

Dodge County Volunteer Nitrate Monitoring Network

October 2023 Results



Program Summary

The Dodge County Volunteer Nitrate Monitoring Network (VNMN) started in February of 2008 in order to get an accurate representation of nitrate in private drinking wells. This program helps state agencies, local governments, and the public get a better understanding of what effects our groundwater. High nitrate levels in drinking water can result in serious health effects for infants. The state's Health Risk Limit for nitrate-nitrogen is 10.0 mg/L, but drinking water is considered impaired even if tests are above 1.0 mg/L.

Local Geology

Dodge County has a wide variety of geology that creates unique landscape features and aquifer depths, resulting in potential for water contamination. For example, the "Driftless Region" in the north and eastern portions of the county contain karst topography and have more exposed aquifers. Whereas the south and western portions of the county have protected aquifers due to sandy glacial moraine deposits. Impacts on drinking water can come from many activities that are performed on the surface such as manure spreading, fertilizer/pesticide application to crops, faulty septic systems, or landscape features. Landscape features include proximity to sinkholes, Decorah shale, and bedrock geology.

Map Summary

The map to the right shows the relationship between bedrock sensitivity (depth to bedrock) and nitrate impaired private wells. It can be concluded that areas with shallow bedrock depth can be more susceptible to elevated nitrate levels.



