# FIRE AND CHEMICALS

OREGON STATE UNIVERSITY EXTENSION SERVICE

## Choosing the right chemical applicator

FOR YOUR FAMILY FOREST

Many family forest owners depend on professional operators to help get things done on their property. This often includes the important task of weed control. Finding the right person for the job is important. Finding the right person starts with knowing what to look for when hiring.

Like most forestry practices, weed control is actually a mix of different activities. When hiring a chemical applicator, you're looking for someone with the right mix of knowledge, skill, equipment and staff needed for the job.

It's important to get this right. Weed control is a very important step. Poor work can waste money or injure your trees. Even worse, it could mean damaging the environment or neighboring crops, creating liability issues for you.

So how do you choose the right chemical applicator? It boils down to communicating about needs and expectations. Here are some key questions and specific things to talk about before hiring an applicator to work on your property.

### Key questions to ask potential applicators

#### WHAT ARE YOUR QUALIFICATIONS?

Before you hire anyone to apply chemicals on your land, you need to know that they are qualified to do the job well, and that they will do so legally, safely and without creating liability.

- Ask to see their commercial and/or consulting applicator's license and proof of business insurance. Are their license and insurance valid and current?
- Ask about the level of insurance they carry, if that is appropriate for your job. Some applicators may be willing to list you as "additionally insured" on their insurance policy.
- Ask about their forestry application experience. Who have they worked for? What types of chemical application have they done? Will they provide references?
- Ask about their familiarity with Oregon Department of Forestry forest practice rules for spraying near buffer zones, weather restrictions, record-keeping and using restricted herbicides.
- Are they up to speed on training their workers about the new Environmental Protection Agency Worker Protection Standards?
- Does their licensing and experience qualify them to develop spray prescriptions?

#### WHAT SERVICES DO YOU PROVIDE?

It's important that you be clear about the services you're looking for, so you can determine whether the operator has the knowledge, equipment and staff needed for the job.

Specific herbicides are used in many different situations, such as site preparation (before planting) or release (after planting), to control both leafy and woody plants. The

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application can be done in many different ways, including as a broadcast spray, spot or directed spray, "hack and squirt" or stump treatment. It can also be done using different tools, including backpack sprayers, vehicle-mounted sprayers or squirt bottles. The right combination and approach (generally referred to as the "prescription") depends on the season, type of weed and crop tree species.

- Clarify what parts of the job you're doing yourself and what you're hiring for — developing the prescription, doing the application, or maybe both. Do their qualifications match the job?
- What types of application can they do, and what equipment do they use?
- Who will provide the chemicals for the job?
- Which of you will submit the "Notice of Operation" to the Oregon Department of Forestry for the application?

### HOW WILL THE WORK BE DONE?

- Ask about their workforce (number and size of crews). What experience and certification does the foreman who would oversee your job have?
- Will they be able to finish your job within the desired time frame?
- Ask how to ensure their crew understands exactly what and where to spray. What photos, maps or on-the-ground markings do they need from you?
- Will the operator provide you with official chemical application records in a timely manner? These include specifics on chemicals, location and rates at which they were applied; information on weather conditions during application; etc.

### HOW WILL I BE CHARGED FOR YOUR SERVICES?

There are a variety of ways to work this out. **It's important that you communicate expectations and reach a clear agreement upfront.** Shop around for bids and check references.

- Ask if you'll be charged by the acre or by the job, or if costs will be itemized.
- Ask about billing and when payment is due.
- Do they guarantee their work? Will they come back and fix something if it isn't done right? How will you determine satisfactory service?
- Get a written estimate for the job.

### WHERE TO LOOK FOR A CHEMICAL APPLICATOR

The list of individuals and firms who can handle your chemical application needs is constantly changing. However, places where you can look to find a list of potential chemical applicators include:

- Ask other landowners who they work with and trust.
  - Oregon Small Woodlands Association: www.oswa.org/
  - Oregon Tree Farm System: www.otfs.org/
- Ask a forester.
  - Association of Consulting Foresters: www.acf-foresters.org/
  - Oregon State University Extension Service: extensionweb.forestry.oregonstate.edu/directory
  - Society of American Foresters: www.safnet.org
- Oregon Department of Forestry: www.oregon.gov/ODF/Working/Pages/FindAForester.aspx
- Ask a neighboring industrial forester if they could share contacts for applicators they use.
- Ask the state Department of Forestry or OSU Extension Service for a list of applicators in your area. They can provide names but cannot make specific recommendations.

## Helpful resources

See these publications for more information about safe herbicide use and regulations:

- *Contracts for Woodland Owners* (EC 1192) https://catalog.extension.oregonstate.edu/ec1192
- *PNW Weed Management Handbook:* https://pnwhandbooks.org/weed

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Published October 2017

# Fire prevention during forest operations

Preventing unwanted fire is required during all forest operations in Oregon, and it's important to understand the many ways this is achieved. This section will help you comply with the requirements during the fire season – further details about these and other fire prevention measures are available from ODF.

**Only a small percentage of wildfires are caused by forest operations, but fire prevention measures help reduce the risk of major resource damage and economic losses.**

## Oregon's Cooperative Fire Protection Program

Oregon's Cooperative Forest Fire protection Program is composed of strong, combined efforts among forest landowners, contract operators, ODF, Keep Oregon Green, local forest protection districts and fire patrol associations, and an effective set of fire prevention requirements that are supported by all cooperators.

The landowner's fire protection responsibility is met by following fire prevention requirements, as well as paying a forest patrol tax assessment to the local forest protection district (included in annual property taxes). A forest landowner/operator has the duty to: a) immediately report all fires to ODF; and b) control a wildfire that starts on an operation. If the landowner/operator has insufficient personnel or equipment to handle a fire, then ODF or a forest protective association will conduct needed firefighting. Also, as an incentive for fire prevention and to keep the tax as low as possible, the law specifies that the party responsible for certain types of fires will pay some ("limited liability") of the firefighting cost. However, negligent operations are subject to full firefighting cost ("unlimited liability").

## Why is so much attention given to fire prevention with forest operations?

Forest operations pose a variety of risks for starting wildfires, so Oregon's Cooperative Fire Protection Program (see box on page 85) includes a comprehensive set of fire prevention rules. Enforced during the fire season, these operation rules help keep wildfire losses to a minimum in our forests. Although industrial operations start a small share of all human-caused fires on state-protected forests (less than 5 percent), the potential firefighting cost is much higher on such wildfires — due to accumulated slash, fuel conditions and timber values to protect.

## Who is responsible for fire prevention measures?

Preventing wildfires is the responsibility of forest landowners and everyone else involved with forest operations during the fire season. Reducing resource loss, costly firefighting, environmental damage and financial liability — through effective fire prevention measures — is the goal of Oregon's protection program.

## Is there any liability if the requirements are met?

If a landowner or operator has done everything correct in readiness and response to a fire in an operation, his or her liability for suppression cost is limited to the first $300,000. If there are any "willful, malicious or negligent" actions or lack of preparedness determined in a subsequent investigation, there is an unlimited liability for suppression cost. More details are given below.

## Are any permits needed?

You must obtain a "Permit to Use Fire or Power-driven Machinery" (also called a PDM permit) from ODF prior to starting any operation that uses motorized equipment or tools.

## Does this include personal chainsaw use?

Using a chainsaw for personal or recreational purposes does not require a permit. However, it does require the fire prevention practices described under "Chainsaw special requirements" on page 90.

## What equipment and resources are required for an operation?

Firefighting equipment required on an active operation can vary with size of operation and time of year – check with ODF for specific details. Basic requirements include:

- a water source, pump, hose and nozzle with specific capacity
- specific firefighting capability of heavy equipment and crew
- specific hand tools, extinguishers, and exhaust spark arrestors
- an on-site firewatch person after daily shutdown, who is ready to take action to report and begin to suppress a fire

See pages 88-90 for more detailed requirements.

## Are there exceptions to the fire prevention requirements?

ODF districts or forest protective associations may waive any fire prevention requirement or permit when in their judgment, the operation or proposed alternate preparedness measures would provide sufficient fire prevention without adding greater fire hazard. For example, ODF may issue a written waiver of the PDM permit requirement when an operation is not a fire hazard. Waiver of the permit does not relieve the operator of compliance with other applicable fire requirements. Written waivers also may be granted for alternate methods or equipment proposed by the operator, when those methods provide equal or better fire prevention. All waivers must be requested by the landowner as the ultimate responsible party. A waiver may require additional prevention resources (e.g., water, hose).

## What should you be prepared to do if a fire starts?

Under Oregon law, unlike other states, forest landowners are responsible to control and extinguish wildfires that occur on their land. You must be prepared with equipment and personnel to control and extinguish:

- any fire that starts in an operation area while the operation is active
- any fire that results from an operation activity
- any fire that spreads from burning activities

These responsibilities are required by law, and are termed as providing "every reasonable effort." The specific level of landowner or operator effort is based on the amount and type of resources available. ODF or the local fire protection association will respond to every fire, but firefighting resources must be available and used at the operation site. Without this effort additional liability falls on the landowner and operator.

