



Oregon Department of Environmental Quality

Pesticide Use in Vicinity of Drinking Water Sources

Background

The Oregon Drinking Water Protection Program staff and managers at both Oregon Health Authority and Oregon Department of Environmental Quality receive questions from public water systems about pesticide applications in the vicinity of their well, spring, or intake. This document summarizes regulations associated with pesticide applications and recommended best management practices for drinking water providers and the general public. This is a working document that can and should change over time as new information becomes available. The potential management strategies for public water suppliers address questions related to both forestry pesticide applications and agricultural pesticide applications.

Primary regulations for pesticides in Oregon

Pesticide use regulations are summarized in a number of resources on the [Oregon Pesticide Analytical and Response - PARC](#) website. Specifically, this [Frequently Asked Questions Factsheet](#) summarizes pesticide use regulations and water protections, which are reiterated below for convenience:

U.S. Environmental Protection Agency

Except in limited circumstances, all pesticides used in the United States must be registered with the U.S. Environmental Protection Agency and must carry federally approved labels describing permitted uses and appropriate protection measures. To be registered by the EPA, pesticides must undergo extensive laboratory and field studies. EPA develops risk assessments that evaluate the potential for harm to humans, wildlife, fish, and plants, including endangered species and non-target organisms. The potential for contamination of surface water or ground water from leaching, runoff, and spray drift are also evaluated. EPA approves the language that appears on each pesticide label to ensure the directions for use and safety measures are appropriate to any potential risk. Following label directions is required by law and is necessary to ensure safe use. More information can be found on [EPA's pesticide registration](#) webpage.

Oregon Department of Agriculture

Pesticide sellers and applicators must also comply with the state's Pesticide Control law (Oregon Revised Statute Chapter 634) which requires state product registration and applicator certification and licensing for many circumstances. This law is administered by the Oregon Department of Agriculture. Among other requirements, the law also prohibits faulty, careless, or negligent application of herbicides and requires pesticide products must be used in accordance with the labeled directions

Oregon Department of Forestry

Pesticide users on forestland must also follow Oregon's Forest Practices Act, administered by the Oregon Department of Forestry. These requirements are in addition to pesticide label requirements. The FPA requires operators to protect human health and safety, and maintain soil productivity, air quality, fish, wildlife, and water resources through measures including but not limited to:

- Retain and protect trees and plants along perennial streams during and following logging
- Prohibit helicopter herbicide applications within:
 - 300 feet around schools and dwellings,
 - 300 feet from a qualifying water intake
 - 75 feet or more of fish-use or drinking water streams, and

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- 50 feet for non-fish streams, with visible surface water.
- Prohibit other aerial applications (non-helicopter) within 60 feet of fish-use or drinking water streams,
- Prohibit all aerial applications within 60 feet of open water greater than ¼ acre,
- Prohibit ground-based applications within 10 feet of fish-use or drinking water streams and open water greater than ¼ acre, and
- Prevent, control, and report leaks and spills.

Department of Environmental Quality

The DEQ has authority under the Clean Water Act to require permits for pesticide applications that result in a discharge to surface waters of the state from certain activities. Buffers established in the ODF and ODA laws and regulations are intended to prevent direct pesticide application to water. However, if other state and federal laws are violated, DEQ's regulatory authority is through the enforcement of CWA National Pollutant Discharge Elimination System 2300A or 2000J permit requirements.

The 2300-A is a NPDES General Permit required for pesticide applications in, over or near water used to control: mosquitoes and other flying insect pests; weeds and algae; nuisance animals; forest environment pests and other pests that must be controlled over a large area in an area-wide pest control. DEQ implements this permit. All individuals, businesses and property owners responsible for pesticide applications in the five categories listed above must comply with certain basic permit requirements. Permit conditions are more stringent for all federal and state agencies, certain districts responsible for pest control, and other entities that exceed annual treatment area thresholds. The 2000-J general permit regulates the use of pesticides for weed and algae control within irrigation system boundaries. Current information is available at on [DEQ's Pesticide Applications into Surface Waters](#) website.

DEQ also regulates pesticide waste generated from pesticide operations and management such as unused commercial pesticides, tank or container bottoms or sludges, pesticide spray mixture, container rinsing and pesticide equipment washings, and substances generated from pesticide treatment, recycling, disposal, and rinsing spray and pesticide equipment.

Oregon Health Authority

Under OHA rules, public water systems using groundwater sources are required to ensure that “sanitary hazards” which include pesticides are not used within 100 feet of their well or spring unless waived by the Authority ([OAR 333-061-0050](#)). For surface water sources, OHA rules ([OAR 333-061-0030](#) (2)(f)) specify that “Persons who apply pesticides on watersheds above surface water intakes of public water systems shall comply with federal and state pesticide application requirements. (Safe Drinking Water Act (EPA), Clean Water Act (EPA), Federal Insecticide, Fungicide and Rodenticide Act (EPA), ORS 536.220 to 536.360 (Water Resources), 468B.005 (DEQ), 527.610 to 527.990 (DOF), 634.016 to 634.992 (Department of Agriculture)). Any person who has reasonable cause to believe that his or her actions have led to organic chemical contamination of a public water system shall report that fact immediately to the water supplier.”

