

Combustible Gas & Your Well Water System

History of Combustible Gases in Macomb County

Combustible gases have been found to be present in some water wells throughout Macomb County for many years. Water wells which contain combustible gases appear to be concentrated primarily in the southern half of the county.

Origin of combustible gases

Combustible gases have been detected in water bearing deposits overlying the Antrim Shale. Antrim Shale is believed to be the source of combustible gases. Gas producing wells in Macomb County are found at depths approximately 80 to 100 feet.

Physical and Chemical Properties of Combustible Gases

Methane is the primary combustible gas found in Macomb water wells. The quantity of gas produced can vary considerably both seasonally and annually. Methane gas is lighter than air and is combustible and explosive at rather low concentrations. The explosive concentration by volume in air is 5 to 15 percent.

Testing for Combustible Gases

Well water bearing combustible gases will, most commonly, contain fine bubbles and have a milky, cloudy appearance. Gas comes out of solution rapidly when the temperature rises above 42 degrees Fahrenheit and pressure decreases. In Macomb County, well water having a milky appearance usually indicates the presence of a combustible gas. Other signs that a combustible gas may be present include popping or spurting of water at the tap or gurgling noises at the well casing.

Several methods exist to test for combustible gases. The most common field method is accompanied by using a combustible gas detector. The detector is an instrument used to directly measure the concentrations of combustible gases in the air. The Michigan Department of Consumer and Industry Services Bureau of Safety and Regulation, considers less than one percent methane-in-water by volume to be safe from explosion hazards. However, experience has shown that gas production rates on individual wells cannot be assumed to be uniform or constant.

Dangers Associated with Explosive Gases in Well Water

The primary danger associated with combustible gases is when the gas accumulates to combustible or explosive levels in confined spaces. Areas of concern are basements, utility rooms and bathrooms where large quantities of water are used.

Responsibilities of the Health Department

No **health** risks are associated with the presence of combustible gas in potable well water supplies. In Macomb County, the presence of combustible gas, when found in potable well water, will be reported in the interest of **safety**.

Recommendations

If a combustible gas is found, the well owner should consult with a registered well water contractor or the Macomb County Health Department regarding the installation of appropriate gas removal equipment.

The Macomb County Health Department will provide consultative assistance to affected property owners to the extent reasonably possible and practical. However, the Health Department is unable to predict the long term effectiveness of remedial measures undertaken by the property owner or contractor.

Well Abandonment

State law requires that unused or abandoned well(s) be properly plugged in the interest of public health and safety. Wells that produce methane have special requirements necessary for proper plugging. It also states that a well can be plugged only by a licensed water well contractor or the well owner. A record of well plugging must also be filed with the local health department. For additional information on proper well abandonment, please contact the Macomb County Health Department at (586) 469-5236.

Who Can I Contact For Information and Assistance?

- Macomb County Health Department Environmental Health Services Division at (586) 469-5236
- Licensed well drilling contractors (Refer to the Yellow Pages under Water Well Drilling and Service)
- Michigan Groundwater Association, 10475 Noggles Road, Manchester, MI 48158, (734) 428-0020
- Michigan Dept. of Environmental Quality, Well Construction Unit at (517) 241-1377 or <http://www.michigan.gov/deg>