## What can happen if a fire is left uncontrolled?

If a fire on Oregon forestland burns uncontrolled and threatens life, forest resources or property, and proper action is not taken to prevent its spread, the fire is considered an illegal public nuisance. This "uncontrolled fire declared nuisance" designation can dramatically increase landowner/operator liability.

## How serious can the liability be for a landowner or operator?

Depending on the circumstances of an uncontrolled fire, a landowner/operator can be subject to either limited liability or total liability for firefighting costs:

**Limited Liability:** When a forest operation causes a fire and an investigation finds that all applicable regulations were fully followed, the landowner/operator may be required to reimburse up to $300,000 of state-provided fire suppression costs. This liability limit for suppression costs only applies if all required prevention measures are met, and no willful, malicious or negligent actions are found to have caused the fire. The landowner/operator may have no liability if the official investigation identifies a fire cause unrelated to the operation.

**Total Liability:** If there is any "willful, malicious or negligent" action or lack of preparedness found in an investigation, there can be an unlimited liability for paying all firefighting costs. If an investigation reveals that the rules were not followed — such as not meeting fire watch requirements, or failing to file for a PDM permit — the landowner/operator may be billed for the total state-provided costs to put out the fire. This liability for large wildfires can be millions of dollars. Additional fire liability information is available from ODF or forest protective association offices.

## Some important definitions in the fire prevention rules:

FIRE SEASON means the legally declared period of time each summer, determined by the State Forester, when Oregon forest operations are subject to forest fire prevention restrictions and Industrial Fire Precaution Levels (IFPL). The state is divided into local areas where fire season and fire restrictions can be tailored to match local fire hazard conditions on a daily basis by ODF.

FORESTLAND means any woodland, timberland, grazing land or clearing that contains enough forest growth or slash to constitute a forest fire hazard, regardless of how the land is zoned or taxed.

LANDOWNER means the legal holder(s) of a forest property title. Oregon law considers the forest landowner and the operator as one entity, and it refers to either or both as landowner/operator.

OPERATION means any industrial or commercial activity on forestland inside or within one-eighth mile of a forest protection district, including but not limited to timber harvest, land clearing, use of power-driven machinery, and prescribed burning as a management tool (excludes agricultural crop activities). Examples include forest thinning, road construction or repair, herbicide spraying and prescribed burning of logging slash.

OPERATOR means any person who, either personally or through employees, agents, representatives or contractors, conducts any operation, as defined above. Oregon law considers the forest landowner and the operator as one entity, and it refers to either or both as landowner/operator.

PRESCRIBED BURN means the deliberate burning of wildland forest fuels under carefully managed conditions of weather, fuel moisture, wildfire hazard, proximity to designated populated areas and time of day. Purposes for burning may include fire-hazard reduction, reforestation success, habitat improvement, invasive or unwanted vegetation control, and aesthetic enhancement.

# How do fire precaution levels affect forest operations?

During legally declared fire season, forest operations are subject to different levels of fire prevention restrictions, which can change daily depending on the local wildfire potential within each regulated use area. Landowners and operators engaged in active forest projects must daily check the local closedown level — known as "industrial fire precaution level" or "IFPL" — to be sure the proper fire prevention restrictions are followed each day.

Western Oregon: Four IFPL closedown levels are used during the fire season for private and other lands under ODF fire protection in western Oregon. IFPL closedown levels are based on fire danger, current fire activity and available resources in each local "regulated use area." Check with your local ODF office for specific equipment closedown times, locations and requirements.

Eastern Oregon: The IFPL system does not apply on ODF-protected forestlands east of the summit line of the Cascade Mountains. However, additional fire prevention measures may be required — landowners/operators should always check with ODF for current requirements in their local district. During legally declared fire season, industrial fire restrictions in eastern Oregon are similar to the IFPL Level I (described below) for western Oregon. Operators on federal lands in eastern Oregon should be aware that the IFPL system is used by the U.S. Forest Service and BLM in that region.

Log on to gisapps.odf.oregon.gov/firerestrictions/ifpl.html for specific industrial fire restrictions in your area.

## Level I. Fire Season

This initial level of fire hazard is announced by ODF and puts basic precaution requirements (water, tools and other equipment) in effect. A fire/security watch is required at this and all higher levels unless waived by ODF.

- For up to three hours during breaks and after power-driven machinery has been shut down for the day, a fire watcher must conduct a continual visual observation of the operation area on which the machinery was used.
- If the fire watcher detects any fire in the operation area, he or she must first report the fire, summon assistance and describe intended fire suppression actions, determine safety zones and escape routes, then proceed to extinguish the fire consistently with firefighting safety and training. The fire watcher must have adequate transportation and communications to summon assistance.

## Level II. Limited Shutdown

In addition to the Level I requirements, the following activities are allowed only between the hours of 8 p.m. and 1 p.m. (local time) the next day:

- power saws, except at loading sites
- feller-bunchers with rotary head saws
- cable yarding
- blasting
- welding, cutting or grinding of metal

## Level III. Restricted Shutdown

In addition to the Level II requirements, the following are prohibited except as indicated:

- Cable yarding — except that gravity-operated logging systems using non-motorized carriages or approved motorized carriages may operate between 8 p.m. and 1 p.m. the next day when all blocks and moving lines are suspended 10 feet above the ground except the line between the carriage and the chokers and during rigging.

The following are permitted to operate between 8 p.m. and 1 p.m. where mechanized equipment capable of constructing fireline is immediately available to quickly reach and attack a fire start.

- ground-based operations
- power saws on ground-based operations
- rotary head saw feller-bunchers with a continuous fire watch
- non-rotary head saw feller-bunchers;
- tethered logging systems

In addition, the following are permitted to operate between the hours of 8 p.m. and 1 p.m. local time:

- power saws at loading sites
- mechanized loading or hauling of any product or material
- blasting
- welding, cutting or grinding of metal
- any other spark-emitting operation not specifically mentioned

### Level IV. Complete Shutdown

All operations are prohibited.

### What about hauling through more than one shutdown/ regulated use area?

The precaution level at the woods loading site shall govern the level of haul restriction, unless otherwise prohibited by factors other than the IFPL system.

# Summary of key requirements during the fire season

During legally declared fire season, in addition to restrictions under the daily local fire danger level (described above), landowners and operators are required by law to follow the basic fire prevention measures summarized here. ODF can provide more detailed information and guidance.

**PERMIT FOR POWER MACHINERY/ TOOLS: A "PERMIT TO USE FIRE OR POWER-DRIVEN MACHINERY" (PDM)** must be obtained from the local ODF office before starting any operation that uses motorized equipment or tools.

**FIRE WATCH AFTER DAILY OPERATIONS:** For up to three hours after power-driven machinery (including saws) has been shut down for the day, a fire watcher must continually observe the operation area where the motorized equipment was operated. If a fire is detected, the fire watcher must immediately summon firefighting assistance from ODF ***and*** must also safely try to control the fire as described under Level 1 on page 88.

**WATER SUPPLY AND PUMP ON-SITE:** For most motorized operations (see chainsaw exception below) lasting more than two days, a water tank, delivery pump, hose and nozzle must be maintained and ready for immediate firefighting use. The water supply tank must have at least 300 gallons of water for a self-propelled fire truck, or at least 500 gallons of water for a non-propelled tank/trailer. The pump must be capable of at least 20 gallons/minute at 115 psi at pump level. Additionally, the required water supply must include enough serviceable hose, of not less than 3/4 inch inside diameter, to reach from the water supply to any location in the operation area affected by power-driven machinery, or 500 feet, whichever is greater. The water supply, pump, not less than 250 feet of hose, and the nozzle, as required by this rule, shall be maintained as a connected, operating unit and kept ready for immediate use.

**FIREFIGHTING HAND TOOLS ON-SITE:** Every operation with five or more workers must have a tool box that contains a number of firefighting tools equal to or greater than the number of persons working on the operation. Workers on operations with four or fewer workers must each have a shovel suitable for firefighting.

**FIRE EXTINGUISHERS ON MOTORIZED EQUIPMENT:** All equipment powered by an internal combustion engine (other than chainsaws) must be equipped with a 5-pound chemical fire extinguisher with a minimum rating of 2A, 10BC or equivalent protection. The extinguisher must be approved by a nationally recognized testing laboratory, ready for immediate use, fully charged, and equipped with a pressure gauge or other measuring device.

**FIRE TOOLS AND EXTINGUISHERS ON TRUCKS:** Each truck, including crew vehicles, used on an operation must be equipped with a 5-pound fire extinguisher, as described above for motorized equipment. Each truck also must have a round-pointed shovel with an 8-inch face and a handle more than 26 inches long, and a Pulaski or axe with a handle longer than 26 inches. All must be ready for immediate use.

