fairly large areas. Many operators want weather information more specific and localized to their own operating areas. They sometimes establish and operate their own weather stations. Agencies and operators benefit from other's information. Also, managers of other types of industrial operations can make arrangements to obtain useful weather information from these sources, including the internet.

Fire Tools and Equipment

All firefighting equipment under the operator's control should be listed in the fire plan. The specially designed equipment (e.g., fire trucks, water trailers with pumps and hose) are rather obvious. Adapted equipment may not be so obvious to everyone. Bulldozers and chain saws can be used on almost any wildland fire. Road-watering tank trucks are not prevalent and the terrain is not steep, motor graders are excellent firefighting machines. These are but a few examples. In preparing this section of the fire plan, an operator should seek the advice of fire protection agency personnel.

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.

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. Tools reserved for firefighting purposes only, at certain locations may be required. These should be considered only as legal minimums. Many logging and construction contracts require more. Some operators may provide additional tools. Special requirements are contained in various rules and regulations.

Below is a composite listing of locations and tools recommended at those locations. Local laws and rules should be checked.

Location	Recommended Tools
Motor, torch, grinder, etc.	Shovel, backpump
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	Shovel, axe, approved fire extinguisher
Portable power tool (including chain saw or tamper, etc.)	Shovel, approved fire extinguisher
Helicopter refueling area	(2) 10 lb. fire extinguisher fire suppression system
Yarder, loader, crane, service truck, etc.	(2) 10 lb. fire extinguisher fire suppression system
Choker setter	Shovel
Mechanized harvesting equipment (chippers, bunchers, etc.) powered by internal combustion engines	(2) 10 lb. fire extinguishers or self extinguishing fire suppression systems

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. Personnel should be trained in their use.

Staff and equipment

Fire prevention or suppression can only be effective when organized. Someone must be in charge and responsible in order to provide direction in this effort, and this individual should focus on the proper ways to communicate the precautions that need to be taken when operating certain equipment. This can be the owner, logging boss, construction superintendent, a person specifically hired as a fire supervisor, or anyone else who is readily available at all times and is assigned the necessary authority to commit the resources of the operator when and where needed. This person should not only be named in the fire plan, but his/her identity and authority should also be made known to all employees, contractors and subcontractors. For operations with more than a few employees and pieces of equipment, an alternate and/or assistants should be designated. All of these people should not only have the requisite authority, but also fire protection training and experience in excess of general run of employees so they may effectively lead fire prevention and suppression activities.

In addition to naming the person in charge, alternate and assistants, the fire plan should set forth positive means of contact, both at work and off duty. Day and night telephone numbers are minimum requirements. Radio frequencies received and transmitted on are helpful. If direct contact by the protection agency dispatcher is not possible or practical, the means of routing messages to the company fire boss should be outlined.