

# **Drinking Water Protection Strategies for Commercial & Industrial Land Uses**

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# Drinking Water Protection Strategies for Commercial and Industrial Land Uses

## Table of Contents

<b>INTRODUCTION.....</b>	<b>1</b>
<b>CHAPTER 1 GENERAL STRATEGIES FOR INDUSTRIAL/COMMERCIAL LAND USES.....</b>	<b>2</b>
1.1 Contact owners and operators and provide resources to encourage use of best management practices .....	2
1.2 Facilitate employee training workshops .....	3
1.3 Establish or use an existing recognition program for businesses that take voluntary actions. ....	3
1.4 Partner with public agencies to become active in state programs (local implementation) .	3
1.4.1 Partnering with DEQ .....	4
1.4.2 Partnering with other state and local agencies .....	5
1.5 Encourage education at point of sale.....	5
1.6 Provide financial incentives.....	5
1.7 Promote proper hazardous waste disposal .....	6
1.8 Contact local spill responders/fire departments .....	6
1.9 Disclose release data.....	7
1.10 Develop ordinances or overlays.....	7
<b>CHAPTER 2 RESOURCES AND BEST MANAGEMENT PRACTICES (BMPs).....</b>	<b>8</b>
2.1 General fact sheets and handouts .....	8
2.2 Technical assistance resources .....	9
2.3 Best management practices (BMPs) .....	11
<b>CHAPTER 3 STRATEGIES FOR SPECIFIC COMMERCIAL/INDUSTRIAL POTENTIAL CONTAMINANT SOURCES IDENTIFIED IN OREGON DWSAS .....</b>	<b>12</b>
3.1 Automotive / fleet / trucking / equipment repair, maintenance and servicing .....	12
3.2 Facilities with underground and aboveground storage tanks (USTs/ASTs) .....	13
3.2.1 Regulated underground storage tanks .....	13
3.2.2 Unregulated storage tanks (USTs and ASTs) .....	13
3.3 Sites with known, suspected, or cleaned up hazardous substance or fuel contamination including leaking underground storage tank sites, historic gas stations and plumes/spills .....	14
3.4 Injection wells/dry wells/sumps including stormwater drywells (parking lots) .....	15
3.5 Junk/scrap yards .....	15
3.6 Wood/pulp/paper processing and mills .....	17
3.7 Mining/gravel pits .....	17
3.8 Medical/dental/veterinary offices and hospitals .....	18
3.9 Dry cleaners .....	18
3.10 Office buildings and warehouses .....	19
3.11 Future commercial/industrial land development .....	19

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## **Introduction**

Each public water system in Oregon has received a Source Water Assessment (SWA) report completed by the Oregon Department of Environmental Quality (DEQ) and the Oregon Health Authority (OHA) (formerly the Department of Human Services (DHS)) Drinking Water Program. The assessment gives the water system and the community information on the watershed or recharge area that supplies the well, spring or intake (the “drinking water source area”) and identifies potential risks within the source area. Public water systems and local communities can use the assessment results to develop and implement drinking water protection strategies.

One of the best ways to ensure safe drinking water and minimize future treatment costs is to develop local strategies designed to protect against potential contamination. The commercial and industrial facilities in your drinking water source area are generally the most highly regulated of any land uses. However, even facilities that are required to have permits for building, material storage or waste discharge may still pose a risk to your drinking water supply. Many regulations applicable to commercial and industrial facilities rely upon response to contamination events, rather than on preventing problems. In addition, some facilities are not regulated. Spills, leaks, or improper handling of chemicals and other materials during transportation, use, storage and disposal may impact your drinking water supply. In your management efforts working with the commercial and industrial facilities, the focus will primarily be on PREVENTION of drinking water source water contamination. There are many ways to achieve your goal of raising awareness of the need for protection, and facilitating any potential changes in the day-to-day operations at the existing businesses in order to reduce the risks of surface water or groundwater contamination.

Given adequate background information, free technical assistance, and community support, most businesses will voluntarily participate in source water protection efforts. The first part of this section focuses on general best management practices directed at pollution prevention that will apply to most commercial and industrial land uses. Some industry-specific best management practices (BMPs) for higher risk commercial and industrial land uses that were identified most often in Oregon’s Source Water Assessments are listed in the second part of this section. Industrial processes continually change and so too their associated hazardous materials, a dynamic that can quickly make industry-specific BMPs obsolete. Thus, we encourage communities to contact DEQ’s existing programs for commercial and industrial activities and water quality protection that can provide more specific information on assistance available for individual types of businesses. In addition, to adequately assess potential water quality impacts, site visits to individual businesses may be warranted. Industrial and commercial operations should be evaluated for wastewater and stormwater discharges, as well as for hazardous materials and fuel handling and storage.

## **Chapter 1 General Strategies for Industrial/Commercial Land Uses**

The Oregon business community is a vital partner in the effort to protect Oregon's drinking water resources. The voluntary effort of all businesses, large or small, to incorporate sound management practices in their daily activities helps preserve and protect groundwater and surface water resources for all Oregonians. This section focuses on general best management practices directed at pollution prevention that will apply to most commercial and industrial land uses.

### **1.1 Contact owners and operators and provide resources to encourage use of best management practices**

One of the most common ways of reducing the risk from commercial and industrial business operations is to contact owners and operators and encourage them to use best management practices for drinking water protection. Contact can be completed through:

- Individual letters to land owners/operators
- Bill stuffers/customer mailings
- One-on-one contact
- Local media press releases (TV, radio, newspaper either paid or Public Service Announcements)
- Educational meetings/workshops/fairs.

Through contact with the public water system (PWS) or other stakeholders, owners and operators can be made aware that they are located in the drinking water source area and asked to take voluntary actions to protect drinking water in this area. We recommend distributing a list of free resources, some general information about pollution prevention, and best management practices (BMPs) for the specific business/industry (if available). An example of correspondence to property owners or operators within the source water protection area is included in Appendix A. Information on fact sheets/handouts, technical assistance resources, and BMPs is provided in Chapter 2 of this document.

