



Testing a Well for Methane

If you suspect your well water contains methane, you are encouraged to have the water tested for dissolved methane by a certified laboratory. The Indiana Department of Health website provides a list of certified drinking water testing labs at: <http://www.in.gov/health/laboratories/files/CERTIFIED-IN-STATE-LABS.pdf>. Not all of the labs on the Department of Health list will be capable of performing the test for dissolved methane. When contacting a testing laboratory, be sure to confirm in advance that the lab is certified to test for dissolved methane using EPA Method RSK-175. Be sure to follow the sample collection instructions and only use containers provided by the testing laboratory.

You may also consider having your well inspected by a licensed water well driller or water well pump installer to determine the condition of your well and identify any factors such as faulty casing or other conditions that may be of concern.

Whom to Contact

Well owners are encouraged to contact their county health department for more information on the hazards of methane in well water. To find the contact name and telephone number for the specific county health department, visit the Indiana Department of Health website at <http://www.in.gov/health/health-and-human-services/local-health-department-outreach-division/local-health-department-information/> and click on the county name on the map.

Inquiries may also be directed to the following state agencies:

- Indiana Department of Environmental Management, Office of Water Quality:
 - ◆ Drinking Water Branch, Ground Water Section, at (317) 234-7477, or toll-free within Indiana at (800) 451-6027.
- Indiana Department of Health, Environmental Public Health Division at (317) 233-7173.
- Indiana Department of Natural Resources:
 - ◆ Division of Reclamation, Abandoned Mine Lands Section, at (812) 665-2207, or toll-free within Indiana at (800) 772-6463, when coal seams or coal mining operations may be a potential source of methane;
 - ◆ Division of Oil & Gas, Technical Services Section, at (317) 232-4055, when oil and gas wells may be a potential source of methane;
 - ◆ Division of Water, Water Rights and Use Section, at (317) 232-4160 or toll-free at (877) 928-3755, for general questions on water well drilling and construction.



Methane Gas & Your Water Well

A Fact Sheet for Indiana Water Well Owners



Methane Gas and Where It Comes From

Methane (CH₄) is a naturally occurring hydrocarbon that is colorless, odorless and tasteless. Methane is the chief constituent of natural gas, and high concentrations of the gas can cause oxygen-deficient atmospheres, flammable situations, or explosive environments. Potential sources of methane gas, also referred to as natural gas, fire-damp, and marsh gas, include: coal seams, oil and gas formations, organic rich shale formations, and environments with decaying organic matter such as landfills and swamps.



Hazards of Methane in Water Wells

Methane gas may migrate through underground geologic formations and be transported by ground water in dissolved or pure gaseous states. Methane generally migrates from areas of high pressure to areas of lower pressure. Methane in groundwater is not explosive; however, when water containing dissolved methane comes into contact with air, the methane quickly escapes from the water into the atmosphere. If this occurs in a confined space, the methane could ignite at concentrations between 5 and 15 percent, and result in an explosion. A nearby electrical outlet, pilot light, well pump, or a match can be the source for the ignition.

Signs of Methane in Wells

Owners of wells containing methane frequently hear gurgling or bubbling noises coming from their wells. Other signs might be effervescent gas bubbles in water drawn from a faucet or sounds similar to that of boiling water coming from your plumbing. Not all gas released from well water is methane, but caution should be practiced until the gas is identified. When signs of methane are present, it is recommended that any confined spaces in areas where high water usage is occurring, such as laundry rooms, bathrooms or kitchens, be well ventilated until further investigations are made to determine whether methane is indeed present in the well water.

Regulatory Standards for Methane in Ground Water Wells

Federal and state drinking-water quality standards do not establish limits for methane in water wells. However, given the hazardous nature of methane in water wells, the U.S. Department of the Interior, Office of Surface Mining (Eltzschlager and others, 2001) recommends the following:

- Owners of wells with dissolved methane concentrations greater than 28 mg/L should immediately contact their county health department to obtain assistance and guidance in venting the wellhead and for other possible remediation alternatives.
- Owners of wells with methane concentrations greater than 10 mg/L but less than 28 mg/L may also wish to contact their local county health department for further assistance and consider removing potential ignition sources from the immediate area.
- Methane concentrations less than 10 mg/L require no action, other than periodic monitoring to see if methane concentrations are changing.

Methane Removal and Treatment

Methane is lighter than air and very often can be removed from a well when it is properly vented to the atmosphere. Proper venting is extremely important and can significantly reduce the amount of methane entering homes, businesses, or other confining structures from water wells. Water well vents should be installed by licensed water well drillers or pump installers with experience installing methane well vents. A list of Indiana licensed water well drillers and water well pump installers is available at: <https://www.in.gov/dnr/water/ground-water-wells/licensed-water-well-drilling-contractors/>

In some situations where extremely high levels of methane are present, the use of well vents alone may not be adequate to eliminate the safety hazards from inside the home or other structures. In these instances, the use of specially engineered aeration systems may be necessary to protect a well owner from high levels of methane. These systems should only be installed by a company experienced in the design and installation of methane removal systems. You can begin your search for a qualified company by using the search term "Water Treatment Systems" in your local telephone directory or through an Internet search.

