2017 Northeast Michigan MAEAP Program Providing Free Drinking Water Screening Events

(Nitrates & Nitrites)
Serving
Alcona, Alpena, Montmorency & Presque Isle Counties

Drinking Water Well Screening

This service is for private drinking water wells only. Public water supplies are tested regularly. Please do not bring samples from public water supplies or non-drinking water sources. Only drinking water well samples will be tested. You do not have to use a special bottle for this screening. Any small clean jar will work—one ounce of water is enough.

2017 Date & Event Location	
Friday April 22, 2017 from 8:30 PM to 5:00 PM	Alpena & Montorency Conservation District Tree Sales Alpena Conservation District Warehouse

Water Well Screening Sampling Procedure

Please follow the directions below to sample your well. Collect samples just before getting them to the sample drop-off. Samples must be less than 48 hours old for a valid nitrate result.

1. Pick a tap that supplies water that has not run through any treatment devices (water softener, carbon filter, etc.). An outdoor faucet often works well.
2. Run the water for 20-30 minutes before collecting the sample. This will give the pump time to flush the water pressure tank and plumbing so you can collect a valid sample. Disconnect any hoses before collecting the sample; do not sample through a hose. Rinse the sample bottle and lid thoroughly in the water to be sampled; then fill and cap the bottle.
3. Keep the sample dark and cold (on ice or refrigerated) until it is dropped off.

See the Back for additional educational information for Nitrate & Nitrite

How Does Nitrate Get into Water Supplies?

Nitrate is found naturally in soil and water but usually at relatively low concentrations (less than 4 mg/L in water). However, nitrate is highly soluble and is easily transported when contamination sources come into contact with water. Common sources for nitrate contamination include sewage systems, refuse dumps, fertilizers, manure, and decaying plant matter. When water from precipitation or other events is flushed over these sources, the water carries the nitrates with it. As this water percolates into the ground and runs over the surface, the nitrates are carried into groundwater and/or surface water.

What are the Health Risks?

- The major health risk from nitrate/nitrite is to infants under 6 months of age. At this early stage of development, nitrate in the body is transformed to nitrite, which reacts with hemoglobin (the oxygen carrier in the blood) and prevents transport of oxygen. The result is a decreased oxygen supply to the body, often called blue baby syndrome (or methemoglobinemia). It gets this name because the skin often turns a blue or grayish color, especially around the mouth. If these symptoms are noticed, seek medical attention immediately.
- Adults with chronic health problems, such as heart or lung disease or enzyme deficiencies, may be at higher risk from elevated nitrate/nitrite levels.
- Pregnant and nursing mothers should also avoid drinking water high in nitrate/nitrite because of potential effects passed on to the fetus or infant.

There have been a few studies suggesting high nitrate/nitrite may cause certain types of cancer, but this connection is not well understood.

What Steps Can be Taken to Deal with High Nitrate Levels in Well Water?

- Do not boil water to treat for nitrate; this will increase the concentration.
- Bottled or treated water should be used for infants under 6 months of age.
- Other people who should limit consumption of elevated nitrates are those with chronic health conditions such as heart or lung disease, enzyme deficiencies, cancer, or people who are simply uncomfortable about the inconclusive research on long term health effects related to nitrate consumption.
- Steps should be taken to determine and remove the source of the contamination. This could mean reduced fertilizer application, moving of manure piles, cleaning and/or moving of septic systems, and manipulating surface water to flow away from the well head.

There are some treatment options available to remove nitrate from drinking water, including ion exchange, reverse osmosis, and electrodialysis. Prices vary depending on nitrate/nitrite levels and presence of other contaminants in the water. For more information see the World Health Organization (WHO) website: **http://www.who.int/water_sanitation_health/dwq/chemicals/rrnitrates/en/** and the National Science Foundation (NSF) website: **http://www.nsf.org/consumer-resources/health-and-safety-tips/water-quality-treatment-tips**

- In some cases drilling a deeper well into a clean aquifer might be worth consideration. In the meantime, bottled water is often the most convenient way to avoid health effects from nitrate contaminated groundwater.
- After receiving results of high nitrate in your well water, retesting the water to confirm the value is recommended before investing in a new well or a treatment system.