

## **Clean Water Council (CWC) Policy Committee Meeting**

November 17, 2023

Following introductions, the committee approved the agenda, minutes, and an update from the chair and staff.

### **Draft Drainage Policy Statement**

Paul Gardner provided an overview of the revised draft Drainage Policy Statement. The committee received comments from the Minnesota River Collaborative, Minnesota Center for Environmental Advocacy, Red River Watershed Management Board (RRWMB), Association of Minnesota Counties (AMC), and Minnesota Watersheds. (draft policy included at the end of this document)

Discussion included:

- “Requesting data” is nebulous. It would be better to use “obtain” or “compile.”
- The committee would like to see what is being done on the landscape. The *Analysis of 2020 MN State Water Plan* (attached) was shared with the committee.
- The Red River Valley has been advanced in their work compared to other parts of the state.
- It would be good to have a more comprehensive approach to drainage available to other areas of the state, incorporating what has been done in the Red River Valley.
- The Mustinka River project was instructive.
- The committee appreciated the help from drainage authorities on statutes governing drainage, as well as information regarding guidance and briefing papers, as well as the thoughtful contributions to the revised policy.
- The smart salting approach could be used as a basis for developing training for drainage engineers and drainage authorities on multipurpose drainage management funding opportunities.
- A research component should be added to the policy. The CWF does support research in other areas. With the relevance of drainage in Minnesota, it would be good to include. Paul Gardner will reach out to Dr. Jeff Strock regarding this topic.
- It is not in the CWC’s land to change statute.
- Minnesota Watersheds and the RRWMB thanked the committee for the opportunity to comment and for their consideration and incorporation of recommended changes. The revised policy will be shared with our members. If there are any further comments, those will be provided.
- Next steps: The draft policy will be presented to the CWC at their meeting in December. If changes are warranted, the adoption of the policy would take place in January.

### **December Meeting Topics**

- Soil health plan at MN Office of Soil Health and the volume of state, federal, and private funds coming into MN and how they relate to the CWF; unprecedented time for nonpoint funding;
- How to expand capacity at the local level
- Revisiting shoreline rules
- The permitting process around aquatic vegetation management and removal
- Wake boat impacts on shorelines and the University of Minnesota study on this subject.

### **Private Wells in Southeastern Minnesota**

The committee discussed the petition to Environmental Protection Agency (EPA) requesting an emergency declaration to protect citizens from endangerment to public health caused by nitrate contamination of underground drinking water in southeastern Minnesota. They also considered the letter to the Minnesota Departments of Health, Agriculture, and Pollution Control from EPA that

included a work plan to address the contamination. State agencies are required to respond to EPA within 30 days. (documents included)

Within the petition there was a request to declare that state agencies haven't done enough to address this issue. EPA did not acknowledge that request. The investments of the CWC have helped with foundational information about this issue. It has brought to the forefront what can be done in the short-term and long-term to address these issues. No funding was allocated by EPA to address these issues. They also discussed whether funding for private well mediation be included in the CWF budget recommendations.

Meeting notes by Jan Voit

## Policy Committee Meeting Agenda

Clean Water Council

November 17, 2023

9:30 a.m. – 12:00 p.m.

[WebEx Only](#)

**2023 Policy Committee:** *John Barten, Rich Biske (Chair), Gail Cederberg, Kelly Gribauval-Hite, Victoria Reinhardt (Vice Chair), Peter Schwagerl, and Marcie Weinandt*

### **9:30 Regular Business**

- Introductions
- Approve today's agenda
- Approve minutes of previous meeting(s)
- Chair update
- Staff update
  - Equity outline

### **9:45 Updated Drainage Policy Statement**

- Feedback on new draft

### **10:45 Break**

### **11:00 Preparation for Full Council Discussion on EPA Response on Private Wells in SE Minnesota**

### **12:00 Adjourn**

### **December Options:**

- Water storage pilot completion
- Updates on Nutrient Reduction Strategy
- Soil health plan at MN Office of Soil Health
- **New Report:** Minnesota's Vanishing Natural Shorelines: A Loss that Contributes to Degraded Lake Quality

# Clean Water Council Drainage Policy Statement 2<sup>nd</sup> DRAFT 17 Nov 2023

The State of Minnesota should:

1. **Identify more opportunities** for multi-purpose drainage management (MDH) and water storage that improve water quality and complement Watershed Restoration and Protection Strategies (WRAPS) and One Watershed One Plan (1W1P).
2. Request data to **quantify the effectiveness of Multi-Purpose Drainage Management** relative to nutrient transport and hydrologic changes compared to traditional drainage systems, and an **estimate of the hydrologic impact** of drainage projects on downstream rivers and streams.
3. **Support opportunities for training of drainage engineers, drainage commissioners, and other relevant professionals** on the benefits of MDM and resources available, to encourage line-item estimates for conservation practices, and to encourage cost-benefit analysis of water storage and its resulting impact on drainage system and maintenance costs.
4. Develop a **drainage endorsement** for the Minnesota Agricultural Water Quality Certification Program (MAWQCP) with the input of the Drainage Work Group and other stakeholders.