**ENGINE EXHAUST SPARK ARRESTER:** All engines must be equipped with a spark arrester. Exceptions are allowed for fully turbocharged engines, for engines under 51-cubic-inch displacement, and for trucks and pumps used exclusively to fight fire. Those excepted engines must be equipped with a muffler and exhaust in good operating condition.

**CHAINSAW REQUIREMENTS:** Each power saw must be equipped with an exhaust screen that retains at least 90 percent of carbon particles and meets exhaust temperature standards. Saws meeting these requirements are listed in a "Spark Arrester Guide" publication available at ODF offices. Additionally, the following must be immediately available to the power saw operator: an 8-ounce or larger fire suppressant and a round-pointed shovel with an 8-inch face and a handle more than 26 inches long. Power saws must be stopped during fueling and moved at least 20 feet away from the fuel supply before restarting. A water supply is not required for operations using only a chainsaw.

**CABLE LOGGING PRECAUTIONS:** Operations using cable systems must conduct additional fire precautions, including clearing flammable debris from near blocks; having a water supply and shovel stationed at each block; and preventing cables from rubbing on rock or woody material.

**FLAMMABLE DEBRIS REMOVAL:** Power-driven machinery must be kept free of excess flammable material — such as needles, bark or slash — that may create a fire risk.

**FALLING HAZARD SNAGS:** ODF may issue a written order that certain snags, which are a fire hazard, be felled either before or concurrent with the operation.

**WAIVER FOR ALTERNATE METHODS:** The ODF district may provide a written waiver for alternate methods or equipment proposed by the operator, when those methods provide fire prevention equal to or better than other requirements.

**NO SMOKING:** Smoking is not allowed while working in an operation.

**IMMEDIATE CONTROL OF ANY UNWANTED FIRE:** The landowner and operator must immediately act to control and extinguish any fire started in an operation while the operation is active, any fire that results from operation activity, and any prescribed burn that has escaped control.

**QUESTIONS:** If you have questions about operation requirements during fire season, contact ODF or your local forest protective association.

## Can you do anything more to prevent a wildfire?

Yes. There are several voluntary practices that have proved effective in minimizing accidental fire starts and the spread of an unwanted fire. Landowners and operators are encouraged to consider these added fire preparedness and prevention measures that go beyond those required by law.

**VOLUNTARY MEASURES DURING CRITICALLY DRY OR HAZARDOUS FIRE PERIODS include:** early shutdown when low relative humidity is measured, early shutdown when high winds occur, minimizing tracked-vehicle operation in rocky areas (sparks!), providing additional water volume and hose length to reach all operation areas, extra precautions tailored to site and job conditions, and conducting "fire drills" to ensure crew preparedness.

For other information sources, see the Appendix, pages 197-198.

### ODF Fire Protection Web Pages:

**www.oregon.gov/ODF/Fire/Pages/Restrictions.aspx**
(general page for public and industrial restrictions)

**gisapps.odf.oregon.gov/firerestrictions/ifpl.html**
(industrial fire restrictions map)

# Using fire: Prescribed burning for forest management objectives

Controlled burning can be a valuable management tool, but forest landowners and operators must follow some important steps to control smoke and the risk of fire escape.

## Why burn?

A prescribed burn is a controlled fire that consumes tree harvest slash, unwanted vegetation or other wildland fuels. It can be an efficient and effective forest management tool when used under carefully monitored conditions of local wildfire hazard, weather, fuel moisture, proximity to populated areas and time of day. Burning is prescribed for specific purposes, and should be conducted by skilled professionals experienced in lighting, controlling and extinguishing such fires.

Purposes for burning may include fire-hazard reduction, invasive species or unwanted vegetation control, and improvement of reforestation, habitat, forest health and/or aesthetics. Prescribed burns are often scheduled after timber harvest, and the risk of wildfire can be reduced by burning the slash and other excess flammable material. Burning removes fuels that otherwise could make a future wildfire far more destructive when they have accumulated to hazardous levels. Prescribed burning also can prepare sites for reforestation, by adding nutrients and removing thick logging slash and competing vegetation.

Burning is commonly integrated with mechanical thinning or tree harvest operations that redistribute and reduce excess woody fuel loading — keeping prescribed burning feasible and safe. Burning cannot be done safely without careful attention to forest fuel loads and location, and removal of a portion of the fuels through harvest is a common part of an integrated management strategy.

Options for treating excess fuels and unwanted vegetation by burning include:

- piles at the roadside or log landing
- "jackpot" or windrow piles in the harvest unit
- broadcast burning of slash in the harvest unit
- spot-burning of un-piled slash concentrations
- under-burning below a well-spaced tree canopy

### CONTROLLED BURNS VERSUS WILDFIRE

Although prescribed burning generates smoke and carries some risk of escape, the catastrophic wildfires they help avoid by reducing fuels can cause much greater problems. Wildfires are destructive, polluting, unpredictable, dangerous and costly to control. Prescribed burning uses small, controlled fires during non-summer months when smoke can be reduced and kept away from communities. Burning is allowed only when weather conditions favor good fire control and smoke dispersal to maintain air quality. In areas such as central and eastern Oregon, carefully prescribed forest thinning and prescribed burning can mimic the natural, low-intensity wildfires that historically "managed" many forests.

### HOW ARE SMOKE PROBLEMS AVOIDED?

ODF regulates burning on forest lands throughout the state under Oregon's Smoke Management Plan (see box at right), drawing from decades of experience. The agency monitors weather conditions and provides daily forecasts, and it issues burning instructions to landowners who have registered to conduct burning projects. During the non-summer months, ODF coordinates thousands of burning requests from private and public forest owners and managers statewide. ODF's strict oversight and regulation of forest burning projects help minimize air quality impacts and smoke intrusions into populated areas.

**Oregon's Smoke Management Plan** is widely regarded as the most successful forest burning program in the Western U.S. This success is defined as meeting both air quality objectives ***and*** landowner management objectives. Accomplishing these dual needs requires diligent understanding and cooperation by all parties involved in forest prescribed burning.

### Oregon's Smoke Management Plan goals:

- Protect public health and reduce long-term air pollution from wildfires.
- Minimize burn smoke intrusions into designated cities and wilderness areas.
- Maximize burning opportunities while minimizing smoke emissions.
- Help accomplish forestry fuel reduction and reforestation objectives.
- Actively monitor and report accomplishments for continuous improvement.
- Self-fund the program with burning registration fees.

The ODF administers the Plan, including handling burn permits and fees, burn conditions monitoring and approvals, and annual reporting. A "Smoke Management Reference Manual" is available from ODF offices.

## What should you know about requirements for burning on forest lands?

Plan ahead, and carefully! A prescribed burn must be well-planned and conducted under strict environmental and meteorological conditions, meant to keep the fire fully confined. Prescribed burning involves some risk, and burn managers must prevent the burn from escaping uncontrolled. Precautions are necessary, as are skilled burn crews. Fire trails must be installed, and equipment and personnel must be available to ensure containment.

Be aware that the potential liability for suppression costs and damage to adjoining property may deter some landowners from burning projects, as the same liability from fires from other forest operations also applies to prescribed burning. In addition, allowable burning days and other restrictions can be more stringent for forestlands near population centers and locations where smoke disperses more slowly, such as the Willamette Valley and the Medford area.

Burning projects on forest lands must address the following:

- Any burning activity must be registered with ODF by obtaining a burning permit at least seven days before the planned ignition; a written burn plan is required in some situations.
- Fees are due with burning permit registration, calculated on a per-acre basis that varies with site location, burn acreage and burn type (i.e., landing, piles, broadcast).
- Burn plans and implementation must consider protection of air, water quality, and fish and wildlife habitat.
- Burning must protect trees left after harvest, riparian buffers and soil productivity.
- Burning must maintain vegetation required under the forest practice rules, including RMAs for streams, lakes and wetlands (see below).
- Burn area and intensity should be limited to only what are needed for reforestation or fuel hazard reduction.
- At least one day before igniting the burn, the landowner/operator must call the local ODF office for clearance to burn, subject to favorable conditions.
- Those requesting ignition approval should be prepared to provide specific information about the burn, including fuel load amounts and the planned ignition time.
- Ignition activity must not start, or if begun must be discontinued, if weather or other conditions change and are no longer within ODF-approved limits.
- Burn accomplishment must be reported to ODF within a week for all prescribed burning.