Businesses should be encouraged to contact DEQ Toxics Use/Waste Reduction Assistance Program (TU/WRAP) staff who can provide free on-site technical assistance visits. On-site visits are conveniently scheduled and can:

- Identify where businesses may save money through reduced disposal costs and less regulation;
- Help with facility planning and reporting under the Toxics Use Reduction and Hazardous Waste Reduction Act;
- Explain the hazardous waste regulations that apply to the business;
- Provide pollution prevention information and resources;
- Help identify areas needing improvement; and
- Ensure that you will not be inspected while receiving technical assistance.

Businesses can also request a telephone consultation and callers may remain anonymous. For more information, please contact the DEQ Toxics Use Waste Reduction Assistance Program

For practical information on managing hazardous waste properly, you may also refer to the Small Quantity Hazardous Waste Generators Handbook on line.

Oregon DEQ can also work directly with you or your local businesses organization in developing materials and a presentation for your local business community. This can be coordinated through the Source Water Protection Program by calling (503) 229-5664 or in Oregon 1-800-452-4011. Local governments or water systems may also be able to obtain grants or other funds to employ a public education/outreach coordinator to focus on specific areas.

## **1.2 Facilitate employee training workshops**

Stakeholders or PWSs in the source protection area can facilitate employee training workshops to raise awareness of drinking water and the potential impacts from mismanagement of hazardous wastes. Some of these can be taught by DEQ or other agency personnel at little or no cost. The trainings can address ways individual businesses can protect the drinking water and reduce their liability through pollution prevention, proper spill cleanup, catch basin maintenance procedures, and waste reduction (use of alternatives). For DEQ taught trainings contact the DEQ Toxics Use Waste Reduction Assistance Program. Stakeholders or PWSs can also encourage existing training courses such as Emergency Responders training or licensing classes for a chemical/pesticide applicators license to provide information on reducing a businesses liability through pollution prevention.

## **1.3 Establish or use an existing recognition program for businesses that take voluntary actions.**

Officially recognizing environmentally friendly behavior can make pollution prevention a more attractive choice to facilities, as well as help environmentally concerned consumers influence manufacturer's practices. These goals can be accomplished through awards programs, certification programs, green market efforts, labeling requirements, etc. For example, City of Portland's Bureau of Environmental Services employs city-wide recognition in its annual Businesses for an Environmentally Sustainable Tomorrow (BEST) award event, recognizing significant achievement in the green practices that save water and energy and deal with stormwater and waste reduction. Local incentives for businesses may include green awards, plaques, flags, signs, door stickers, or buttons for employees.

An excellent example of a recognition program that could be adapted for other business sectors in Oregon is the "Eco-Logical Business Program". The Eco-Logical Business Program recognizes businesses that reach the highest standards in minimizing their environmental impact. Currently, there are two multi-media (air, water, and solid waste) certification programs: the automotive services program and the landscape services program. To be certified, businesses must go beyond compliance with local environmental requirements and implement pollution prevention efforts in their work sites. Technical assistance is provided to businesses for help in meeting and exceeding environmental standards and earning program certification. Certified businesses within the community are locally publicized.

## **1.4 Partner with public agencies to become active in state programs (local implementation)**

There are many existing federal, state, and local environmental regulations and programs that are designed to protect water, air and land quality. While many of these rely on responses to contamination events, permitting and project review within the existing regulatory programs can affect the siting, design, construction, operation, and closure of facilities such as buildings, above and underground storage tanks, treatment plants, landfills, and transportation corridors. Ways to partner with these agencies include:

- Take advantage of opportunities to provide public comment and input when existing regulatory programs are reviewing permits or programs which affect the siting, design, construction, operation or closure of facilities within your protection area.
- Ensure you are included on regulatory agency contact lists so that you receive announcements for public involvement opportunities. You can sign up on-line to receive DEQ communications such as public notices, meeting agendas and announcements by e-mail
- Consider participating in advisory group meetings for specific topics of interest.

- Ensure that the regulatory programs are aware of your drinking water source area and request that compliance inspections or technical assistance is prioritized in critical areas.

#### **1.4.1 Partnering with DEQ**

To find out about various environmental permits, licenses, and approvals that may affect your drinking water and are administered by DEQ please refer to DEQ's Permits and Licenses webpage. Environmental permits, licenses, and approvals administered by DEQ include:

##### **Water Quality Permits**

- National Pollutant Discharge Elimination System (NPDES) Permits
- Water Pollution Control Facilities (WPCF) Permits
- Underground Injection Control (UIC) Program Requirements
- On-Site Sewage Disposal Requirements (septic systems)
- Section 401 Certification of Water Quality Compliance
- Stormwater Discharge Permits

##### **Land Quality Permits**

- Solid Waste Disposal Permits
- Hazardous Waste Generator Notification and Management Requirements
- RCRA Treatment, Storage, and Disposal Facility Permits
- Underground Storage Tank Permits
- Underground Storage Tank Decommissioning Notification
- Petroleum-Contaminated Soil Treatment
- Used Oil

##### **Air Quality Permits**

- Notice of Intent to Construct
- Air Contaminant Discharge Permits
- Oregon Title V Air Operating Permit
- New Source Review/Prevention of Significant Deterioration Program
- Indirect Source Permit

For DEQ administered permits, licenses and approvals, first contact the DEQ Regional Office to inquire about existing and pending permits and licenses. Are there problems that have been identified or suspected? Ensure that permit writers/reviewers are aware of your drinking water source area location and encourage the permit writers/reviewers to actively incorporate drinking water protection principals into the permits that affect the drinking water source area. If appropriate, encourage elimination of the potential contaminant source and/or establishment of best management practices for operation and maintenance of the source. Request that existing technical assistance resources and compliance inspections be prioritized for the drinking water source area.

#### **Success Stories:**

One example of successful partnering included the City of Salem and DEQ's Western Region Tanks Program. The City of Salem's Public Works Department requested assistance in identifying potential underground storage tank risks to the south Salem groundwater protection area for aquifer storage and recovery (ASR). Regulated tank facilities were identified and resources were focused to jointly conduct compliance inspections at each facility located within the ASR area or zone. The joint inspection program increased awareness of the importance to protect the city's drinking water aquifer by delivering City supplied brochures and packets to each facility owner and ensured that possible leaks from regulated underground fuel storage tanks would be detected, remedied and to the greatest extent possible, prevented.

