

After You Buy: Wells, Septic Systems, and a Healthy Homesite

Tips for Small Acreages in Oregon

Be Good to Yourself and Your Neighbors

The wide, open spaces of the country are truly something to care for. You can do many things to maintain the quality of life you desire. Take responsibility to sustain the land, water, and other natural resources in your watershed. Get started by properly caring for your well, septic system, and other things in your own backyard.

"This land is the house we have always lived in."

- Linda Hogan

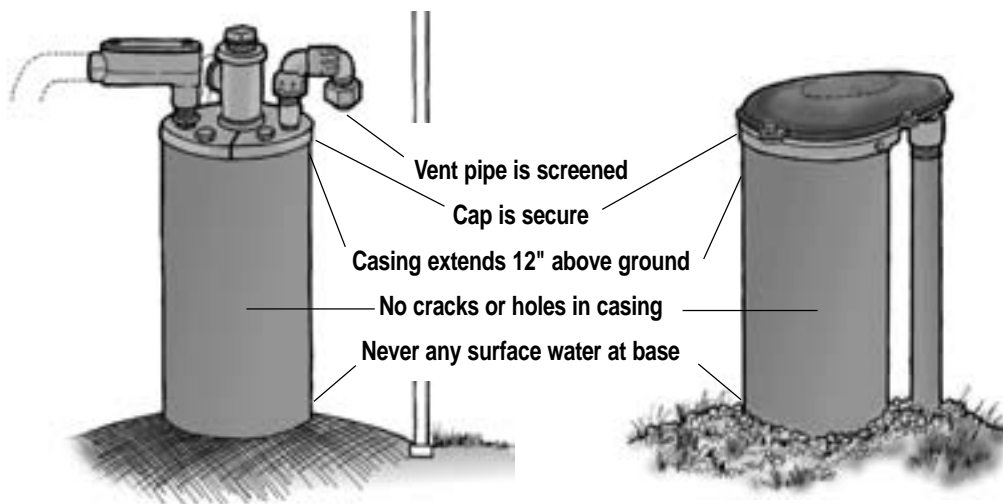
How Well is Your Well?

Overall, Oregon has excellent groundwater quality. However, pollutants such as nitrate have been found in many areas such as Grants Pass, Prineville, Hermiston, Ontario, and Junction City. These towns and cities test and purify drinking water in their municipalities. If you are one of the 500,000 Oregonians with a household well, it is up to you to protect, test, and purify the water for your family's health. Prevention is the best protection for your well. When wells are polluted, the source is often near or at the well itself. Protect your well and groundwater by the following:

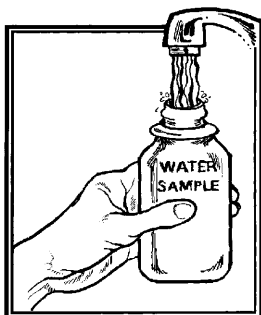
- Maintain your septic system.
- Divert drainage away from the well.

- Never store fertilizers, pesticides, or other chemicals in the well house.
- Mix fertilizers and pesticides and fill tanks and spreaders at least 100 feet from the well.
- Locate new livestock buildings, manure piles, and animal yards at least 100 feet from the well. The well must be 50 feet from septic tanks and 100 feet from drainfields.
- Properly cap old, unused wells on the property. Consult a professional for advice.
- Get a Home*A*Syst evaluation to find out how to protect your drinking water supply. Contact your local Extension Service agent for more information.

Inspect Your Well Every Year



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What's in the Water?

No water is 100% pure. Most substances are harmless, but some are nuisances or harmful. Test well water as a precaution or if you suspect a problem. Check results against the drinking water standards set by Oregon. A list of state-approved testing laboratories is available from your local extension office, Oregon Health Division, or at website <http://osu.orst.edu/dept/infonet/soilfert.htm>. Here are some of the more common water quality problems in well water:

What to Test for	When to Test	Cause of Problems	Health Concerns
Coliform bacteria <i>Signs:</i> Musty, septic, or earthy odor. Not always evident. <i>Standard:</i> Absence	Each year.	Poor well installation, manure, septic systems.	If bacteria reach the well, other disease organisms may follow the same pathway. Do not drink the water until it is purified.
Nitrate <i>Signs:</i> Not always evident. <i>Standard:</i> 10 mg/L	Each year if in high nitrate area. If not, every 3 years.	Fertilizers, manure, and septic systems. May also naturally occur in soil.	If nitrate reaches the well, other pollutants can follow. Nitrate can harm infants and kill livestock.
Lead <i>Signs:</i> Metallic taste, corroded pipes, lead pipes, copper pipes with lead solder. <i>Standard:</i> 0.015 mg/L in first draw sample	Only if suspected or when lead or copper pipes are present.	Lead pipes and copper pipes with lead solder.	Brain and blood disorders in children.
Iron <i>Signs:</i> Rust stains on laundry and fixtures <i>Unregulated:</i> 0.3 mg/L	Only if suspected.	Dissolved iron in surrounding soils.	Nuisance.
Hardness <i>Signs:</i> Scaly deposits and scum. <i>Unregulated:</i> 100 ppm	Only if suspected.	Dissolved minerals in surrounding soils.	Nuisance.
Hydrogen sulfide <i>Signs:</i> Rotten egg odor. <i>Unregulated:</i> 250 mg/L sulfate	Only if suspected.	Dissolved sulfate in surrounding soils.	Nuisance.

Adapted from *Water Testing* (AEX-314), Ohio State University Extension, the *National Primary Drinking Water Standards*, Federal Register, and Gail Glick Andrews, pers. comm.

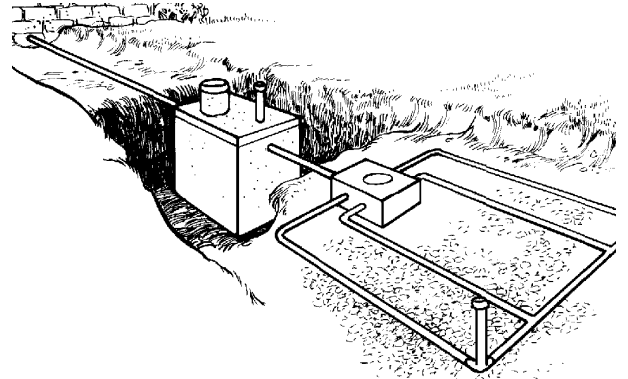
The Solution to Well Water Pollution

If tests show that water treatment is needed, do your homework before buying expensive water treatment equipment. Identify and stop the source of pollution. If a second test from a state-approved lab still shows contamination, compare water treatment options offered by different dealers. When water treatment companies give you conflicting recommendations, contact the Extension Service or Oregon Division of Health for an unbiased opinion.

Septic Tanks: the Basics

Nobody wants to flush a toilet into a drinking water supply. It's important to install and maintain septic systems properly to avoid polluting groundwater. Typical septic systems have three parts:

1. **Septic tank.** Household wastewater is collected and stored in a concrete, metal, plastic, or fiberglass tank just outside the house. The tank stores solids that float to the top or settle to the bottom. The remaining liquid flows into the drainfield. If tanks are not pumped periodically, floating solids may overflow into the drainfield and clog pipes and soil.
2. **Drainfield.** The drainfield is made up of a grid of pipes that spread the liquid over a wide area. Holes in the pipe allow liquid to leach into the soil.
3. **Proper soil.** The soil is the single most important purifying step in a septic system. Soil microorganisms and plant roots need air and time to break down bacteria, viruses, and nutrients and purify liquid waste. Septic systems fail when soils are too wet, clogged, or compacted to absorb the liquids or too well-drained to have enough time to purify liquids.



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Septic System Etiquette

Contrary to popular belief (or wishful thinking), septic systems are not maintenance-free. Half of all septic system failures are due to poor maintenance. Signs of neglect include backed-up plumbing, lush grass over the drainage field, and smelly seepage. Long before you see these signs, the system may discharge untreated sewage into the groundwater and into your well! Extend the life of your septic system by the following:

- **Inspect the solids in septic tank annually.**

Insert a probe into the inspection port in the tank lid. If solids (usually black specks) cover the probe more than one-third of the tank depth, it's time to pump.

- **Pump the tank every 1 to 5 years.**

Decide the pumping frequency based on the solids inspection or use the Tank Pumping Frequency chart as a guide.

Tank Pumping Frequency in Years

Tank Size (Gal)	Number of People in Household			
	1	3	5	7
500	6	2	1	1
1,000	13	4	2	1
1,500	19	6	3	2
2,000	25	8	5	3

Adapted from *Septic Tank Maintenance* (EC 1343), Oregon State University Extension Service.

- **Avoid garbage disposals.**

A garbage disposal can add up to 25 percent of the solids in a tank.

