

Use of Injection Control Systems and Groundwater Protection



State of Oregon
Department of
Environmental
Quality

Water Quality Underground Injection Control Program

700 NE Multnomah St.
Suite 600
Portland, OR 97232
Phone: 503-229-5099
800-452-4011
Fax: 503-229-5850
www.oregon.gov/DEQ

Background

The Oregon Department of Environmental Quality's Underground Injection Control program's goal is to protect groundwater from contamination due to using underground injection systems. Contaminated groundwater can have major consequences for a community or industry relying on well water for industrial processing, irrigation of food crops or drinking water. Groundwater and water supply contamination is a public health and environmental concern, and is also a financial burden that can be costly for a community and the responsible business.

Stormwater and wastewater at some businesses enter floor drains or storm drains that discharge directly into sumps, drywells, trench drains or septic tanks with drainfields. These types of disposal practices, if not properly managed, can release wastes directly into the ground and pollute groundwater and nearby surface water. Most municipalities that rely on well fields do not pre-treat drinking water, except for chlorination, before distribution to local residents.

What is a UIC system?

A UIC system places fluids below the ground. Most UIC systems in Oregon are shallow and widely used to dispose of stormwater and process wastewater generated by individuals, businesses, industrial facilities, cities and counties from their properties, streets and parking lots. Stormwater and process wastewater may contain pollutants such as nitrates, phosphates, bacteria, solvents, oil and grease and heavy metals. More details can be found here: <http://www.oregon.gov/deq/FilterDocs/IDswInjSYSFS.pdf>

Common types of UIC systems in Oregon are:

- Stormwater drywells and drill holes
- Infiltration galleries and perforated piping
- Trench drains and French drains used to distribute fluids in the subsurface
- Onsite drainfield systems serving 20 or more people or injecting 2,500 gallons or more per day

- Industrial or commercial process waste disposal systems (for example, cooling water)
- Aquifer recharge wells
- Aquifer remediation wells
- Geothermal wells

Prohibited UIC systems in Oregon are:

- Deep waste disposal and hydrocarbon storage below a drinking water aquifer
- Process disposal systems related to mineral extraction and leachate
- Hazardous/radioactive waste disposal systems
- Agricultural waste disposal systems
- Sewage drill holes
- Cesspools serving more than 20 people or receiving mixed wastes
- Motor vehicle waste disposal systems
- Agricultural drainage wells

Are UIC systems a risk to drinking water?

UIC systems are an effective and environmentally safe means of fluid waste disposal when properly sited, constructed, operated and maintained. UIC systems may be a risk to drinking water depending on factors such as the location of the system relative to a drinking water well, area geology, construction and operation of the system, depth to the seasonal high water table, volume and quality of the injected fluids, and likelihood of accidental spills. In areas where hazardous chemicals are handled, an accidental product or chemical spill could enter a storm drain sump, discharge to a UIC system and lead to severe groundwater contamination.

Shallow injection and infiltration systems which dispose fluids below the ground are not designed to treat industrial and process wastes. Common pollutants in these wastes include heavy metals, toxic organics, nutrients, pesticides, salts and microorganisms (for example, cryptosporidium and *E. Coli*). A local drinking water source may be contaminated if these pollutants reach groundwater. Chemicals in wastewater may kill septic system bacteria that are necessary for effective primary treatment of wastes before discharge to a drainfield. Toxic pollutants and

poorly treated sanitary wastes may also percolate into the ground when an onsite wastewater system does not function properly.

Is there a UIC system on my property?

Your property should be connected to a sanitary sewer and stormwater system, an onsite wastewater treatment system or a UIC system. In some areas a sewer system may have been installed after industry or commercial buildings were constructed and only sanitary wastes are discharged to the sewer. Some wastewater treatment facilities also do not accept industrial process wastewater, which must be properly disposed. Below are ways to evaluate whether your waste fluids connect to a UIC system:

- Check your sewer and water bill. If you are not separately billed for stormwater discharge, stormwater and inside drains may lead to a UIC system (for example, drywells). You can check your phone directory or billing information for your local sewer utility, water utility, public works department or county/city development/planning office. If you lease the property and do not receive a wastewater bill, contact the property owner.
- Compare the date of your facility's construction and operation to the dates that the sewer and stormwater lines were installed in the area. Contact your public works department to find out when sewer connections were available. If your facility was constructed before the local sewer was installed, it is possible that only the sanitary lines were connected to the sewer and other drains in the facility and parking areas remain connected to a UIC system.
- Check building plans or drawings to locate wastewater lines and stormwater drains.
- Call your wastewater treatment facility. Find out if they accept industrial wastewater that is generated at your facility.
- Contact your local jurisdiction or a plumber for information on dye testing and drain line locating.
- Contact your local jurisdiction and inquire about a copy of their source water protection assessment report.

Regulatory requirements for UIC system owners

To operate a UIC system, DEQ requires the owner or operator to:

- Register the UIC system and provide the required inventory data to DEQ. Owners must provide data to prove they meet the basic siting requirements [Oregon

Administrative Rule 340-044-0018(3)], which include a determination that the well is constructed, operated and maintained in a manner that does not endanger underground sources of drinking water. Risk category requirements may apply, which require an approved stormwater management plan, regular maintenance, spill controls and, in some cases, annual monitoring. Registration forms are available on DEQ's UIC registration forms webpage:

<http://www.oregon.gov/deq/wq/wqpermits/Pages/UIC-Forms.aspx>

- Obtain approval from DEQ to operate the UIC system. Approval methods include authorization by rule and Water Pollution Control Facilities permit. DEQ will review registration data and determine whether the UIC system meets federal and state standards for authorization by rule. A WPCF permit may be more economical for owners with numerous UICs or multiple sites.
- Meet a "non-endangerment" performance standard. Fluids entering the UIC system must meet state groundwater quality standards and drinking water standards at the point of injection or by the time the injected fluid reaches the seasonal high water table.

If an owner or operator of a well cannot provide the required registration data or a UIC system cannot be authorized by rule, the owner may be required to:

- Apply for a WPCF permit (individual industrial – N form). Some sites that cannot qualify for authorization by rule may be able to operate under a permit (for example, the UIC system is located too close to a water supply well).
- Discharge to a local municipal stormwater sewer, if available.
- Close the UIC system.

Owners must register and properly close any injection system that is not in use or abandoned, cannot be authorized by rule or permit, or is prohibited. Please refer to "[Closure of an Injection System](#)" for complete requirements.

For more information

Contact the DEQ UIC Senior Hydrogeologist, at 503-229-6371. For information about DEQ's Drinking Water Protection Program contact Sheree Stewart, program coordinator, at 503-229-5413. You may also reach DEQ contacts toll free in Oregon at 1-800-452-4011

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.