#### **1.4.2 Partnering with other state and local agencies**

Other natural resource agencies in Oregon can assist PWSs or stakeholders in evaluating the permit and operating responsibilities. Oregon.gov Licenses, Permit & Registration Database contains information on state licenses and contact information for agencies that administer them. A Guide to Oregon Permits Issued by State and Federal Agencies also gives a good overview of the various permits that may be in effect. Some of the natural resource agencies that may be contacted regarding business permits include:

- Land use questions can be directed to the Department of Land Conservation and Development in Salem. If questions are specific to a city or county, they should be directed to the planning department in the appropriate jurisdiction.
- Withdrawals from ground or surface waters need approval from the Water Resources Department.
- Information about Oregon's geology or mining permits is available from the Department of Geology and Mineral Industries
- Dredging or filling of Oregon's waterways must be approved by the Division of State Lands.
- The Regional Solutions Team (RST) is composed of state agencies working together at the local level to increase economic opportunity, streamline permitting for business and industry, increase opportunities to link and leverage public and private investments, and provide greater local access to state resources and assistance. For more information, call the Regional Solutions Team Office at 503-378-6502 and ask for the name and phone number for the Regional Coordinator in your area.
- Technical assistance in resolving regulatory issues is available from the Oregon Economic and Community Development Department. Contact the regulatory section of the Business & Industry Team.
- Your local Planning/Permits Department will be aware of special permitting or project requirements for your area. The local planning/permits department may be willing to provide educational information to potential developers/permittees upon permit application on whether the activity they are proposing will impact the drinking water supply. They may also provide BMPs to businesses to ensure protection of the resource.
- You may consider hiring a local or regional environmental enforcement officer, or designating existing staff to conduct field inspections, and pursue enforcement actions.

#### **1.5 Encourage education at point of sale**

Contact suppliers for local businesses and encourage them to offer programs for waste minimization to businesses within the protection area. Waste minimization techniques that affect a local business' purchasing and disposal practices may include providing quick delivery of small orders, accepting returns of unopened stock and offering off-site waste management outlets or cooperatives for wastes. In addition, you can partner with suppliers to provide information to businesses about pollution prevention such as information on potential environmentally-friendly alternatives and technical assistance resources.

#### **1.6 Provide financial incentives**

A variety of mechanisms exist to reduce financial expenditures associated with pollution prevention. These include low interest loans, tax credits, and direct subsidies. Municipalities may consider financial incentives to encourage businesses to prevent, reduce or control air and water pollution.

DEQ provides an indirect financial incentive to regulated entities that voluntarily prevent, discover, disclose, and correct violations of Federal, state and local environmental requirements by lowering the potential fines and/or liability related to these violations. This policy helps remove a major disincentive to firms evaluating their practices for potential improvements, including, but not limited to, pollution

prevention. More information on this issue can be obtained by calling the DEQ enforcement group at (503) 229-5340

The existing liability for cleaning up any hazardous wastes released or spilled into the environment creates incentives for minimizing risks of surface water and groundwater contamination. Measurable reduction in a facility's risks can be achieved through pollution prevention. Any unit of reduction in toxics used or wastes generated is a unit not creating potential liability. Facilities that may have spills or releases in the future have been awakened to the need to reduce liability by DEQ and EPA mandating cleanups through federal and state cleanup requirements. Local communities are encouraged to become familiar with DEQ's records and cleanup activities in their area. More information on Oregon's cleanup program can be obtained at DEQ's Environmental Cleanup Program web page or by calling DEQ's Waste Management Division at (503) 229-5913 or (800) 452-4011.

Stakeholders may also consider securing grants or providing funding to provide low interest loans, direct subsidies/cost sharing or other incentives to encourage businesses to prevent pollution.

### **1.7 Promote proper hazardous waste disposal**

Effective ways to ensure that hazardous wastes and used oil are properly removed from the drinking water source area include:

- Coordinating or facilitating hazardous waste collection (for small businesses),
- Hosting an amnesty (free disposal) program for chemicals stored in the drinking water source area, and
- Setting up a local materials exchange program (or publicize existing programs).

The Oregon Department of Environmental Quality, in cooperation with local governments, has conducted household hazardous waste collection events throughout Oregon since 1991. Hazardous waste from businesses that produce less than 220 pounds of hazardous waste per month, conditionally exempt generators (CEG) is often accepted at these events. Within the Metro Portland area, the Metro Transfer Stations will accept CEG hazardous waste. Information on collection events can be requested by contacting your regional DEQ office. DEQ's solid waste staff can also provide information on grants and other funding sources to assist communities to encourage the proper disposal of hazardous materials, used oil, pesticides, and legacy chemicals. Drinking water systems or stakeholders may also be able to encourage businesses to find others that can use their unused products that are still in good condition either through a local materials exchange or by publicizing other resources within the Northwest. More information on Materials Exchanges and Swap Sites can be found on DEQ's website.

### **1.8 Contact local spill responders/fire departments**

Notify local emergency management staff (fire department and hazardous materials spill responders) and the transportation corridor management authorities (ODOT, County, railroad owners/operators, etc.) of the location of the drinking water source area. Work with them to develop specific spill response procedures to allow quicker response and water system notification should a hazardous material spill or release occur within the drinking water source area. Assist with or encourage spill response planning for specific groups of businesses if appropriate. Specific spill response procedures could be integrated into your county's Emergency Management Plan. Oregon Emergency Management staff (in Salem at 503-378-2911) can assist with development of spill response plans, can help you locate your county's coordinator, and let you know if your county has an existing approved emergency plan.



## 1.9 Disclose release data

Making pollutant release data available to the public has generated awareness and concern and hence increased the willingness of Oregon businesses to incorporate pollution prevention. Information about specific pollution sources is available through EPA's Toxic Release Inventory (TRI) and the Oregon State Fire Marshal's Hazardous Substance Information Survey reporting process. EPA's TRI data can be accessed on EPA's website and State Fire Marshal data can be accessed by calling the Hazardous Substance Information Hotline at 503-378-6835.