## What about burning near streams, lakes and wetlands?

Burning near streams, lakes and wetlands involves some additional resource risks. Thus, a written plan is required when burning is expected within:

- 100 feet of Type F, SSBT and D streams
- 100 feet of large lakes
- 300 feet of significant wetlands

The written plan should describe, as needed, how detrimental effects will be minimized:

- in RMAs
- on highly erodible soils
- for any required wildlife trees, snags, down logs and understory vegetation

## What about using water to help control the slash burn?

If you need to draw water from a stream, lake or other water body as part of the burn operation, you must notify both the Oregon Water Resources Dept. and the Oregon Fish and Wildlife Dept. This notification must be submitted to the local offices of these agencies at least 15 days before the water is drawn. Copies of the original ODF Notifications of Operation forms are used, but specific information about the water use must be included.

## Tips for burning slash piles

**Use pile covers:** During the dry season, cover a portion of the pile with a waterproof barrier. Such covers have been shown to reduce pollutants by allowing rapid ignition and more complete combustion when burning is allowed. Covered piles allow for safer burning during more desirable wet periods. Drier woody material within the pile favors more rapid and complete combustion, which has fewer pollutants and improves smoke dispersal.

**On steep slopes, prescribed burning can be an effective way to limit soil disturbance while controlling fuels and enhancing reforestation.**

**Burn only approved covers:** The only inorganic cover that may be legally burned with a pile is a **plastic sheet (polyethylene)**, which may not exceed 100 square feet and a thickness of 4 mil. Other covers may be used to keep piles dry, but they must be approved by the ODF forester or removed prior to burning.

**Well-built piles burn better:** Properly constructed burn piles (or windrows) burn more completely with less smoke and air pollution. Piles that burn best are compact, tall and relatively clean of dirt. They can be constructed by a log loader, excavator, dozer with a brush blade or by hand.

**Burn under proper fuel weather conditions:** Conduct burning and light piles only during weather periods approved by ODF for safe burning and good smoke management. Burning during wet weather can achieve project objectives while reducing (but not eliminating) the need for fire control measures, because of less risk of escape.

**Sometimes, not every pile or downed log needs burning:** Small, scattered piles can be left unburned for use as wildlife habitat, unless mountain beaver (boomer) or other pests are a problem. Also, Oregon forest law requires larger clearcut harvests to retain two pieces/acre of down wood — this wood must not be piled or burned.

**It is possible to practice prescribed burning and save down logs.**

## Are there ways to avoid burning slash and other forest fuels?

Yes. There are a number of alternatives to burning that may be used to reduce, consume or otherwise eliminate harvest slash and other forest fuels. They may be attractive when considering burning costs, unpredictable timing (smoke management) and the risk of fire escape. However, the alternatives can involve their own costs and other concerns, which should be carefully weighed against the advantages of a well-planned burn project.

Non-burning alternatives to treat excess forest fuels include, but are not limited to:

- do nothing: leave woody fuels onsite
- cut-to-length or whole-tree harvesting (see the appendix, pages 152-153)
- pre-commercial thinning of smaller/ excess trees
- skidding/yarding of unmerchantable wood/tops to the landing
- lopping and scattering of slash on the forest floor
- chipping or grinding on-site or at the log landing
- debarking and/or chipping of pulp fiber at the landing
- mechanical crushing of slash
- cutting/digging tree planting spots prior to reforestation
- herbicide treatment to kill unwanted and competing vegetation
- pile/windrow/concentrate slash, without burning

**Biomass harvest operation.**

## Biomass utilization

Biomass utilization is a forest operation where slash — and other excess woody debris —is removed from forest land and chipped/ground into fuel for renewable energy generation. Although interest and activity in biomass utilization has been growing, tonnage prices paid to landowners may not cover the costs of biomass collection, processing and transport. As such, plans for biomass utilization should be integrated with other timber harvest and management objectives. With new biomass energy facilities that reduce transport costs and other related efficiencies and market incentives, biomass utilization can become a more attractive option for landowners.

For other information sources, see the Appendix, pages 197-198.

### What are the pros and cons of burning harvest slash?

#### PROs

- Burning can reduce fuel loads and related fire hazards.
- Burning can be used on steep slopes where vehicles cannot work.
- Burning can reduce habitat for unwanted mountain beaver, rabbit and mice that may damage new tree seedlings.
- Burning can control brush that may compete with new tree seedlings.
- Burning is a way to provide adequate tree planting spots.
- Burning can release some nutrients and improve soil fertility.

#### CONs

- Burning can be risky and costly – the landowner has liability if the fire escapes.
- Burning in winter or spring reduces risk but requires planning and flexible scheduling.
- Burning and the smoke it creates can be unpopular with neighbors and communities.
- Piles burn best, but extra work and accepted coverings are required to burn during the wet season.
- Burning requires initial ODF Notification, a Burning Permit, a Burn Plan, and a fee before lighting a prescribed fire.

**Prescribed burning with a helitorch has become less common as whole-tree cable harvesting and other approaches have reduced the need.**

**Parts of these machine piles will be covered with acceptable waterproof barriers and be ready for burning during the winter months.**

# Fire protection for homes on forestlands

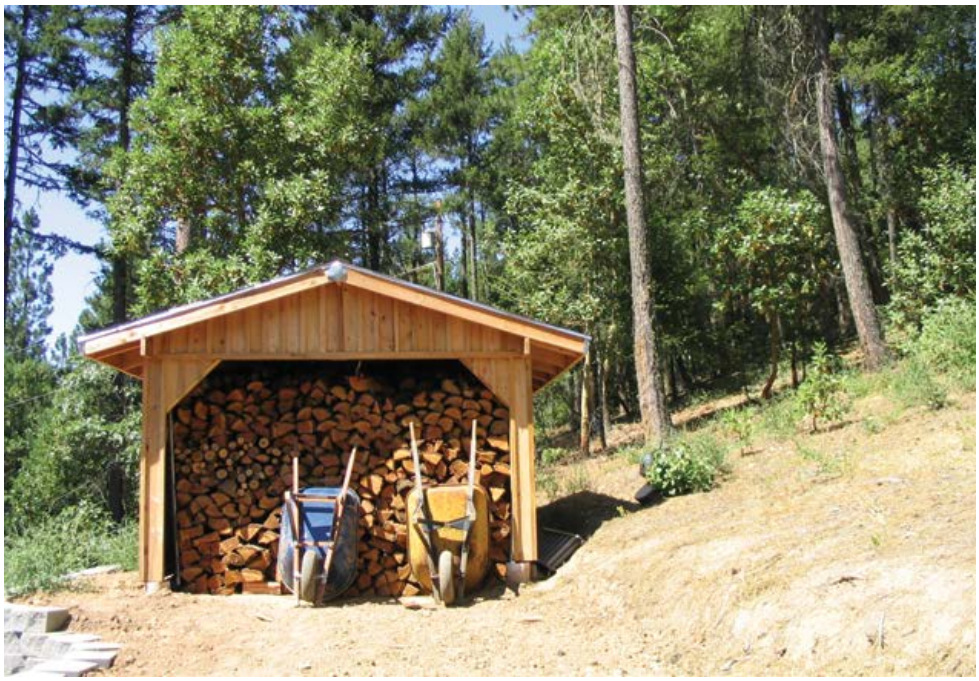
Taking steps to reduce fire hazards around homes on forest ands is not only smart, it's often required by Oregon law **– even when forest operations are not involved**.

## What should you know about fire protection for homes on forestlands?

Oregon law (see box on page 97) requires property owners in designated forestland-urban interface areas to reduce excess vegetation, trees and woody material — around structures and along driveways where they could fuel a wildfire. It also may be necessary to create fuel-free openings along property lines or roadsides.

Required fuel-reduction actions may include:

- primary/secondary fuel breaks
- driveway/road/lot fuel breaks
- ladder fuel (smaller trees and shrubs) thinning/removal
- brush removal and green spaces
- tree pruning
- tree thinning
- clearance around roofs and chimneys
- removal of flammable material from roofs and decks
- firewood re-location
- water supply development/access



**This firewood shed is located well away from the home.**

## Oregon's Forestland-Urban Interface Fire Protection Act

The Oregon Forestland-Urban Interface Fire Protection Act (also called the Interface Protection Law) enlists the help of property owners in making fire-vulnerable forest-dwelling interface areas less hazardous and helping firefighters more safely and effectively defend homes from wildfires. The Interface Protection Law seeks to reduce the loss of residences from forest fires, as well as to reduce firefighting costs when wildfires approach residential areas in or bordering the forest.

Under the Act, forestland-urban interface areas within each county are identified by a local classification committee, with a focus on:

- lands within the county and inside an ODF protection district
- lands meeting the state's definition of "forestland"
- lands defined as "suburban," "urban" or "rural" when logical boundaries are needed
- developed lots that are 10 acres or smaller, which are grouped with other lots and have a minimum density of four structures per 40 acres

As forestland-urban interface areas are identified, they are then classified in terms of fire risk. The classifications range from "low" to "extreme," with the category determining the size of the fuel break around a structure that needs to be established by the landowner. After the local committee drafts the area maps and risk classification, public input is sought for potential revisions and final adoption. The forestland-urban interface classifications are reviewed every five years.