Additional resources

ODA maintains several [Registered Pesticide databases](#). For specific information about pesticide regulations in Oregon, contact the ODA Pesticides Division at 503-986-4635 or pesticide-expert@oda.oregon.gov.

PARC responds to pesticide-related incidents in Oregon with suspected health or environmental effects. It acts as a central location that receives Oregon-specific pesticide incident information. To report a pesticide incident that has impacted people, animals, bees, or the environment, visit the [PARC's Pesticide and Fertilizer Complaints](#) page.

ODF maintains a Forest Activity Electronic Reporting and Notification System, also known as FERNS, where the responsible person (such as a forest landowner, timber owner, or operator) files a forest operations notification online before starting the work. Anyone can subscribe to receive copies of these notifications and updates. People who want information about plans for forestry work or to submit official comments about the plans can use the subscriber service located on [ODF's Forest Practices Act E-Notification](#) website.

Subscriptions last through December 31 and can be renewed. Qualified residents and those with surface water intakes can also subscribe to receive communications about planned helicopter pesticide applications within

one mile of their home or surface water intake. Aerial herbicide application from helicopters includes a 300-foot no-spray buffer around public and private water intakes and responsible parties must submit application notifications by 7 P.M. the day prior for neighbors and water users within one mile of the proposed application to people who are registered in the FERNS system. In addition, ODF is required by rule to maintain a list of public water systems with surface water intakes and drinking water source areas 100 square miles or less. Public water systems with a source area larger than 100 square miles can ask to be added to the automatic notification list by contacting ODF. Applicators must notify public water system managers that are on the list at least 15 days before application. Responsible parties must afterwards confirm whether the application occurred as noticed, keep spray records (e.g. what was sprayed and in what amounts), and submit those records to ODF (see ORS 527.787 through 527.798).

Potential management strategies for public water suppliers

Written agreements with landowner(s)

Several public water systems in Oregon have either specific legal protections, established written agreements for watershed protection such as a Memorandum of Agreement or Memorandum of Understanding, or extensive coordination with federal agencies and other landowners to ensure that best management practices for drinking water are considered. Examples of coordination include:

- **City of Portland/Portland Water Bureau**

The federal lands in the Bull Run Watershed are managed by the Bull Run Management Act, implemented by the U.S. Forest Service under several authorities, which limit tree cutting/removal, recreation, and other activities in the watershed to only those necessary to protect water quality and operate the water supply and hydroelectric power facilities. The federal legislation clearly designates the primary purpose of the watershed is for continued production of pure, clear, potable water. More information can be found on City of Portland's [How Bull Run is Protected website](#). Portland also maintains a [groundwater protection program](#) and agreements between partner agencies and jurisdictions for the Columbia South Shore Well Field.

- **City of Sandy**

An MOU has been established between the City of Sandy and the Bureau of Land Management, U.S. Forest Service, and private timber landowners to close watershed to public access. Sandy also has an existing resource plan with USFS.

- **City of Molalla**

An extensive review of the Table Rock watershed has been performed in coordination with Bureau of Land Management. The watershed council has partnered with Molalla to carry out protection activities.

- **City of Drain**

An MOU has been established between the City of Drain, the Bureau of Land Management, and other forestland owners in the City of Drain's drinking water source area. The MOU emphasizes practices which help protect drinking water. The City of Drain has also developed a forest management plan with community input.

Another option is ecosystem services agreements, wherein a landowner agrees to provide protections above the regulatory baseline in exchange for compensation (whole or partial) for revenue lost to protection activities. In 2021, Rhododendron Water Association negotiated a perpetual no-cut buffers along Henry Creek which provides drinking water to the community in exchange funds that compensate the landowner for timber that will not be harvested and for the perpetual nature of the agreement.

Watershed ownership and forest stewardship

Several public water systems own all or a part of their watershed and manage the forest primarily for water quality and quantity. Forestry activities in these watersheds are designed to be low risk and the water systems or cities have forest stewardship plans in place that address forest management including pesticide applications. In these watersheds, Examples of forest management planning for drinking water resiliency and protection include:

- [City of Astoria](#)
- [City of Forest Grove](#)
- [City of Scappoose](#)
- [City of Corvallis](#)
- [Arch Cape Water District](#)
- [City of Cannon Beach](#)
- [City of Port Orford](#)

A number of other cities, water systems and their communities are exploring purchasing private land within their source areas.