## Background

There are almost 20,000 miles of open agricultural drainage ditches and countless miles of subsurface agricultural drain tile in Minnesota. These drainage systems have benefits to landowners, and in many circumstances can improve water quality compared to using conventional farming practices without drainage.

Drainage systems—especially older systems than can be more than 100 years old—can also alter downstream hydrology considerably. This altered hydrology is among the factors resulting in higher peak flows in rivers and streams, leading to higher erosion and channel destabilization. Channel destabilization in the Minnesota River basin, for example, is responsible for the majority of sediment and nutrient transport downstream into Lake Pepin. In addition, drain tile can transport nitrogen/nitrate and dissolved phosphorus directly to ditches, lakes, rivers, and streams without the benefit of treatment. Improving water quality from drainage systems must be part of our water management framework to meet water quality goals.

New drainage and drainage improvements represent an opportunity to design and install systems in ways that help reduce nutrient losses to surface water and positively affect the timing and flows of drainage water into surface waters. These efforts combined with wetland restoration and water retention can have positive impacts upon water quality in agricultural landscapes.

For reference, several statutes govern drainage in Minnesota:

- Minnesota Drainage Law in [Minn. Stat. 103E](#)
  - [Changes in 2014](#) to the statute require drainage authorities to consider a proposed project's impacts on water quality, peak flows, sedimentation, etc., explore different funding and technical assistance sources that could address these impacts, and use early coordination among stakeholders to bring about these changes.
- Minnesota Watershed Law in [Minn. Stat. 103D](#).

There are several entities that discuss drainage regularly and provide oversight and technical assistance.

## Clean Water Council Drainage Policy Statement 2<sup>nd</sup> DRAFT 17 Nov 2023

- **Board of Water and Soil Resources (BWSR):** According to Minn. Stat. 103D, engineer reports must be filed with the board for examination and for an advisory report.
- **[Drainage Work Group \(DWG\)](#):** The Drainage Work Group's purpose is to: 1) to foster science-based mutual understanding about drainage topics and issues and 2) to develop consensus recommendations for drainage system management and related water management, including recommendations for updating Minn. Stat. Chapter 103E drainage and related provisions.
- **Drainage Authorities:** Drainage Authorities (counties or watershed districts) “act as the drainage system’s governing body – administer proceedings and procedures; approve petitions; hold hearings; make findings; issue orders; appoint engineer(s), viewers, and inspector(s); engage or retain attorney(s); apportion costs; etc.”
- The **[Local Government Water Roundtable](#)** is an affiliation of three local government associations, the Association of Minnesota Counties, Minnesota Association of Soil and Water Conservation Districts, and Minnesota Watersheds. The roundtable helped develop the 1W1P program and advises state agencies on other watershed funding and related management issues.
- **[Minnesota Department of Natural Resources \(DNR\)](#):** The DNR must receive the following from drainage authorities: 1) repair and maintenance-related documents that affect public waters; 2) redetermination of benefits affecting DNR lands; 3) reestablishment of records; 4) technical guidance documents; 5) project and improvement-related documents; and 5) assessments. According to Minn. Stat. 103D and 103E, engineer’s reports must be filed with the commissioner for examination and for an advisory report.
- **Minnesota Department of Agriculture (MDA):** The MDA implements the **[Minnesota Agricultural Water Quality Certification Program \(MAWQCP\)](#)**, a comprehensive partnership that includes federal, state, and local public sector entities, as well as private sector collaborations, providing certification services to Minnesota’s farms.
- **[Drainage Management Team \(DMT\)](#):** According to BWSR, the DMT is an interagency team comprised of staff members from state and federal agencies as well as academic institutions that meet regularly to coordinate and network regarding agricultural drainage topics.

Finally, drainage authorities report that they also seek guidance from several other resources.

- **[Minnesota Public Drainage Manual \(MPDM\)](#):** According to BWSR, “The MPDM is a detailed reference document about Minnesota Statutes, Chapter 103E Drainage, for drainage authorities, their advisors (attorneys, engineers, county auditors, watershed district secretaries, viewers, drainage inspectors), and others involved with state drainage law.”
- University of Minnesota **[Guide to Agricultural Drainage](#)**
- **[Iowa Drainage Guide](#)**
- **[Impacts of Subsurface Agricultural Drainage on Watershed Peak Flows – Briefing Paper #1](#)**
- **[Water Management Options for Subsurface Drainage – Briefing Paper #2](#)**
- **[Water Management Options for Surface Drainage – Briefing Paper #3](#)**
  - **[Briefing Paper #3 PowerPoint Presentation](#)**

In addition, the Legislature makes appropriations for conservation drainage management and assistance from the General Fund, as shown in this 2023 appropriation:

*Conservation Drainage Management and Assistance (\$2 million).* BWSR will provide funding for Minnesota drainage authorities under M.S. 103E to plan and construct drainage water quality

## Clean Water Council Drainage Policy Statement 2<sup>nd</sup> DRAFT 17 Nov 2023

management practices into drainage system projects. This program is a continuation from FY2022-2023 and provides for financial and technical assistance to Minnesota's Public Drainage Authorities and Soil and Water Conservation Districts to facilitate planning, design, and installation of conservation practices on drainage systems that will result in water quality improvements.