Requirements under the Act are being implemented gradually, with three counties initially included in 2003 and other counties being added over a planned 15-year rollout period. Further details about the requirements are found in Oregon Revised Statutes 477.015 to 061, and Oregon Administrative Rules 629-044-1000 to 1110.

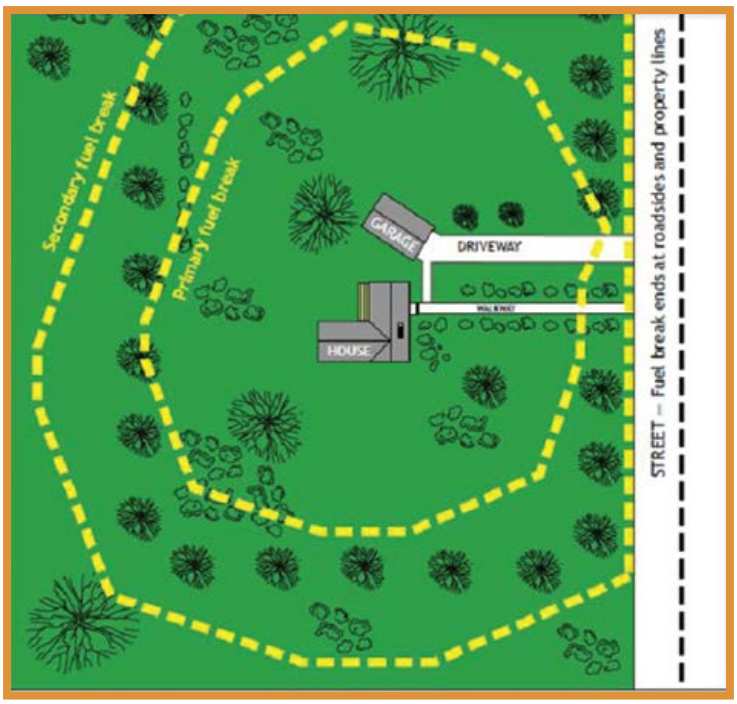
## How do you know if your property is in a designated interface area?

The Interface Protection Law is administered on a county-by-county basis (see box above). Within the next decade it will apply to all counties with significant forestlands – meanwhile, you should check with ODF to determine whether your property is in a designated interface area. If your property is in such an area you may have received information about the requirements for reducing fire hazards. If your property isn't currently included but is in or borders forestland, consider using the requirements to reduce the risks to your property as well as for the protection of other people and resources.

## How do you evaluate your property and meet the requirements?

In counties that have completed the classification process, ODF notifies landowners within the designated forestland-urban interface areas about the requirements, usually with a mailing. Landowners have two years after receiving the notification to comply with the fuel-reduction standards. ODF provides information to forestland-urban interface landowners about the fuel-reduction standards, along with property evaluation forms. The evaluation forms are designed to help the landowner assess fuel reduction needs and make the property fire-safe. You should use the evaluation form that matches the classification for the area where your property is located, i.e., moderate, high, extreme, or high-density extreme (no fuel reduction is required in locations classified as "low").

Property owners also receive a "certification card" that should be signed and returned to ODF after all the fuel-reduction standards have been met by the landowner. Contact your local ODF office for copies of the evaluation form and certification card.




## Is there a penalty if your property does not meet the requirements?

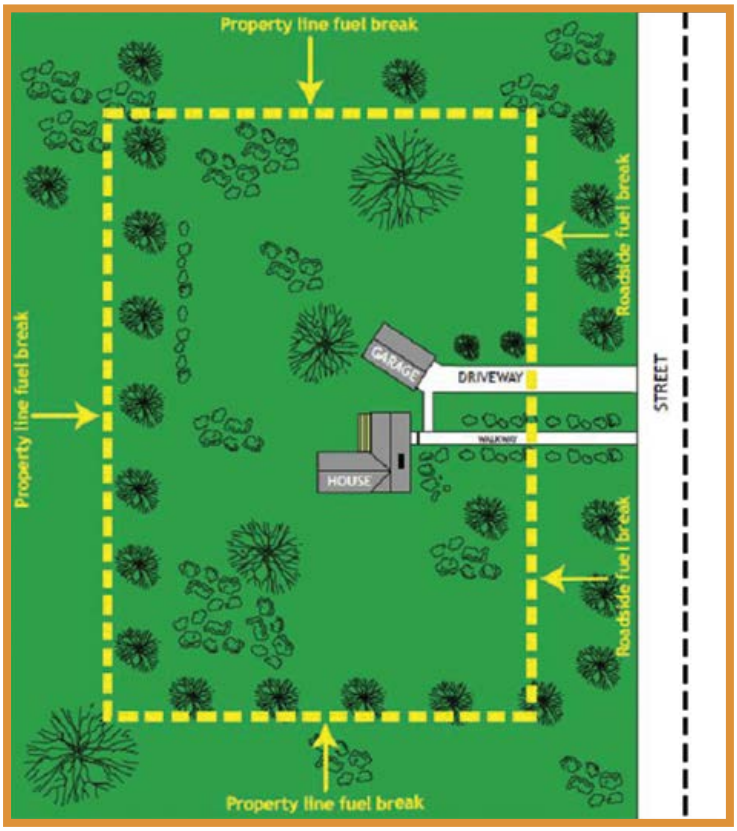
There is no fine for not meeting the requirements. However, the state is empowered to collect up to $100,000 in suppression costs if:

- a landowner does not certify his or her property
- a wildland fire originates on the property
- the fire spreads within the protection zone around a structure and driveway that does not meet the standards **AND**
- ODF has extraordinary costs for suppression

The cost collection may exceed $100,000 if a landowner is found to be willful, negligent or malicious in the origin of the fire.

Returning the certification card to ODF provides an important record that you have met your responsibilities as a property owner in a designated interface area, thereby relieving you of the $100,000 firefighting cost-recovery liability. Note that certification cards become void whenever a property is sold, a structure is added or a county classification committee has reclassified forestland-urban interface lands.

For other information sources, see the Appendix, pages 197-198.




## Primary fuel breaks around residences: At least 30 feet wide in this zone:

- Ground cover should be mostly non-flammable; examples include asphalt, bare soil, concrete, rock/gravel, mulches, green grass, succulent ground cover or wildflowers.
- Cut dry grass to a height of less than four inches
- Grass, leaves, twigs and similar cuttings and debris should be broken up to avoid a continuous fuel bed.
- Maintain shrubs and trees in a green condition, mostly free of dead plant material, and without potential “ladder fuels” removed.
- Arrange trees and shrubs so that fire cannot jump from plant to plant; thinning may be necessary to accomplish this.

# Using engine fuels, oils and other petroleum products

Forest operations often involve machinery and vehicles that require petroleum products. Careful handling and use of these products can reduce the risk of spills and help protect the environment.

If a spill occurs when using petroleum products or chemicals for vegetation and pest control (see next section), landowners and operators must follow specific rules for handling the spill. ODF oversees most of these handling, use and spill regulations for forest operations.

## What types of "petroleum products" are subject to forest practice requirements?

"Petroleum products" often present on forest operations and subject to the forest practice rules include engine fuels, gasoline, hydraulic oil, lubricating oils and greases. The rules distinguish between "other petroleum products" and "chemicals." Refer to next section, "Using chemicals," for more information about proper use of forest chemicals such as herbicides or pesticides.

## What are some sources of potential petroleum product leaks and discharges?

Heavy equipment, service trucks, crew vehicles, saws, fuel tanks, fuel supply trucks, fuel transfer, fuel or lubricant containers, waste oil storage, improper equipment repair methods, equipment malfunctions, vehicle accidents and vandalism.

## What actions must be taken to prevent and deal with leaks and spills?

Adequate precautions are required to prevent leaks, minor discharges, or "reportable spills" from entering and causing a visible sheen on state waters (streams, rivers, lakes, or wetlands). Operations should be planned to keep petroleum products and chemicals from entering such waters. Be aware that uncontrolled ditch water can be a source of such contamination.

Petroleum and other chemical containers and handling equipment must be maintained in a leak-proof condition. This includes machinery used for transportation, on-site storage or application of chemicals. If there is evidence of leakage, the equipment must not be used further until it is repaired (see "Using chemicals" section). If an accidental leak or spill occurs, immediate action is needed to stop and contain it, and it must be promptly reported (see box).

### If a spill occurs: Oregon requirements for petroleum products and other chemicals

Operators must take immediate and appropriate action to stop and contain leaks, minor releases or "reportable spills."

Any "reportable spill" of petroleum product — exceeding 42 gallons onto land, or any amount delivered to state waters — must be reported within 24 hours to the Oregon Emergency Response System (OERS).

Any "reportable spill" of pesticide — exceeding 25 gallons (or 200 lbs.) onto land, or any amount delivered to state waters — must be reported within 24 hours to the OERS.