Non-regulatory best management practices

From a non-regulatory approach, public water systems can request that additional best management practices be put in place to ensure that the public resource is protected. A list of these best management practices can be found within EPA's [National Management Measures to Control Nonpoint Source Pollution from Forestry](#) report. For example, Chapter 3, Section I has recommendations for forest chemical management including the following:

- For aerial spray applications, mark and maintain a buffer area of appropriate width around all watercourses and water bodies to avoid drift or accidental application of chemicals directly to surface waters.
- Many public water systems subscribe to [ODF's FERNs](#) for notifications to stay informed and collaborate with ODF and landowners on proposed pesticide applications.
- Apply pesticides and fertilizers during favorable atmospheric conditions.
- Ensure that pesticide users abide by the current pesticide label.
- Locate mixing and loading areas outside of the drinking water source area. Clean mixing and loading equipment where pesticide residues will not enter streams or other water bodies.
- Dispose of pesticide wastes and containers according to state and federal laws.
- Take precautions to prevent leaks and spills. Develop a spill contingency plan that provides for immediate spill containment and cleanup, as well as notification of proper authorities.
- Use alternatives to pesticides such as manual or mechanical methods (mowing, brushing, mulching, flame-weeding) or "minimum-risk pesticides" such as vinegar, diatomaceous earth, or essential oils (these require an OHA waiver to be used within 100ft of a public water system's well or spring).
- See [Non-toxic Weed Control fact sheet](#), available from Bio-Integral Resource Center.
- Use alternative application methods (e.g. manual application rather than aerial application) close to the intake and in sensitive areas.

Voluntary actions by private forest landowners can assist rural communities in protecting their drinking water and minimizing potential treatment costs and health risks. Examples of voluntary implementation of best management practices include:

- Arch Cape received a source water protection grant and used the money to pay for mechanical control (mowing and brushing) of roadside vegetation, replacing pesticide spraying.
- A timber operator in Port Orford's source water area voluntarily expanded the riparian protection barrier from 60 feet to 350 feet in response to local citizen concerns about their drinking water intake just downstream.
- In Rockaway Beach, citizens were concerned because the required drinking water sampling does not include the pesticides that are applied per the existing rules. One private timberland owner responded to the community concerns and agreed not to spray pesticides in their small drinking water watershed.

- A landowner in City of Tillamook's drinking water source area voluntarily notifies the water system when pesticide sprays are planned so the water system can adjust their intake and consider sampling to verify water quality.
- Oceanside Water District and the landowner planning a harvest unit within Oceanside's drinking water source area collaborated with DEQ and ODF assistance to increase protections on streams and slopes beyond the regulatory requirements of the Oregon Forest Practices Act.

Other examples of other activities used to reduce pesticides:

- City of Dallas worked with the Polk Soil and Water Conservation District with support from Polk County, Rickreall Watershed Council, and Forest Capital Partners to assess its watershed and craft recommendations for increased protection. Dallas has also acquired select parcels and manages for water quality.
- Lincoln City Water District is considering multiple strategies including land acquisition and ecosystem services payments for private landowners.
- Oceanside has an agreement with the landowner in their source area to receive notification when spraying is imminent above the intake so they can close their intakes and use stored water until the risk has passed and received a source water protection grant to pay for pesticide sampling at their intake.
- Many public water systems are registered to get notices of pesticide applications from ODF and then work with the local stewardship forester to submit comments and ensure the landowners are aware of the drinking water intake and use. Some water systems consider sampling raw water after pesticide application and at "first flush" (when autumn rains first generate a significant response on the hydrograph) to help inform ratepayers on water quality conditions.

Best management practices for agriculture and other pesticide applications

Oregon public water systems are also implementing strategies to minimize effects of agricultural or other pesticide use on their drinking water sources. Examples include:

- City of Albany public works has developed an outreach newsletter to landowners who live along the South Santiam Canal to inform them of best management practices to protect water quality including prevention of bank erosion, restoration with native plants, and keeping yard debris and chemical use away from the canal.
- City of Sublimity distributed best management practices literature to farms adjacent to Well #4 to reduce risks from pesticide and fertilizer use.
- City of Sheridan purchased upstream property in its watershed, including riparian areas, and conducted restoration/tree plantings upstream of intake and controlling pesticide use.
- Coburg, Harrisburg, and Junction City designed groundwater protection best management practices for agricultural landowners.
- City of Myrtle Point is partnering with Coquille Water Association and Coos Soil and Water District to educate and engage landowners in source water protection activities upstream of their intakes on the North Fork Coquille River, including modifying pesticide use.
- City of Milwaukie has had concerns about pesticide use by private property owners near its drinking water wells and groundwater sources. OHA used the Use and Susceptibility Waiver for a site-specific evaluation of overall water system susceptibility to the active ingredients in commonly used pesticides and made recommendations about risk level to the local groundwater. The public water system can use this information to request substitutions or other best management practices.

For more information

DEQ's Drinking Water Protection Program has published resource guides for [surface water](#) and [groundwater](#) public water systems. These guides offer information, including maps of source water areas, identification of

potential contamination risks to drinking water sources, funding opportunities, and resources to help develop localized protection plans for safeguarding these water sources.

Contact

Oregon protects drinking water through a partnership between DEQ and the OHA. DEQ is responsible for protecting the water quality of all water in Oregon, in particular water that is the source of drinking water. For more information about DEQ's work see the [DEQ's Drinking Water Protection web page](#) or email drinkingwater.protection@deq.oregon.gov.

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