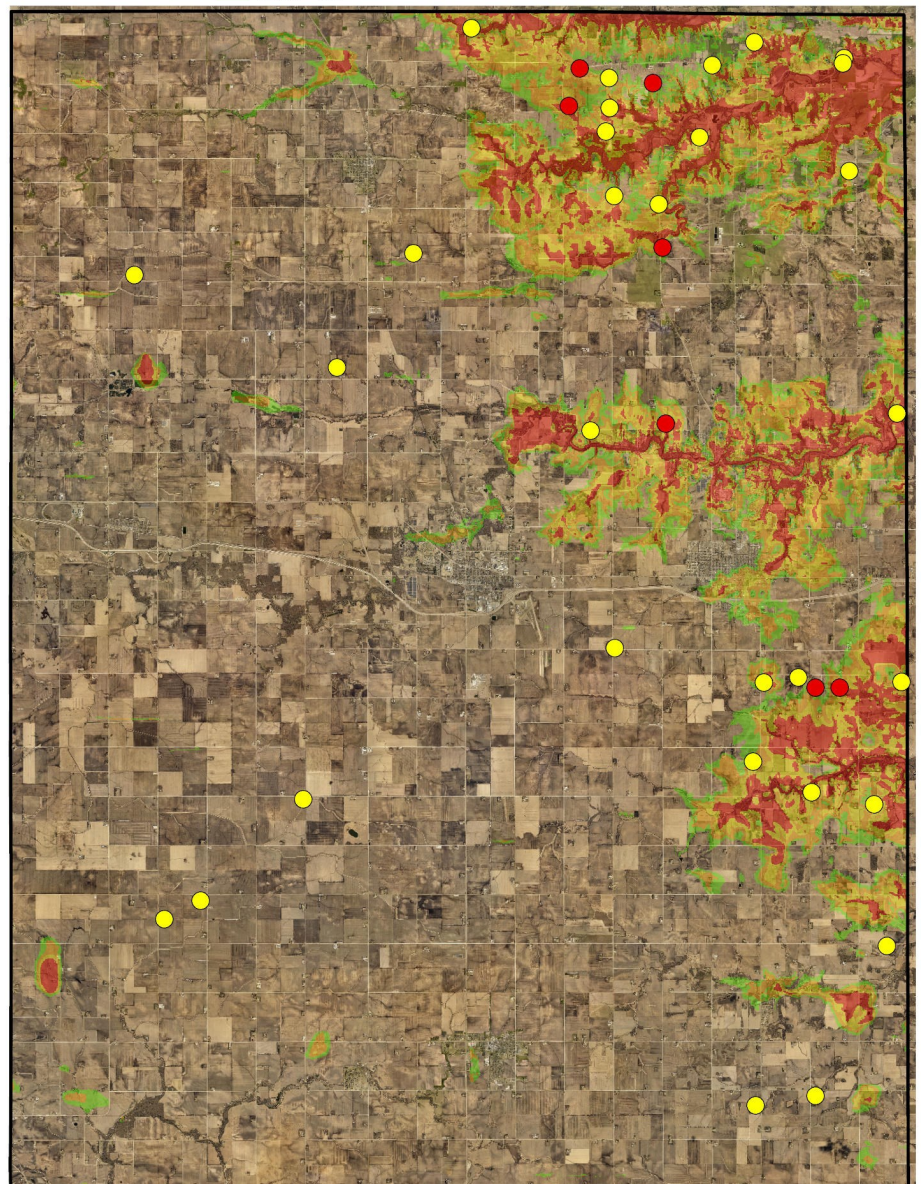
October 2023 High Nitrate Wells

Bedrock Sensitivity

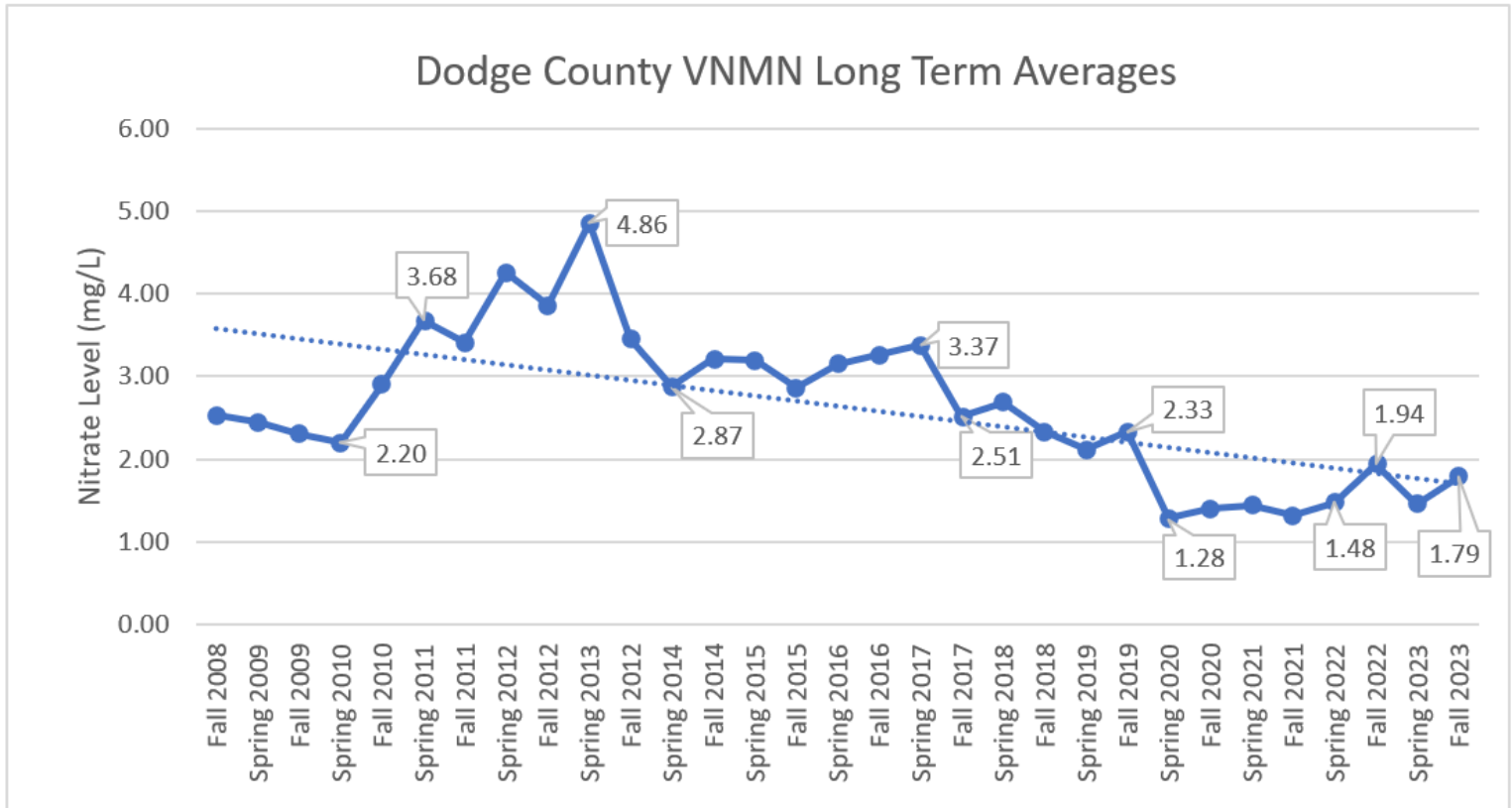
- 0m - 10m
- 10.01m - 20m
- 20.01m - 30m
- 30.01m - 40m

Nitrate Value (mg/L)

- 1.00 ≥ 9.99
- ≥ 10



OCTOBER 2023 RESULTS



NITRATE NEWS

Information from the Minnesota Department of Health and SE MN Water Analysis Laboratory

SOURCE: Nitrate is a compound that **naturally occurs and has many human-made sources**. Nitrate is in some lakes, rivers, and groundwater in Minnesota. You cannot taste, smell, or see nitrate in water. Presence in well water indicates potential contamination by sewage, animals, or surface water.

HEALTH RISK: Infant consumption can lead to methemoglobinemia (or blue baby syndrome), and children under 6 months are the most susceptible. Only recent scientific evidence has assessed the impact of nitrate consumption with adults showing increased risk of high heart rate, nausea, headaches, and abdominal cramps. Some studies suggest increased risks of cancer, especially gastric cancer, associated with dietary nitrate/nitrite exposure, but there is not yet scientific consensus on this question.

RECOMMENDATION: Pregnant and nursing mothers should avoid consuming water containing 10 mg/L or more of nitrate-nitrogen. Boiling water will cause the nitrate concentration to increase.

YOUR FALL 2023 RESULT: _____ mg/L



Dodge County Environmental Services thanks you for your continued participation in this volunteer project!! You are the ones that make this program possible and are helping to protect our local groundwater. If you have further questions about wells or the VNMN, please contact our office at (507) 635-6273 or jackson.miller@dodgecountymn.gov