Smaller quantities discharged onto soil, less than the gallon amounts stated above, should be stopped, contained and prevented from future delivery into state waters.

If a spill enters state waters, operators must also immediately report it to the nearest ODF office. This reporting does not exempt the operator from requirements to notify other agencies.

First response to a "reportable spill" incident is through 9-1-1. Once notified, local public safety agencies should call OERS at 800-452-0311.

For more information, contact ODF, Oregon Dept. of Environmental Quality, the Oregon Dept. of Agriculture, or see the OERS Web page: www.oregon.gov/OMD/OEM/tech_resp/oers.shtml

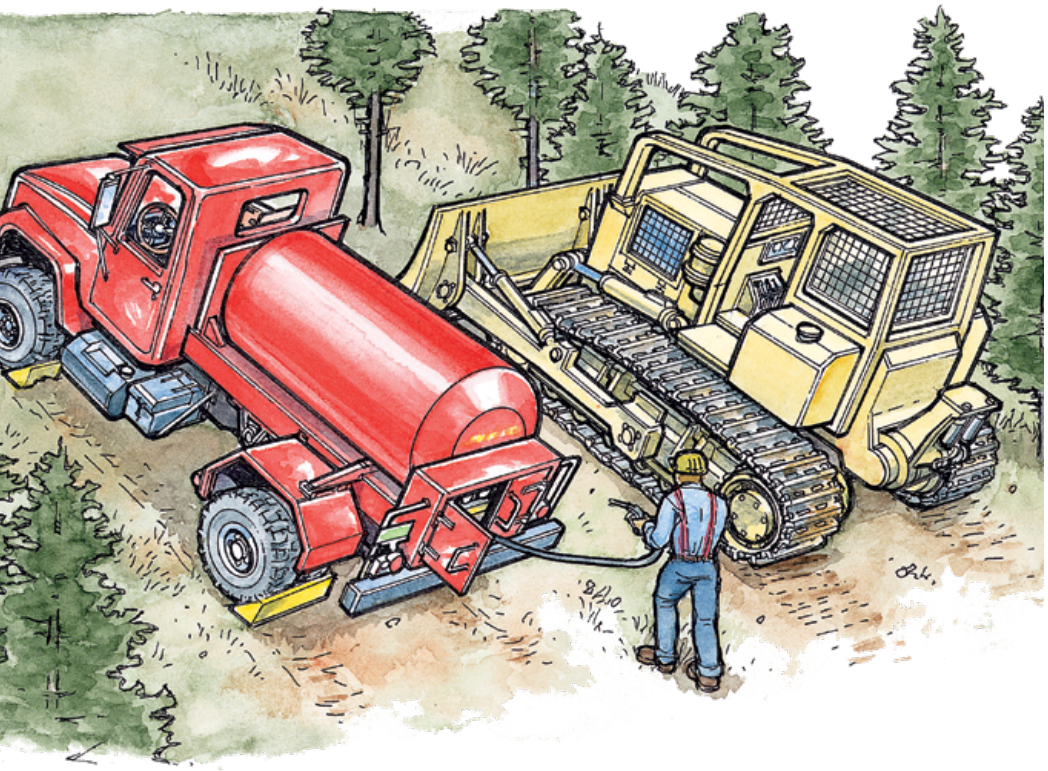
## How to manage for minimizing risk of leaks and spills through voluntary prevention?

Forest landowners and contractors often employ voluntary means to assure that there is small likelihood of an operational petroleum discharge occurring, or escaping into waters. Common non-regulatory preventative actions might include:

- Minimize exposure to spills through effective storage, transport, equipment maintenance and housekeeping practices.
- Prepare a company spill plan that identifies prevention and response actions.
- Equip each job-site and vehicle with a spill kit, which includes spill absorbents and response instructions.
- Train supervisors and crew about petroleum spill prevention and response.

## What are some "best practices" for preventing spills and unwanted discharges?

- "Good job site housekeeping"– Remove and dispose of used containers and other waste; regularly inspect the job site for risky materials and situations; store fluids in rigid, properly labeled containers.
- Proper handling and storage – Securely store fuel and other chemicals; refuel equipment and transfer petroleum/chemicals in locations where spills/discharges cannot enter water.
- Preventative maintenance – Inspect heavy equipment for leaks; secure equipment to avoid damage and leakage; perform needed maintenance to prevent leaks/discharges; drain engine oil changes into a container; remove used fluids from the forest for proper disposal or recycling.



**To avoid fuel truck leaks, chock the wheels. Transfer fuel where a leak cannot deliver into a stream or wetland. Be sure brake and transmission service is current. Fuel truck drivers need a commercial driver's license and a hazardous materials transport license.**

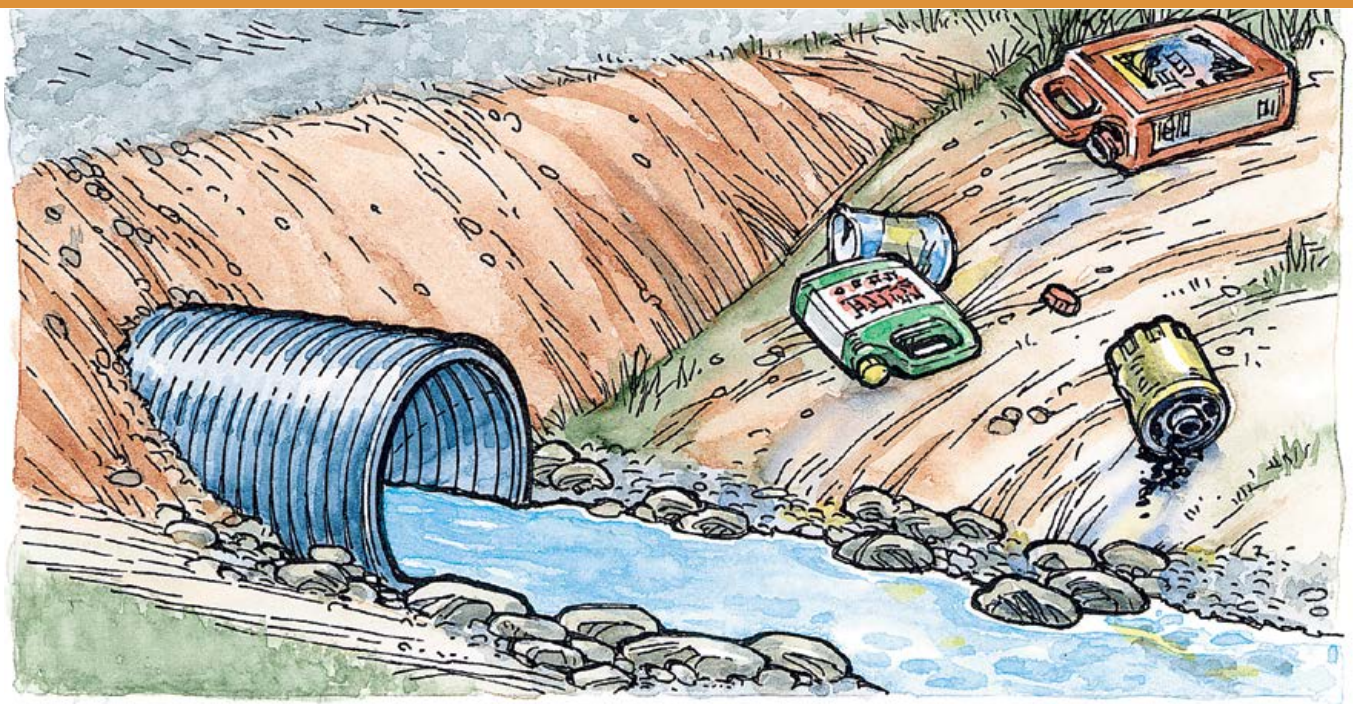
## What are some ways to be ready to handle a spill or unwanted discharge?

- Planning – Plan how to deal with a discharge or spill, including the responsible person(s) and how to evaluate the discharge, deploy containment measures, respond to the discharge volume/type, and handle communications and recordkeeping.
- Spill kits – Provide spill response kits on the job-site; kits contain absorbent supplies (pads, socks, booms) to be used for immediate spill containment, cleanup and communication.
- Employee training – Provide for supervisor and key employee training and information for proper spill prevention, planning and responses.

## What about disposal of wastes from petroleum and other chemical products?

- Remove from the forest all petroleum product waste, including crankcase oil, filters, used hydraulic oil, grease and oil containers.
- Absorbent supplies (rags, pads, socks, booms) that were used to clean up petroleum leaks should be placed in plastic bags and removed from the forest to an approved waste disposal site.
- Properly dispose of all other mechanical debris — such as machine parts, old wire rope and used tractor tracks — so it doesn't enter state waters.