## 1.10 Develop ordinances or overlays

There are many different types of regulatory tools available to local governments including ordinances, overlay ordinances, and zoning controls. A drinking water protection ordinance is a health-based regulatory tool implemented by local jurisdictions (e.g. city or county governments) to address proposed and existing development and its potential impact on water quality. The ordinance typically defines the resource (as a mapped overlay area) and enacts specific requirements for land uses and development within these boundaries. Zoning controls are limited in that they typically apply to future development and not to existing activities that are exempt or "grandfathered". Overlays can apply to new or existing land uses. Ordinances applying to sites that pose a risk to water quality within the overlay area may include:

- Prohibition of various land uses (such as facilities that use of solvents or underground fuel storage tanks)
- Special permitting or siting requirements (i.e. placing limitations on the use of toxic and hazardous materials, pesticides, fuels)
- Establishing fees and taxes tied to amounts of pollutant releases or toxic/hazardous inputs to operating processes (which also provides a continuous incentive for further reductions in pollution levels)
- Performance standards (i.e. requiring secondary containment for petroleum or chemical storage over a certain volume, or requiring spill response plans).

The ordinance can be applied to the whole drinking water protection area or different restrictions could be applied to specific zones of sensitivity. Local governments can and should work with water suppliers to protect public water supplies. Given that water supplies are subject to different potential threats from community to community, water suppliers must be sure to identify which local boards and commissions have jurisdiction over particular land use activities. Further information on establishing local permitting requirements or overlays is provided in Using an Ordinance or Overlay for Drinking Water Protection.

### **Success Stories:**

Several cities **including Cave Junction, Springfield, Fairview, Gresham, and Portland** have adopted ordinances which prohibit certain uses and/or provide performance standards for others within the groundwater and surface water drinking water source areas. These cities also have strong public education programs to provide residents, business owners and other land owners information on what they can do (or should not do) to protect the resource

**NOTE:** It is not DEQ's intention to change any permit requirements or standards within source water protection areas in Oregon. Any local jurisdiction, though, can use permit reviews or modifications in standards to achieve their goal of protecting surface water and groundwater by establishing an ordinance.

## Chapter 2 Resources and Best Management Practices (BMPs)

### 2.1 General fact sheets and handouts

There are many fact sheets available to assist communities' education and outreach efforts.

Fact sheets developed by DEQ's Drinking Water Protection are available by calling DEQ Drinking Water Protection Program staff at 503-229-5664. Factsheets developed specifically for businesses and industry include:

- **Business and Industry Tips for Drinking Water Protection.**  
This fact sheet provides businesses with best management practices for protection as well as a list of resources for more information and assistance.
- **Automotive Repair and Maintenance Tips for Drinking Water Protection**  
This fact sheet provides a listing of basic pollution prevention opportunities that automotive repair and maintenance businesses, and others, can incorporate to protect drinking water supplies.
- **Drinking Water Protection for Shallow Injection Well Owners and Operators**  
Some businesses in your protection area may have wastewater (process or storm water) that enters floor drains or storm drains that discharge directly into sumps, drywells, and septic tanks with drain fields (injection wells). This fact sheet presents information on injection wells and the management practices that will help preserve and protect drinking water resources.
- **Groundwater Basics for Drinking Water Protection**  
(<http://www.deq.state.or.us/wq/pubs/factsheets/drinkingwater/GroundwaterBasics.pdf>). This fact sheet provides general information on groundwater and groundwater protection for both residents and businesses.

DEQ fact sheets for other programs including the Toxics Use and Hazardous Waste Reduction Program, Hazardous Waste Program, Solid Waste Program, Underground Storage Tank Program, Drycleaner Program, Environmental Cleanup and Emergency Response Program and the Water Quality can be found on the website. Selected fact sheets from this site that are particularly useful for outreach to business and industry include:

- **Toxics Use and Hazardous Waste Reduction (TUHWR) Program**
- **TUHWR Technical Assistance Brochure**
- **Pollution Prevention: Industry and the Environment**
- **Waste and Waste Pesticide Collection Events**
- **Materials Exchanges and Swap Sites and NW Materialsmart**
- **Pollution Prevention: Alternative Cleaning Solvents and Processes**
- **Alternative Cleaning Solvents and Processes Vendor List**
- **Auto Body Shops and DEQ - What you Need to Know**  
[http://www.deq.state.or.us/aq/factsheets/07aq021\\_Autobody.pdf](http://www.deq.state.or.us/aq/factsheets/07aq021_Autobody.pdf)
- **Helpful Information for Oregon's Metal Industries**

- Eco-Logical Business Program for auto repair shops and landscapers
- A Guide to UST Notifications, Reporting, and Record Keeping
- Underground Storage Tank Program Update
- Temporary Closure Requirements for UST Systems
- Heating Oil Tanks: Frequently Asked Questions about Heating Oil Tanks
- Overview of the Oregon Dry Cleaner Program
- DEQ's Emergency Management Program
- Environmental Cleanup Site Information (ECSI)
- Site Assessment Program for potential releases of hazardous substances to the environment
- Toxics Directive for Water Quality Permits
- Pollution Prevention Success Stories

## 2.2 Technical assistance resources

A significant amount of surface water and groundwater protection is already (directly and indirectly) accomplished in Oregon businesses through DEQ's Pollution Prevention Program and the implementation of the Toxics Use Reduction and Hazardous Waste Reduction (TURHWR) law requirements. Oregon's TUHWR Act of 1989 (updated in 2005) was one of the first laws in the nation to mandate pollution prevention planning. The law requires large toxics users, large quantity generators and small quantity generators to prepare a TUHWR Reduction Plan or an Environmental Management System (EMS), unless the facility can claim exclusion. DEQ uses Implementation Summary information that is supplied by the business to populate a Web-based searchable database chronicling successful reductions of toxic chemicals and hazardous waste by Oregon businesses. The database is available at <http://www.deq.state.or.us/lq/hw/tuhwr.htm>.

Numerous businesses and institutions in Oregon have reduced literally tons of toxics and hazardous waste through this voluntary program and have great success stories to share.

Through the planning process, facilities may discover opportunities to pursue pollution prevention or realize the benefits of pollution prevention of which they previously were unaware. This knowledge increases the likelihood that prevention will occur. DEQ Toxics Reduction staff provides free on-site consultations, conducts training sessions, responds to facility inquiries, and implements facility planning and reporting provisions under TURHWR Act. DEQ's technical assistance is free to all businesses that request help.

