



Nitrate Pollution in Minnesota

THE PROBLEM

One of the most persistent threats to Minnesota water quality is nitrate pollution caused by widespread agricultural practices like the land application of manure and commercial fertilizer. As animal feedlots and monoculture row crops ballooned over the past 30 years in Minnesota, nitrate levels in groundwater and surface waters have risen to crisis proportions in certain regions of our state, particularly southeastern Minnesota and the Central Sands.

In April 2023, MCEA and ten local, state, and national environmental groups filed a petition to the U.S. Environmental Protection Agency (EPA) asking for emergency action to address the drinking water crisis in southeastern Minnesota. In November 2023, the EPA responded with a warning to Minnesota's state agencies saying the state needed to take immediate action to safeguard public health.¹

WHAT IS NITRATE POLLUTION?

Nitrogen is a nutrient that comes in many different forms and exists in the atmosphere, in our soils, and in the water. When applied at reasonable rates, nitrogen is a critical nutrient for plant growth. However, when it is applied above crop needs or in vulnerable groundwater areas, excess nitrogen can be released to the atmosphere as nitrous oxide, a dangerous greenhouse gas, or leach into the water as nitrate, an inorganic form of nitrogen that is dangerous for human health, as well as the health of fish and other aquatic life. Nitrate pollution can affect surface water and groundwater, and make our waters unsafe to drink, fish, or swim in.

Southeastern Minnesota is particularly vulnerable to nitrate contamination because of the high density of agriculture and the **karst geology**—where the topsoil is shallow and the bedrock is fractured in “swiss cheese-like” formations, allowing for the rapid water movement between surface and groundwater. Nitrate levels in this area routinely exceed federal and state drinking water standards, putting the health of nearly 10,000 area households at risk.

In the karst region, agriculture accounts for 89% of the nitrogen pollution in Minnesota waters. Most farmers care deeply about stewardship of the land, but our policies do not reflect that. Instead, they make polluting actions cheaper and easier than sustainable practices.

¹ https://www.epa.gov/system/files/documents/2023-11/ao-rmod-reponse-letter_20230510-508.pdf

MCEA is working on two bills to curb this crisis.

- **Manure Management Grants (HF 3493 / SF 3527):** Rep. Kirsti Pursell and Sen. Heather Gustafson have introduced legislation to create a grant program for feedlots that implement manure management best practices—like dry storage options—that have both climate and water quality benefits. The bill is focused on Southeast Minnesota to respond to the EPA’s concerns, and responds to a need for manure storage that the Minnesota Pollution Control Agency has identified as important.²

How is manure storage related to nitrate pollution?

When manure storage systems reach capacity, the feedlot must empty them, often by spreading the manure onto agricultural fields—regardless of the season and potential for runoff. Large feedlots with over 1,000 animals are required to provide 9 months of manure storage as a condition of their permit, but smaller and mid-size feedlots often don’t have as much storage, increasing the likelihood they will need to offload manure at rates above crop needs or at riskier times of year. In the karst region, where there is a high density of medium-size feedlots and ripe land conditions for nitrate pollution, offering manure management grants can minimize harmful environmental and public health practices and increase the resilience of small and mid-size feedlots.

- **Permanent Funding for Private Well Mitigation (HF 4135):** MCEA supports Rep. Rick Hansen’s bill that establishes a permanent account and funding source for the mitigation of thousands of private wells in Minnesota that have unsafe drinking water because of nitrate contamination. HF 4135 creates a \$0.99 / ton fee (less than 0.25% of the current cost) on nitrogen fertilizers, which would generate approximately \$3 million per year.

Private well owners are at risk because after their well has been drilled, there are no requirements or dedicated resources to test or treat their water supply for contaminants like nitrates. State agency data shows that 16% of wells tested across SE Minnesota exceed the federal human health limit for nitrate.

How much nitrate is too much?

The federal safe drinking water limit for nitrate was set at 10 mg/L in 1962, in response to research showing increased levels of nitrate can cause methemoglobinemia, or “blue-baby syndrome.” More recent research has found that nitrate levels below this regulatory limit may present health risks in adults such as a variety of cancers, thyroid disease, and pregnancy complications.

For more information contact Carly Griffith, MCEA Water Program Director, cgriffith@mncenter.org

Find out more at www.mncenter.org/its-water-mns-nitrate-pollution-problem



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² <https://www.pca.state.mn.us/sites/default/files/lrwq-gen-1sy24.pdf>