For other information sources, see the Appendix, pages 197-198.



**Never dispose of used motor oil or containers in a pit or near water.**

## Know all the requirements and who to contact

In addition to the forest practice rules and related ODF administration, landowners and operators who use petroleum products and other chemicals need to know that other requirements and agency oversight may apply. Forest operations involving such products may also be subject to:

- pesticide control laws administered by the Oregon Dept. of Agriculture [see the next section, "Using chemicals"]
- hazardous waste laws administered by the Oregon Dept. of Environmental Quality
- hazard communication rules administered by the Oregon Occupational Safety and Health Division
- water use laws administered by the Oregon Water Resources Dept.

For example, using water from streams or other surface waters to mix pesticides requires prior notice to both the Oregon Water Resources Dept. and the Oregon Dept. of Fish and Wildlife. Notifying ODF of the operation does not satisfy this requirement, but you can send copies of the original ODF operations notification to the other agencies. These must be sent to the other agencies' local offices at least 15 days before the operation begins.

### What "other petroleum products" are included in the requirements?

Other petroleum products include fuel, motor oil and hydraulic fluid.

Take precautions to prevent leaks or spills of other petroleum products from entering waters of the state.

Common sources of other petroleum product contamination include:

- vehicle fuel tanks
- fuel supply trucks
- waste oil storage containers
- service lubricant supplies
- diesel used for pesticide mixtures

### What are the waste disposal requirements?

*Remove from the forest all petroleum product waste including crankcase oil, filters, grease and oil containers.*

*Dispose of all other debris (e.g., machine parts, old wire rope, used tractor tracks) so it doesn't enter waters of the state.*

For other information sources, see the Appendix, pages 197-198.

# Using chemicals to control vegetation and pests

Various chemicals, including pesticides and fertilizers, are used to protect and grow healthy and productive forests. If not handled and used properly, including following directions on the product label, these materials can be a health hazard for people and aquatic life. This section describes the requirements for using these products.

**Hand-operated backpack sprayers and mechanized ground equipment are widely used.**

## What are pest control chemicals?

Pest control chemicals are called pesticides, of which there are several broad classes. All are used in the forest, some more than others.

- Herbicides are chemicals used to control plants.
- Insecticides are chemicals used to control insects.
- Rodenticides are chemicals used to control rodents.
- Fungicides are chemicals used to control fungi.

Petroleum products were discussed in the previous section – note that some also are used with pest control chemicals.

- Oils are sometimes mixed with and used as carriers for pesticides.
- "Adjuvants" are mixed with pesticides to control drift and help chemicals adhere to foliage.

Operators are encouraged to use integrated pest management (IPM) strategies. In this approach to pest and vegetation control, chemicals are just one of a variety of pest control methods.

## Why are herbicides used on forest lands?

Herbicides are among the most common chemicals used in forestry, although normally they are used only during a few years in the life of a forest. Herbicides control the growth of weeds and other unwanted plants while a new forest is being planted and established. These plants compete with tree seedlings for water, sunlight, space and nutrients. Both biologically and economically, herbicides are often the most effective means of controlling competing vegetation.

## What are requirements meant to do?

Pest control requirements ensure that:

- these products are not found in soil, air or water in quantities that could damage water quality, animals or aquatic life
- plants in RMAs and sensitive resource sites are protected

**On larger forest ownerships, helicopters are a cost-effective method for applying herbicides.**

## What about the requirements of other government agencies?

It is not enough to follow forest practices requirements. Chemicals and other petroleum products used on forestlands are also subject to:

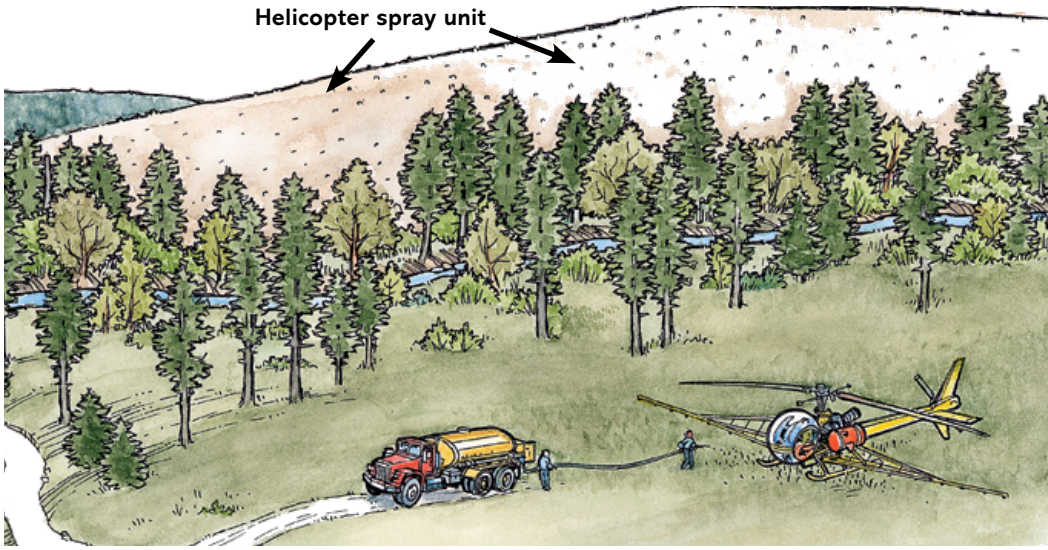
- Oregon Dept. of Agriculture pesticide control laws:
  - Commercial operators must be trained and licensed.
  - Operators must understand and follow product label requirements.
  - Operators must not apply pesticides in a faulty or negligent fashion. This means pesticides must not drift from the target area and must not harm people, their property or the environment.

The Pesticide Use Reporting System has been developed to report pesticide use locations, chemicals, amounts and purposes. Contact ODA or see its website for current requirements.

- Oregon Dept. of Environmental Quality hazardous waste laws:
  - Operators must dispose of containers and other chemical waste properly and report and clean up spills.
- Oregon Occupational Safety and Health Division hazard communication rules.
  - Operators must know and follow chemical handling requirements.
- Water Resources Dept. water use laws:
  - Operators must notify WRD and the Oregon Department of Fish and Wildlife before mixing chemicals with water taken from streams and lakes.

Notify local WRD and ODFW offices by sending copies of the original Notifications of Operation forms when those are turned in to ODF.

Any agency website can be found through www.oregon.gov.




**Care must be taken when mixing chemicals, transferring chemicals from containers to equipment, fueling aircraft or heavy equipment, cleaning tanks or equipment, or locating landing/staging areas for aircraft or equipment.**

## Is planning ahead important?

Yes. That's because:

- No waivers are granted for the 15-day waiting period for aerial chemical application operations.
- Written plans are required for any chemical application within 100 feet of a Type F, SSBT or D stream or within 300 feet of a specified resource site (wetlands, special bird nesting sites, etc.).
- Operators must notify community water-system managers at least 15 days before applying chemicals near Type F, SSBT or D streams used by such water systems (details below).
- Aerial chemical spray operators must adhere to required unsprayed buffer distance of 60 fee (horizontally) from dwellings and school campuses.

## How should areas for chemical mixing, transfer and helicopter staging be located?

- Locate these activities only where a spill would not enter waters of the state.
- Do not locate mixing, transfer and aerial staging areas within 100 feet of Type F, SSBT or D streams.
- Protect waters of the state and other forest resources by following chemical product labels.
- Maintain the vegetation left in compliance with the water protection requirements.

**Spill kits are used to contain hazardous materials.**

## How are leaks handled?

- Maintain all equipment in a leak-proof condition during transport, on-site storage and application.
- If leaks occur, stop using equipment until corrected.
- Take immediate action to stop and contain leaks or spills.
- Take precautions to prevent leaks or spills from entering waters of the state.
- Report to ODF immediately any spill that enters or may enter waters of the state.
- Any spill of more than 42 gallons of petroleum or 25 gallons (or about 200 pounds of a liquid or solid) of pesticide should be reported to the Oregon Emergency Response Center at 800-452-0311. Also report to the Center spills of any amount that reach streams or other waters.

## What are the required practices and safe distances when mixing and applying chemicals near water?

When using water from a stream or water impoundment for mixing chemicals, prevent chemicals from entering waters of the state by:

- providing an air gap or reservoir between the water source and mixing tank
- using pumps, suction hoses, feed hoses and check valves that are used only for water

NOTES FOR TABLE 5-1

- All distances are measured horizontally, not as slope distances.
- Direct application of chemicals is not allowed within the distances listed.
- Always comply with label requirements. If product labels require greater distances, comply with them.
- Always comply with any forest practices water protection rule that is more stringent than the label and other requirements. Written plans are required for any chemical application within 100 feet of a Type F, SSBT or D stream or within 300 feet of a specified resource site (e.g., wetlands, sensitive bird nesting sites).
- ODF may approve alternate plans for applying fungicides or non-biological insecticides.
- What is considered fertilizer? Fertilizer is plant food added to soil to increase growth, and contains 5 percent or more of nitrogen, phosphorous or potassium. Hay, straw, peat, leaf mold and animal manure are not considered fertilizer.