- **Keep slow-to-decompose items out of the tank.**

This includes coffee grounds, facial tissues, cigarette butts, disposable diapers, sanitary napkins, and wet-strength towels. Use toilet paper that breaks down easily when wet (color doesn't matter).

- **Keep harsh cleaners, solvents, and paints out of the tank.**

Normal amounts of bleach, detergent, drain cleaners, and toilet bowl deodorizers will not stop the natural breakdown of solids in the tank. Excessive amounts will. The system is not designed to purify these contaminants. Follow label directions for proper disposal. Take advantage of "household chemical days" at a local landfill.

- **Avoid products that claim to clean septic systems.**

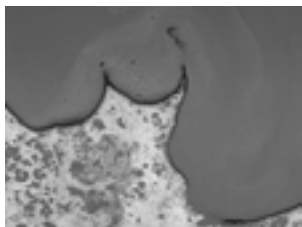
There's little evidence that these products work. What's more, some may be carcinogenic and move into your groundwater.

- **Use less water.**

Give time for solids to settle in the tank and avoid flooding the drainfield. Install showerheads, faucets, and toilets that use less than 3 gallons of water per minute or per flush.

- **Keep vehicles, trees, and roof water away from the drainfield.**

Vehicles may compact soils and damage drainfield pipes. Tree roots clog pipes and roof water saturates soils.



Environmental Protection Agency



- Oregon State University Extension Service offers Home*A*Syst evaluations, publications, workshops, and over-the-phone assistance on wells, septic systems, and other home water quality issues. Contact your local Extension Service office for more information.
- Oregon Department of Environmental Quality (DEQ) provides information on maintaining septic systems. Contact DEQ at (503) 229-5279.
- Oregon Health Division provides information on drinking water. Contact the Portland office at (503) 731-4317, the Springfield office at (541) 726-2587, and the Pendleton office at (541) 276-8006.

Fuel Oil and Water Don't Mix

Most people wouldn't dream of dumping a quart of oil over the side of a boat. But the results may be the same when landowners ignore leaks from fuel oil tanks. Leaks can reach a well, a stream, or a bay. One quart of oil can contaminate 2 million gallons of water or form an oil slick 2 acres in size. Avoid fuel oil spills by the following:

Monitor the fuel tank in summer.

Use a dipstick to detect unwarranted leaks.

Watch fuel oil deliveries.

Spills often occur from overfilling or filling vents at the house without the tank attached. If you remove your tank, remove the fill cap and contact the oil company to cancel future deliveries.

Replace buried tanks with aboveground ones.

Aboveground leaks are easier to detect. Consider adding a concrete apron to contain accidental spills. Locate the tank more than 100 feet from watercourses.

Stormwater Runoff: Get Soaked

When sidewalks, patios, and roads cover the soils of a watershed, these watertight surfaces increase the pollutants that may reach a stream. Rainwater picks up fertilizers, pesticides, and pet waste along the way and runs directly into streams. Polluted water hurts fish and drinking supplies. Slow down water, filter runoff, and turn your yard into a "sponge" by:

Creating swales in the yard.

Low areas in the yard can temporarily hold water and grow moisture-loving plants.

Replacing lawn with native plants.

Turf has fast runoff rates. Reduce lawn maintenance and plant native vegetation that is usually more drought- and pest-tolerant.

Replacing asphalt and concrete.

Use permeable materials of brick, paving grids, stone dust, or gravel.

Reduce, Reuse, and Recycle Hazardous Chemicals

Household, lawn, and garden chemicals can be hazardous to your health and the environment. Take care of the health of yourself and your watershed by practicing the following:

Use healthy home recipes.

Many alternatives for household cleaners and pesticides exist and can be mixed from what's on hand. For cheaper and safer alternatives, contact the Oregon Department of Environmental Quality at 800-452-4011 or check the website ecosys.drdr.virginia.edu/rswa/hazreduce.html.

Buy only what you need and give the rest away.

Give leftovers to others for their use. Make sure the products are in their original containers with labels.

Don't burn, bury, or flush hazardous products.

Look for signal words on the label that indicate how hazardous a product is. "Warning," "Danger," or "Poison" indicate that the product is moderately hazardous to highly toxic. Dispose of the product according to the label directions.

Take hazardous items to special recycling centers.

Hazardous items include all types of batteries, ionization smoke detectors, paints, stains, fuel oil, motor oil, kerosene, automatic transmission fluid, brake fluid, and antifreeze. Call the city or county to ask about collection locations.



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