



State of Oregon
Department of
Environmental
Quality

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Pesticide Use in Vicinity of Drinking Water Sources

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Background

The Oregon Drinking Water Protection Program staff and managers at both Oregon Health Authority and DEQ receive questions from public water systems (PWS) about pesticide applications in the vicinity of their well, spring or intake. Typically, a PWS is notified when a pesticide application is pending in its source area. This document summarizes regulations associated with pesticide applications and potential recommendations 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

Department of Agriculture

The Oregon Department of Agriculture's Pesticides Division, under the Oregon Pesticide Control Act (Oregon Revised Statute 634) and the Federal Insecticide, Fungicide and Rodenticide Act is responsible for the registration, distribution and use of pesticides in Oregon as well as licensing and certification for pesticide applicators and operators. Federal regulations for pesticide use are on pesticide container labels. When appropriate, a pesticide label specifies restrictions on applications near water bodies along with allowable use sites, use rates, application instructions/restrictions and safe handling, storage and disposal requirements. The Oregon Department of Agriculture pesticide database is available at:

http://oda.state.or.us/dbs/pest_productsL2K/search.lasso. A link to the Pesticide Information Center Online database, where you can search for pesticide labels by crop, pest or active ingredient, is also available on the ODA website:
<http://www.oregon.gov/ODA/programs/Pesticides/PesticideProductInformation/Pages/SearchRegisteredPesticides.aspx>. For specific information about pesticide regulations in Oregon, contact the ODA Pesticides Division at 503-986-4635 or pestx@oda.state.or.us. ODA has information on pesticide use, buffer zones, label interpretations, licenses, regulations and product registration. ODA also receives complaints and investigates allegations of pesticide misuse.

Department of Forestry

Additional regulations for use of pesticides applied to forest lands are in the Oregon Forest Practices Act. The current Forest Practices Act rules (OAR 629-620-0100 through -0800) specify:

- Applicators must take adequate precautions to prevent pesticide spills.
- No mixing or staging areas allowed where spills could reach any streams, with a minimum exclusion zone of at least 100 feet from fish and domestic use-streams.
- Pesticide applications are allowed only under weather conditions that will allow protection of forest resources, including water quality, and minimize off-target movement (drift and runoff).
- Pesticide product labels must be followed, and existing riparian vegetation must be protected.
- Required 60-foot buffer adjacent to streams for aerial spraying and 10-foot buffer for ground-based spraying of herbicides near fish and domestic use streams; no buffers are specified for other (non-fish-bearing) streams.

- Required 100-foot buffer for fertilizer applications near domestic use streams; no direct application allowed to fish-bearing and large and medium non-fish-bearing streams; no buffers for small non-fish-bearing streams.
- Required 300-foot buffer for fungicides and non-biological insecticides for aerial spraying for fish and domestic use streams; 60-foot buffer for non-fish-bearing streams.
- Applicators must notify public water system managers at least 15 days before application if the watershed upstream of the intake is 100 square miles or less. Oregon Department of Forestry is required by rule to maintain a list of these public water systems. Public water systems with drinking water source areas larger than 100 square miles can ask to be added to the automatic notification list by contacting ODF.

Oregon Health Authority

Surface Water:

OAR 333-061-0030(2)(f) “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.”

Groundwater (Well/Spring):

OAR 333-061-0050(2)(a)(E) and (2)(b)) state that “sanitary hazards are not allowed within 100 feet of a well [or spring] which serves a public water system unless waived by the Authority [OHA]: ...chemical (including solvents, pesticides and fertilizers) storage, usage or application.... Clearances greater than indicated above shall be provided when it is determined by the Authority that the aquifer sensitivity and degree of hazard require a greater degree of protection.”

Department of Environmental Quality

As of Oct. 31, 2011, a National Pollutant Discharge Elimination System Pesticide General Permit is required for pesticide applications in, over or near water used to control: (1) mosquitoes and other flying insect pests; (2) weeds and algae; (3) nuisance animals; (4) forest environment pests and (5) 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. Current information is available at <https://www.oregon.gov/deq/wq/wqpermits/Pages/Pesticide.aspx>.

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 land owners 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 at: <https://www.portlandoregon.gov/water/29337>. Information regarding groundwater protection and agreements between partner agencies and jurisdictions for the Columbia South Shore Well Field can be found at: <https://www.portlandoregon.gov/water/29890>
- City of Sandy has an MOU with the federal Bureau of Land Management, USFS and private timber land owners to close watershed to public access. The City also has an existing resource plan with USFS.
- City of Molalla has extensive review and coordination with BLM for the Table Rock watershed. The watershed council has partnered with the City to accomplish protection.
- City of Drain has an MOU with BLM and other forestland owners in their drinking water source area about practices to help protect drinking water. The City 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. There are not yet any examples of ecosystem services contracts for drinking water in Oregon.

Watershed Ownership and Forest Stewardship

Several PWSs own all or a part of their watershed and have forest stewardship plans in place that address pesticide applications. Good examples include the cities of Astoria and Forest Grove (summary at <http://www.spatialinterest.info/ForestGrove.html>) where the forest is managed primarily for water quality and quantity, and forestry activities are designed to be low risk; and City of Scappoose (forest management plan available at <http://www.deq.state.or.us/wq/dwp/docs/sw/scappoose.pdf>). In addition, the City of Cannon Beach owns a portion of its watershed and passed a bond measure to purchase an additional 805 acres from Oregon Department of Forestry. Lincoln City has purchased some forestlands within their source area; other communities are exploring purchasing private land within their source areas.

Non-Regulatory Best Management Practices (BMPs)

From a non-regulatory approach, PWSs can request that additional best management practices be put in place to ensure that the public resource is protected. One good source of BMPs is EPA's National Management Measures to Control Nonpoint Source Pollution from Forestry (available at <https://www.epa.gov/nps/nonpoint-source-forestry>). 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.
- 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, and 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 (e.g 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 PWS well or spring).
 - See Non-toxic Weed Control factsheet <http://www.birc.org/Winter2003.pdf>, available from Bio-Integral Resource Center (via the NPIC <http://npic.orst.edu/pest/ipm.html>).
- 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 BMPs include:

- Arch Cape received a source water protection grant and is using 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.

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. They are pursuing acquisition of ownership and/or conservation easements.
- Lincoln City Water District is considering multiple strategies including land acquisition and ecosystem services payments for private landowners.
- City of Corvallis is developing a drinking water protection plan and forest management plan to help reduce turbidity and pesticide risks in their watershed.
- 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 as passed and received a source water protection grant to pay for pesticide sampling at their intake.

BMPs for Agriculture and Other Pesticide Applications

Oregon PWSs 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 BMPs 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 BMP 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 BMPs 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 PWS can use this information to request substitutions or other BMPs.

For more information

Additional information on drinking water protection is on DEQ's website at:

<http://www.oregon.gov/deq/wq/programs/Pages/dwp.aspx> . Resource Guides for both surface water and groundwater public water systems will be available in 2017 on DEQ's website at

<http://www.oregon.gov/deq/wq/programs/Pages/DWP-Source.aspx>. The resource guides provide new sources of information and mapping within the source water areas, additional technical assistance on identifying risks, funding information, and resources for developing place-based plans to protect their source areas. For further explanation or assistance with pesticide application issues around drinking water sources, contact Josh Seeds, DEQ Nonpoint Source Analyst, Portland, at 503-229-5081 (toll-free in Oregon at 800-452-4011, ext. 5081) or seeds.joshua@deq.state.or.us

Alternative formats

Documents can be provided upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.