

The chlorine will then need to be flushed out of the system. If you have a septic system, flush out the water through the outside taps. Running the water through the inside taps could flood the septic drainfield. If this happens, sewage may surface on the ground or back up into the house. Once most of the chlorine is flushed outside, the inside taps can be turned on to remove any lingering chlorine. The amount of bleach used varies with the depth and width of the well. On average, most wells should use 1 quart to 1 gallon of regular household bleach.

Please refer to “Disinfecting Domestic Wells” on our website at www.swdh.org/brochures.asp for full instructions.

Testing for Hydrogen Sulfide

Hydrogen sulfide in water is very obvious due to the smell. Testing is generally only done if the level in the water needs to be determined to help in choosing a treatment. There are several laboratories in Idaho capable of testing the water for hydrogen sulfide. Please call Southwest District Health at (208) 455-5300 and ask for information on water testing.

**For more information
contact SWDH
Environmental
Service Division at
208-455-5400 or
www.swdh.org**



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In-house brochure created September 2006

Division of Environmental Health

**HYDROGEN
SULFIDE IN
DRINKING
WATER**

“The Rotten Egg Smell”

Hydrogen Sulfide

Hydrogen sulfide is a gas that easily dissolves in water. There are no health effects associated with the levels of hydrogen sulfide found in groundwater. It is easily identified by a “rotten egg” odor. It can corrode plumbing metals such as iron, steel, copper, and brass. When iron and steel are corroded by hydrogen sulfide, a black precipitate can stain laundry and bathroom fixtures.

Hydrogen sulfide is formed by sulfur- and sulfate-reducing bacteria found naturally in water. They can be found in both shallow and deep wells, generally in shale or sandstone.

If Odor Only Comes From the Hot Water?

Before you invest in an expensive treatment unit for your home, do a simple test. Turn on your cold water and see if the smell is still noticeable. If the odor is only in the hot water, then the problem is likely with the hot water heater.

If the water thermostat was reduced to save energy or prevent scalding, it is possible that odor-causing bacteria have formed in the water heater. The problem can be resolved by returning the thermostat to the recommended temperature (typically 160 degrees F) for 8 hours. **Caution:** The pressure relief valve should be in good working order prior to raising the temperature. There is a danger of scalding if the pressure relief valve is not operating correctly.

If increasing the temperature on the thermostat does not alleviate the odor another possible problem may be the metal rod used in electric water heaters.

Electric water heaters frequently use a magnesium rod to protect from corrosion. As magnesium is slowly released into the water, hydrogen is also released. The hydrogen can then combine with sulfur in the water and form hydrogen sulfide.

This problem can usually be corrected by replacing the magnesium rod with an aluminum or zinc rod. The rod could also be removed. However, this could void the manufacturer’s warranty.

Treatment for Hydrogen Sulfide

Trace amounts of hydrogen sulfide can be removed with activated carbon filters. Carbon filters can be placed at a faucet, under a sink, or as it enters the home. Keep in mind, the more water that runs through the filter the faster the filter will be used up. Activated carbon will not normally be able to remove hydrogen sulfide levels over 0.3 mg/L.

Aeration (adding air to water) allows oxygen to react with the hydrogen sulfide and convert it to sulfate which is odorless. There are two types of aerated treatment. One type injects compressed air into a retention tank under pressure. The air must be vented from the tank in order to avoid “knocking” in the water pipes. The other type sprays water into a non-pressurized tank. A second pump will be required to re-pressurize the water system. Aeration is complex and not normally used for single households.

Manganese greensand filters can generally remove hydrogen sulfide levels up to 10 mg/L. It is normally used for iron and manganese removal. The filters must be recharged with a potassium permanganate solution. The process is similar to that of a water softener. A water pH less than 6.7 would require extra treatment.

Chlorine is a common chemical added to water that will convert hydrogen sulfide into a tasteless form. It is also used to reduce iron and manganese. Chlorine (specifically sodium hypochlorite) is pumped into the pipe going into the house. Generally some type of storage tank or pressure tank will be needed. Occasionally taste issues will be a problem and an activated charcoal filter is added.

Chlorine should not be regularly added to the well itself. Chlorine is very corrosive and can damage the pump and well casing if used frequently. The well should only be chlorinated when disinfection is required. If the “rotten egg” smell only started recently and is in both the hot and cold water, sulfur-reducing bacteria may be growing in the plumbing system. Shock chlorination would then be recommended to disinfect the system. A single high dose of chlorine (typically common household bleach) is poured down the well. The taps are turned on to pull the chlorinated water into the pipes. The taps are then turned off and the chlorine is allowed to sit in the pipes to kill bacteria for at least 12 hours.