Table 5-1 describes the distances from water bodies (buffers) that must be maintained when chemicals are used on forestland.

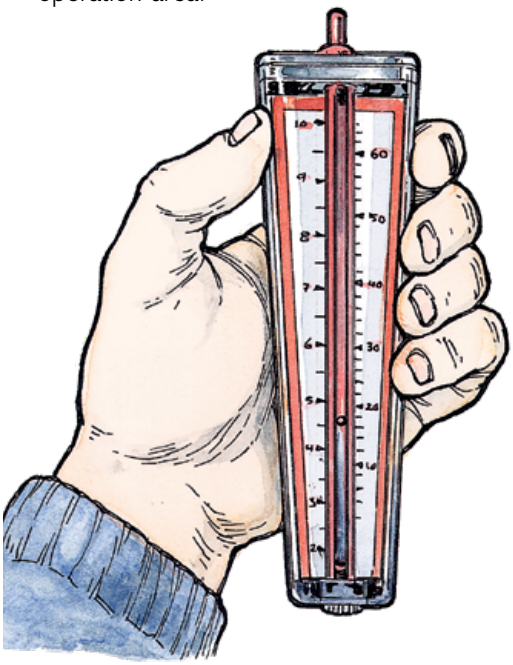
**Table 5-1 Distances from Water Bodies, Inhabited Dwellings and Schools when Using Chemicals**

| Chemical Application Buffers Required for Waters of the State by the Chemical and Other Petroleum Products Rule | Herbicides, Rodenticides, insecticides and all other Chemicals except the next two columns | | Fungicides and non-biological Insecticides | | Fertilizers (See Table 5-1 Notes above) | |
|---|---|---|---|---|---|---|
| Application (see table notes) | Aerial | Ground | Aerial | Ground | Aerial | Ground |
| Aquatic areas of fish-bearing streams with no domestic use (most Type F and SSBT streams) | 60 feet | 10 feet | 300 feet | 10 feet | No direct application | No direct application |
| Aquatic areas of domestic-use streams with fish (all Type D and some Type F and SSBT streams) | 60 feet | 10 feet | 300 feet | 10 feet | 100 feet | 100 feet |
| Inhabited dwelling or school | 60 feet | No buffer specified | No buffer specified | No buffer specified | No buffer specified | No buffer specified |
| Aquatic areas of other streams (Type N streams) | No buffers specified, but protect vegetation noted in Table 2-16 | No buffers specified, but protect vegetation noted in Table 2-16 | 60 feet if flowing at time of application | No buffer specified | No direct application to large and medium streams | No direct application to large and medium streams |
| Significant wetlands | 60 feet | 10 feet | 300 feet | 10 feet | No direct application | No direct application |
| Aquatic areas of lakes larger than 8 acres | 60 feet | 10 feet | 300 feet | 10 feet | No direct application | No direct application |
| Aquatic areas of other lakes with fish | 60 feet | 10 feet | 300 feet | 10 feet | No direct application | No direct application |
| Other standing water larger than ¼ acre at time of application | 60 feet | 10 feet | 300 feet | 10 feet | No direct application | No direct application |
| All other waters | No buffer specified | No buffer specified | No buffer specified | No buffer specified | No buffer specified | No buffer specified |

Note for Table 5-1: For aerial herbicide applications, measure the 60-foot unsprayed buffer next to inhabited dwellings from the dwelling and for schools, from the property boundary of school campuses.

## What about disposal of chemical containers?

Follow DEQ requirements. The flushing solution used to clean chemical containers may be applied to the operation area.



**Monitoring devices like this wind gauge, along with a wet bulb/dry bulb sling psychrometer to measure relative humidity, are handy for use in the field.**

## What about weather conditions?

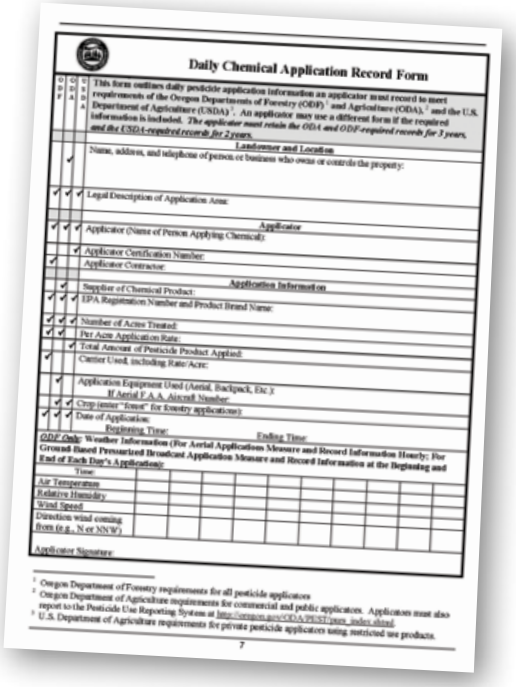
Temperature, relative humidity, wind speed, wind direction, temperature inversions and rainfall may affect the deposition and drift of pesticides during aerial and pressurized, ground-based applications. Landowners must apply chemicals only when weather conditions protect non-target forest resources, and comply with product labels.

## What about keeping application records?

Daily records must be kept for broadcast chemical application (applied in a sweeping manner rather than directed at a specific target point), either by aircraft or pressurized ground equipment (backpack sprayer or motorized tank sprayer). Information required for each application day includes:

- legal description of the area treated
- acreage of the area treated
- brand name or EPA registration number of the chemical used, carrier used and application rate
- date and time of application
- air temperature, relative humidity and wind velocity and direction, measured within the operation area and recorded hourly for aerial applications, and at the beginning and end of the day for ground applications
- name of the person making the application
- name of contractor and pilot for aerial applications
- name of contractor and employee for ground-based applications

Daily records also are required for pesticide applications (e.g., hack and squirt) other than those by aircraft or pressurized ground equipment.



Daily Chemical Application Record Form

This form outlines daily pesticide application information an applicator must record to meet requirements of the Oregon Departments of Forestry (ODF)[1] and Agriculture (ODA),[2] and the U.S. Department of Agriculture (USDA)[3]. An applicator may use a different form if the required information is included. *The applicator must retain the ODA and ODF-required records for 3 years, and the USDA-required records for 2 years.*

Landowner and Location

Name, address, and telephone of person or business who owns or controls the property:

Legal Description of Application Area:

Applicator

Applicator (Name of Person Applying Chemical):

Applicator Certification Number:

Applicator Contractor:

Application Information

Supplier of Chemical Product:

EPA Registration Number and Product Brand Name:

Number of Acres Treated:

Per Acre Application Rate:

Total Amount of Pesticide Product Applied:

Carrier Used, including Rate/Acre:

Application Equipment Used (Aerial, Backpack, Etc.):

If Aerial F.A.A. Aircraft Number:

Crop (enter "forest" for forestry applications):

Date of Application:

Beginning Time: Ending Time:

*ODF Only:* Weather Information (For Aerial Applications Measure and Record Information Hourly; For Ground Based Pressurized Broadcast Application Measure and Record Information at the Beginning and End of Each Day's Application):

| Time | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Air Temperature | | | | | | | | | | | |
| Relative Humidity | | | | | | | | | | | |
| Wind Speed | | | | | | | | | | | |
| Direction wind coming from (e.g., N or NNW) | | | | | | | | | | | |

Applicator Signature:

[1] Oregon Department of Forestry requirements for all pesticide applicators
[2] Oregon Department of Agriculture requirements for commercial and public applicators. Applicators must also report to the Pesticide Use Reporting System at http://oregon.gov/ODA/PEST/pur_index.shtml
[3] U.S. Department of Agriculture requirements for private pesticide applicators using restricted use products.

7

Information needed for each application day includes:

- legal description of the area treated
- acreage of the area treated
- brand name or EPA registration number of the chemical used, carrier used and application rate
- date and time of the application
- name of person making the application

Fertilizer applications require the following records:

- legal description of area treated
- acreage of area treated,
- date and time of the application
- name of person making the application

All these records shall be maintained by the operator for three years from the date of application, and available at the request of ODF.

This form (pictured at left) may be used for your records and is available from ODF.

## What about notification of community water system managers?

Chemical applicators shall notify water system managers of planned chemical operations at least 15 days before an operation begin when:

- chemicals will be aerially applied within 100 feet or ground-applied within 50 feet of domestic portions of Type F, SSBT or D streams
- the community water system watershed area is not larger than 100 square miles

The water system manager may request additional information.

ODF maintains a list of community water systems for which notification is required.

For other information sources, see the Appendix, pages 197-198.