DEQ commonly partners with others to develop, sponsor, participate in and fund programs to assist businesses in implementing pollution prevention. For example, the Ecological Business Program supports landscapers and the automotive repair and auto-body industries. The Business Assistance Program offers support on air quality and other issues to small and medium sized businesses. Additionally, each DEQ Regional Office implements a variety of geographical, cross-media technical assistance outreach efforts. Many sector-specific best management practices (BMP) have been

developed through these efforts. The metropolitan Portland and Lane County areas have pollution prevention outreach groups that meet regularly to work on regional P2 problems. To learn more about any of these and/or other facility specific P2 tools, contact the DEQ regional representative for the Toxics Use/Waste Reduction Assistance Program or DEQ's Business Assistance Program or by calling the DEQ Land Quality Division at 503-229-5913 (toll-free in Oregon at 1-800-452-4011). DEQ's links to Other Business Assistance and Resource Programs (has many other ideas and resources for environmental protection).

Most of DEQ permitting staff are also trained on pollution prevention techniques and can suggest best management practices for drinking water protection to permittees. Technical assistance is available from regional DEQ program staff.

There are several planning and management activities already required as part of existing permits that will support the goals of the drinking water protection stakeholders. Typical plans or strategies to help prevent or control water pollution in existing permits may include Spill Prevention Plans, Storm Water Management Plans, and Emergency Response Plans. These plans are a great starting point for drinking water protection; however, they may not address all of the chemicals of concern for drinking water or cover all relevant sources of pollution. Drinking water protection efforts should build upon these efforts and add additional strategies to achieve the water system's or stakeholder's goals. The basics of some of these plans are provided below:

**Spill Prevention Requirements as a Tool for Pollution Prevention:** The DEQ and EPA have developed hazardous substance spill rules to prevent the spill of oil and other hazardous substances to navigable waters and to identify the emergency response actions, reporting obligations, and follow up actions required in response to a spill or release, or threat of spill or release, of oil or hazardous materials. Certain facilities (primarily those that produce, store, handle, transfer, process, or transport oil in bulk) are required to develop and implement spill prevention plans. Through the planning process, facilities may discover opportunities to pursue pollution prevention or realize the benefits of pollution prevention of which they previously were unaware. Information on the planning requirements from DEQ's Spill Response Program is available at <http://www.deq.state.or.us/lq/pubs/factsheets/cu/EmergencyResponseProgram.pdf> or by contacting Mike Zollitsch, DEQ, (503) 229-6931.

**Spill Prevention Planning as part of General Industrial Storm Water Permits:** NPDES permits for storm water discharges are required for certain industrial sites (based on classifications as established by EPA) or if storm water leaves a site through a "point source" and reaches surface waters either directly or through storm drainage. A point source discharge refers to a natural or human-made conveyance of water through pipes, culverts, ditches, catch basins, or any other type of channel. Permits are also required for construction activities that disturb one or more acres. One of the general permit requirements is the completion of a site-specific Storm Water Pollution Control Plan (SWPCP) which includes the development and implementation of spill prevention and response procedures, preventative maintenance programs, and employee education programs.

**County/Local Emergency Management Plans:** Many Oregon counties and local jurisdictions engage in planning and training to enhance emergency preparedness, response and recovery for natural and environmental hazards. Oregon Emergency Management staff (in Salem at 503-378-

2911) can assist with development of spill response plans, can help you locate your county's coordinator, and let you know if your county has an existing approved emergency plan.

## **2.3 Best management practices (BMPs)**

Best management practices are typically actions developed for specific operations that serve to reduce hazardous material usage or risks of release. Incorporating best management practices into an operation is generally accomplished through process or design changes, operational changes such as preventative maintenance, and employee training. The objectives (and subsequent benefits) of incorporating best management practices into the "way of doing business" include:

- Improved efficiency and organization,
- Cost savings by reducing product usage or disposal amounts, and
- Reduced liabilities associated with spills or releases to the environment.

There are many best management practices that are applicable to a wide range of types of commercial and industrial operations since the majority of commercial and industrial operations utilize storage facilities, drains, dry wells, etc. Some of these best management practices are summarized in DEQ's Business and Industry Tips for Drinking Water Protection.

For facility specific pollution prevention tools, contact DEQ Toxics Use/Waste Reduction Assistance Program staff (as discussed in the section on Technical Resources). In addition, Pacific Northwest Pollution Prevention Resource Center is an excellent resource for best management practices and pollution prevention techniques for specific businesses. Their "Topic Hubs" section provides web-based guides to peer-reviewed pollution prevention information and expertise on over 50 different business sectors.

## Chapter 3 Strategies for Specific Commercial/Industrial Potential Contaminant Sources Identified in Oregon DWSAs

Source Water Assessments for community and non-transient non-community public water systems were completed by DEQ and OHA between 2000 and 2005. The Source Water Assessments for public water systems provide an important first look at potential risks to drinking water. Business/industry specific drinking water protection strategies for some of the most common commercial/industrial land uses identified in drinking water source areas are presented in this section.

### 3.1 Automotive / fleet / trucking / equipment repair, maintenance and servicing

Automobile repair shops were the most common potential source of contamination identified in both surface water and groundwater drinking water source areas in Oregon. Fleet/trucking/bus terminals, gas stations, and machine shops were also identified in the top 10 most threatening “potential contaminant sources” from the higher risk categories inventoried in Oregon. Automobile body shops, equipment maintenance shops, and metal plating/finishing/fabrication facilities were also commonly identified during the Oregon Source Water Assessments. Most of the General Management Strategies presented above are very effective for the entire automobile/trucking industry from repair and maintenance to auto body work. Specific strategies for addressing these types of facilities within drinking water protection areas include:

- Contact owners and operators (See Section 1.1) and provide resources to encourage use of best management practices. Provide fact sheets with basic pollution prevention opportunities like Automotive Repair and Maintenance Tips for Drinking Water Protection (<http://www.deq.state.or.us/wq/pubs/factsheets/drinkingwater/automaint.pdf>). Encourage best management practices to minimize potential impact from storm water runoff. See “Best Management Practices for Storm Water Discharges Associated with Industrial Activities” (<http://www.deq.state.or.us/wq/stormwater/docs/nwr/indbmpps.pdf>) for suggestions.
- To adequately assess potential water quality impacts, site visits to individual businesses are recommended. Industrial and commercial operations should be evaluated for wastewater and stormwater discharges, as well as for hazardous materials handling and storage. Get help from the experts with this task by contacting DEQ’s Toxics Use/Waste Reduction Assistance Program staff (<http://www.deq.state.or.us/lq/hw/tuhwr.htm>) and the Ecological Business Program (<http://www.ecobiz.org/>) to provide free technical assistance, facilitate employee training, and provide recognition for businesses that reduce environmental impacts.
- For municipally owned sites, establish a program to reduce, eliminate, or recycle or re-use hazardous materials and wastes at all municipal facilities. Identify government-owned facilities that store or use hazardous materials. Evaluate management practices as well as routine operations such as landscaping and road maintenance. Install model practices.
- Minimize runoff from vehicle washing operations and use alternative cleaning agents. See [http://www.epa.gov/safewater/sourcewater/pubs/fs\\_swpp\\_vehicle.pdf](http://www.epa.gov/safewater/sourcewater/pubs/fs_swpp_vehicle.pdf) and <http://www.deq.state.or.us/wq/pubs/bmps/washactivities.pdf>
- Ensure shallow underground injection wells, drywells and sumps are addressed (see Section 3.4)

## **3.2 Facilities with underground and aboveground storage tanks (USTs/ASTs)**

Underground storage tanks can pose a significant threat to groundwater since they are generally located just above the water table in many areas of Oregon. Underground storage tanks can also impact surface water since surface water and groundwater are hydrologically linked and an estimated 40% or more of the water recharging lakes, rivers and streams in the summer is from groundwater. Although it is much easier to detect leaks from aboveground tanks, they also can be a risk to groundwater due to corroded tanks, poor installation or maintenance, no testing of tanks for leaks, or lack of backup containment for leaks.

### **3.2.1 Regulated underground storage tanks**

Federal and state regulations require the licensing of underground storage tank service providers, permitting of leak detection and corrosion detection for tanks and piping, notification of tank decommissioning, prompt notification of spills and specific cleanup procedures. DEQ's requirements apply to all underground storage tanks with the exception of tanks listed below under "unregulated underground storage tanks". See DEQ's Underground Storage Tank Program for more information on UST rules and the standards for cleanup.

Even though USTs are regulated, there are still gaps and unsolved problems. For example:

- Many abandoned USTs are still in the ground and may still contain petroleum product.
- Some owners are not properly operating and maintaining their UST systems.
- Even state-of-the-art tank systems are not "leak proof."
- Careless fuel-delivery and vehicle-fueling practices can compromise a tank owner's best efforts.

Stakeholders within drinking water protection areas should:

- Notify the owner/operator of their location within your Drinking Water Source Area.
- Verify status of underground storage tanks identified in your inventory and contact DEQ's tanks program with any questions on the status or permit conditions of individual tanks. Questions about specific UST cleanup projects should be directed to UST staff in the DEQ Regional Office where the release was reported.
- Ensure that the DEQ Regional Office tanks program staff are aware of your protection area and request that compliance inspections or technical assistance is prioritized in critical areas.

### **3.2.2 Unregulated storage tanks (USTs and ASTs)**

Underground storage tanks that are not regulated by Department of Environmental Quality DEQ include:

- Farm and residential tanks holding 1,100 gallons or less of motor fuel used for noncommercial purposes;
- Residential and commercial heating oil tanks; and
- Tanks holding less than 110 gallons.

In addition, septic tanks are not regulated by DEQ's Tanks program but they are regulated by various on-site regulations. See the website for more information on septic tanks. DEQ also does not regulate aboveground storage tanks.

Even though these tanks are unregulated, they are a potential source of contamination of the soil and groundwater because underground tanks and associated piping corrode and over time may weaken to the point where they can no longer hold fuel. The useful life of an unprotected steel

tank is about 20 years and many owners are not aware that underground tanks need to be maintained and, if necessary, replaced (just like roofs, appliances, furnaces and water heaters).

Specific strategies for addressing unregulated tanks within drinking water protection areas include:

- Notify potential owners of their location within your Drinking Water Source Area. Send the following DEQ fact sheets as appropriate:
  - Groundwater Basics
  - Frequently Asked Questions About Heating Oil Tanks
  - Proper Care and Maintenance for Unregulated Tank Systems
  - EPA's Source Water Protection Bulletin: Managing Underground Storage Tanks to Prevent Contamination of Drinking Water
  - EPA's Source Water Protection Bulletin: Managing Above Ground Storage Tanks to Prevent Contamination of Drinking Water
- For heating oil tanks, ensure that the DEQ Heating Oil Tanks Program staff are aware of your protection area and request that cleanup audits or technical assistance is prioritized in critical areas.
- Coordinate with other state and local agencies that may have laws and rules (e.g. State Fire Marshal for fire safety or local ordinances for tank inspection/maintenance) that apply to the operation of tanks or systems.
- Develop a plan for ongoing (yearly) education to unregulated storage tank owners.
- Provide technical assistance or funding to encourage residents to implement best management practices from fact sheets.
- Consider developing municipal ordinances, overlay zones, best management practices, or regulations to address potential threats from storage tanks in your drinking water source area. Local communities are able to adopt more stringent regulations (than federal or state) for all tanks, including those not regulated by the state. Many local governments address residential USTs and ASTs through board of health regulations, zoning bylaws, or general bylaws or ordinances. Local governments can establish a program for registering tanks, ensuring that tanks are inspected to enforce the rules or requiring aboveground storage tanks have secondary containment, be placed on a concrete pad, or have a drip pan. Local governments can also consider providing a cost-share arrangement for removing abandoned and home heating oil tanks.

### **3.3 Sites with known, suspected, or cleaned up hazardous substance or fuel contamination including leaking underground storage tank sites, historic gas stations and plumes/spills**

DEQ's Environmental Cleanup Program oversees and addresses sites contaminated or potentially contaminated by hazardous substances. DEQ's Leaking Underground Storage Tank Program handles issues related to cleanup of soil and groundwater contamination from spills and releases from regulated underground storage tanks.



For sites with known, suspected, or cleaned up hazardous substance or fuel contamination including historic gas stations and plumes/spills, stakeholders within drinking water protection areas should:

- First review DEQ's Environmental Site Cleanup Information (ECSI) database which is used to track sites with known, suspected, or cleaned up hazardous substance contamination. Cleanup information for underground storage tank sites can be found in the Leaking Underground Storage Tank (LUST) database. Review the status and history of any sites listed within the ECSI or LUST database. The Site Summary Report available through the ECSI and LUST databases for each site lists DEQ contacts (or project manager) for more information.
- Ensure that the DEQ Regional Office Cleanup and Tanks Program staff are aware of your protection area and request notice of pending actions.
- For potentially contaminated sites not listed in ECSI database, contact DEQ's Site Assessment Program for more information or to request assistance in evaluating the site.

### **3.4 Injection wells/dry wells/sumps including stormwater drywells (parking lots)**

Basically, injection wells are man-made or improved "holes" in the ground, which are deeper than their widest surface dimension and are used to discharge or dispose of fluids underground. When properly sited, constructed, and operated, injection wells can be an effective and environmentally safe means of fluid waste disposal. All underground injection control wells must be registered with DEQ and approved through either rule authorization (RA) or a Water Pollution Control Facilities (WPCF) permit. More information can be found on DEQ's Underground Injection Control Program web page. Within drinking water protection areas you should:

- Review Oregon's UIC database to verify the permit status of injection wells in your drinking water source area. If injection wells are not listed in the database, contact Oregon DEQ's UIC Program Coordinator at (503) 229-5101.
- Contact owners and operators (See Section 1.1). Provide fact sheets like Drinking Water Protection for Shallow Injection Well Owners and Operators and encourage use of best management practices. See website for suggestions.
- Ensure that DEQ's UIC Program staff are aware of your protection area and request that compliance inspections or technical assistance is prioritized in critical areas.
- Encourage elimination and proper abandonment (if appropriate) of dry wells or sumps in your drinking water source area. Some non-UIC alternatives to storm water injection wells are presented on the website.

### **3.5 Junk/scrap yards**

Automobile junkyards, wrecking yards, battery reclaimers, metal scrap yards, salvage yards, and secondhand parts collection facilities occurs as both large and small scale operations. The improper handling of fluids and components at these sites can result in polluted stormwater runoff, infiltration to groundwater, and subsequent environmental damage. Fluids such as engine

oil, transmission fluid, battery acids, and antifreeze are of particular concern because they contain a large amount of metals and hazardous materials and are typically handled outside where they can be exposed to storm water and infiltration. Mercury, which is highly toxic in very small amounts, is routinely contained in vehicle components including: hood and trunk convenience light switches, anti-lock braking systems, high intensity discharge lamps, and entertainment and navigational systems.

Operations with a business license are required to comply with a wide variety of regulatory controls, including those related to fluid handling, storage and disposal; stormwater management; above and underground storage tanks; air emissions; tire storage and disposal, occupational health and safety, and local sewer and zoning laws. Residential and small scale sites (such as “mom-and-pop” businesses or “hobby” operations at a residence) may be subject to little direct regulatory oversight.

Strategies to prevent drinking water impacts from salvage, junkyards, wrecking yards, battery reclaimers, and metal scrap operations include:

- Contact your DEQ Regional Office to inquire about the status of existing permits for the facility. You will likely need to contact multiple programs since there are many regulations that pertain to waste recyclers.
  - Contact DEQ Water Quality program staff to inquire about the facility’s National Pollutant Discharge Elimination System (NPDES) stormwater permit which requires stormwater monitoring and a detailed stormwater pollution prevention plan (SWPPP). The stormwater permit and pollution prevention plan specifies required BMPs for the facility to address its runoff and requires the facility to properly implement and maintain those BMPs.
  - Questions on underground storage tanks should be addressed as discussed in Section 3.2.
  - Hazardous materials (fluids) handling, storage, and disposal questions should be addressed to DEQ Regional Office hazardous waste management staff.
  - DEQ’s Toxics Use/Waste Reduction Assistance Program staff can provide free technical assistance for businesses including information on the mercury switch recycling program.
  - Information on waste tire permits can be found on the website
- Contact your local municipal stormwater/wastewater program (Publicly Owned Treatment Works or POTW) as they also may have their own stormwater or sewer regulations which may be more stringent than the state program.
- Contact owners and operators (See Section 1.1), inform them of their location within your drinking water source area, and provide resources to encourage use of best management practices. Provide fact sheets with basic pollution prevention opportunities like Business and Industry Tips for Drinking Water Protection or Pollution Prevention Opportunities for Auto Salvage Operations
- For residential and small scale operations, encourage use of hazardous material disposal programs (e.g. household hazardous waste collection events).
- See the strategies in Section 3.3 for sites with suspected hazardous substance contamination.

- Check with your local government planning office to inquire about existing local permit requirements or zoning restrictions.
- Local governments can consider regulating or prohibiting oil, gasoline, and chemical storage tanks, junkyards, salvage yards, dumps, or automobile and appliance graveyards in critical areas using the methods discussed in Section 1.10.

### 3.6 Wood/pulp/paper processing and mills

Improper management of wastewater, treatment chemicals, or equipment maintenance during transportation, use, storage and disposal may impact the drinking water supply. Strategies to prevent drinking water impacts from wood/paper industry operations include:

- Contact your DEQ Regional Office to inquire about the status of existing permits for the facility. You will likely need to contact multiple programs.
  - Contact DEQ Water Quality program staff to inquire about the facility's National Pollutant Discharge Elimination System (NPDES) permit for wastewater and stormwater. Is the facility in compliance? Does the discharge limit existing water quality criteria being met? Are permitted discharge limits for toxics established and are they protective of drinking water?
  - Hazardous materials (fluids) handling, storage, and disposal questions should be addressed to DEQ Regional Office hazardous waste management staff.
  - DEQ's Toxics Use/Waste Reduction Assistance Program staff can provide free technical assistance for businesses including information on the mercury switch recycling program.
- Contact owners and operators (See Section 1.1), inform them of their location within your drinking water source area, and provide resources to encourage use of best management practices. Provide fact sheets with basic pollution prevention opportunities like Business and Industry Tips for Drinking Water Protection
- See the strategies in Section 3.3 for sites with suspected hazardous substance contamination.

### 3.7 Mining/gravel pits

Spills, leaks, or improper handling of chemicals and wastes generated in mining operations or from heavy equipment may impact the drinking water supply. Land disturbance may increase surface erosion and sediment delivery rates, resulting in high turbidity for surface water supplied drinking water sources. Land disturbance may increase infiltration rates of precipitation (and any contaminants it transports) to groundwater.

Strategies to prevent drinking water impacts from current and former mining operations include:

- Contact your DEQ Regional Office to inquire about the status of existing permits for the facility. You will likely need to contact multiple programs.
  - Contact DEQ Water Quality program staff to inquire about the facility's wastewater and stormwater discharge permits. Is the facility in compliance? Does the discharge limit existing water quality criteria being met? Are permitted discharge limits for toxics established and are they protective of drinking water?
  - Hazardous materials (fluids) handling, storage, and disposal questions should be addressed to DEQ Regional Office hazardous waste management staff.

- DEQ's Toxics Use/Waste Reduction Assistance Program staff can provide free technical assistance for businesses including information on the mercury switch recycling program.
- Contact Department of Geology and Mineral Industries' (DOGAMI's) Mineral Land Regulation and Reclamation Program in Portland at (971) 673-1555 or to inquire about the status and requirements of mining permits. Ensure that permitting staff are aware of your drinking water source area and request that compliance inspections or technical assistance is prioritized in critical areas.
- Contact owners and operators (See Section 1.1), inform them of their location within your drinking water source area, and provide resources to encourage use of best management practices. Provide fact sheets with basic pollution prevention opportunities like Business and Industry Tips for Drinking Water Protection and encourage them to use the statewide training and technical assistance for mine operators that are provided by DOGAMI's reclamation specialists.
- See the strategies in Section 3.3 for sites with suspected hazardous substance contamination.
- Questions about water supply should be directed to the Water Resources Department

### **3.8 Medical/dental/veterinary offices and hospitals**

Spills, leaks, or improper handling of x-ray, biological, chemical, and radioactive wastes and other materials during transportation, use, storage and disposal may impact the drinking water supply. Awareness of health care industry pollution and the need to engage in improved material purchasing and waste management policies have led to the creation of a number of pollution prevention partnerships that you can use to promote resource protection.

Strategies to prevent drinking water impacts from medical facilities include:

- Contact owners and operators (See Section 1.1), inform them of their location within your drinking water source area, and provide resources to encourage use of best management practices which can be found at EPA's website for the healthcare industry (<http://www.epa.gov/region2/p2/health.htm> ) and the Pacific Northwest Pollution Prevention Resource Center website for healthcare at <http://www.pprc.org/pubs/healthcare.cfm> The Oregon Dentist's Guide to Best Management Practices of Dental Waste is published by the Oregon Dental Association.
- Questions about hazardous materials handling, storage, and disposal should be addressed to DEQ Regional Office hazardous waste management staff.

### **3.9 Dry cleaners**

Oregon dry cleaning law requires the use of certain types of dry cleaning equipment and specific waste management practices. These practices reduce air emissions from solvents, reduce the potential for spills and releases of solvents, protect groundwater, and promote more efficient use of dry cleaning solvent. Questions on the compliance status of dry cleaners identified within your source water protection area and questions on DEQ requirements that affect dry cleaners should be directed to DEQ Drycleaner Program Staff

### **3.10 Office buildings and warehouses**

Spills, leaks, or improper handling of chemicals and other materials stored and used in maintenance or from parking areas may impact the drinking water supply. Many times, the nature of the business and potential for chemical use is not known. Stakeholders within source areas should contact owners and occupants (See Section 1.1) and inform them of their location within your drinking water source area. Provide owners resources to encourage use of best management practices for landscaping, storm water, and parking lots. Provide both owners and operators information on best management practices for business and Industry. Follow-up with technical assistance (Section 2.2) as needed.

### **3.11 Future commercial/industrial land development**

Local governments can consider zoning regulations to limit future development or to regulate or prohibit certain land uses. Further information is provided in Section 1.10.

## **Appendix A**

### **Example Letter to Business**

Date:

Land/Facility Owner

Address

Address

Dear     :

The respective Drinking Water Programs of the Oregon Health Authority and Department of Environmental Quality have completed a Source Water Assessment for the *Water System Name*. The purpose of the assessment was to provide us with information about our drinking water supply and how we might protect it for the future.

One of the products of the assessment was a map (enclosed?) showing the land area from which our drinking water supply originates. We are writing to you because your property falls within the identified area and we are asking for your help in protecting our resource.

There are no requirements associated with the assessment. Drinking Water Protection is voluntary in Oregon and how to best protect drinking water is up to the local community. We believe that if area businesses understand that drinking water comes from rainfall [seeping through the land surface to the aquifer] [running off the land surface to the stream] they will be more careful regarding the activities that they do on that land surface. Drinking water quality can be impacted directly by land use practices.

We have included Fact Sheets that describe Best Management Practices, i.e., proven methods that reduce the risk to water quality, for land use activities such as yours. If you are not already, please consider using these in your day-to-day activities to help protect drinking water in our area. These are basically common sense approaches that are already employed by many businesses in order to reduce their liabilities.

The Fact Sheets provide a list of resources available to help you with your pollution prevention efforts. We have also enclosed some information on Oregon DEQ's Waste Reduction Assistance Program, where you can obtain on-site technical assistance, free training workshops, and access to an information clearinghouse on waste reduction. We encourage all property owners within our drinking water source area to contact one or more of these resources to get more information on best management practices specific to your type of operation.

If you would like to see the Source Water Assessment for our water system, please contact us to arrange to do so. Further information regarding Oregon's drinking water protection program can be found on the website or you may contact either Tom Pattee (541-726-2587 ex 24 ) or Sheree Stewart (503-229-5413).

Thank you for helping us to keep our drinking water safe.

Signed,

Enclosure:

Business and Industry Tips for Drinking Water Protection

DEQ's TUHWR Technical Assistance Brochure entitled "Find Solutions"

*(List others – See Chapter 2 for available fact sheets/handouts)*