### Specifics on Policy Recommendations

Identify more opportunities for multi-purpose drainage management (MDH) and water storage

The Council recommends a systematic approach in identifying drainage system reaches and drained parcels that would provide the greatest water quality improvement opportunities. State statute has recommended "early coordination" in the past, but this was before the creation of the One Watershed One Plan approach.

In 2014, the Legislature made changes (Minn. Stat. 103E.015 Subd. 1a.) in the drainage law to encourage more collaboration that would result in more conservation drainage projects.

When planning a drainage project or a repair under section 103E.715, and prior to making an order on the engineer's preliminary survey report for a drainage project or the engineer's report for a repair, the drainage authority shall investigate the potential use of **external sources of funding** to facilitate the purposes indicated in section 103E.011, subdivision 5, and alternative measures in subdivision 1, clause (2). This investigation shall include **early coordination** with applicable soil and water conservation district and county and watershed district water planning authorities about potential external sources of funding and technical assistance for these purposes and alternative measures. The drainage authority may request additional information about potential funding or technical assistance for these purposes and alternative measures from the executive director of the Board of Water and Soil Resources.

Since that time, there have been many examples of collaboration among soil and water conservation districts (SWCDs), watershed districts (WDs), the state, drainage authorities, and landowners. The Red River Basin appears to be further ahead than other parts of the state in this area, with plans for 100,000 acre feet of storage including more than 11,000 wetland restorations. The Board of Water and Soil Resources (BWSR) makes regular grants through the Multi-Purpose Drainage Management (MDM) program, competitive grant opportunities, and Watershed Based Implementation Funding (WBIF) that improve water quality in drainage systems. The DNR is adding a Drainage Coordinator position in FY24 to better assist with early coordination work.

The Clean Water Fund has also supported MDM and water storage. Examples include:

- BWSR Wetland restoration easements (\$10 million appropriated for FY24-25)
- BWSR Watershed Based Implementation Funding (\$79 million) with some funds for restoration
- DNR Nonpoint Source Restoration and Protection Activities (\$3.2 million)
- DNR Water Storage (\$1 million)

It should be noted that several Clean Water Fund appropriations support improved water quality from drained parcels that are working lands. For example, several of these programs support on-farm practices such as alternative tile intakes.

## Clean Water Council Drainage Policy Statement 2<sup>nd</sup> DRAFT 17 Nov 2023

- MDA Minnesota Agricultural Water Quality Certification Program (\$7 million and see below)
- BWSR Watershed Based Implementation Funding (\$79 million) for on-field practices
- MDA Conservation Drainage Management and Assistance (\$2 million)
- BWSR Working Land and Floodplain Easements (\$5 million)
- MDA Agricultural Best Management Practices Loan Program (\$9.598 million)

After noting that landowners could not wait for its annual MDM grant opportunities, BWSR is now making quarterly grants to increase the number of applications. The RFP for MDM also explicitly states that eligible activities in grant proposals must include improvement of downstream water quality. Both developments are welcome.

Despite all these positive developments and projects, the Council believes that many more opportunities exist for conservation drainage.

BWSR and watershed managers have quantified water storage goals in comprehensive watershed management plans (One Watershed One Plan). Drainage systems could provide opportunities for temporarily storing water to reduce peak flows or installing BMPs for water quality. With some exceptions, the plans usually do not identify specific segments of those drainage systems that collectively add up to the volume needed to meet a watershed's water storage or water quality goals.

The Clean Water Fund could be used to fund soil and water conservation districts, counties, and watershed districts to identify specific opportunities for drainage authorities, who could then apply for follow-up funding for MDM, water storage, restoration, Watershed Based Implementation Funding, etc. This effort would look at a drainage system as a whole and would in effect serve as a sub-watershed analysis but for the system's ditches.

### Quantify Effectiveness of Multi-Purpose Drainage Management

The Council would like BWSR to provide evidence of MDM's effectiveness for water quality compared to traditional drainage systems, especially regarding nutrient transport and hydrologic changes. This would allow for an evaluation of MDM compared to other water quality appropriations from the Clean Water Fund.

The Clean Water Fund also supports the DNR's streamflow monitoring network. As part of comprehensive planning, the network could confirm and update hydrological models used for drainage improvement projects.

### Train Drainage Engineers and Drainage Authorities

Undoubtedly, there are skilled professionals and drainage authorities with the right experience, but there does not appear to be any dedicated training available for drainage engineers focused solely on improvement of water quality in drainage systems. Since engineers are the ones who suggest designs to landowners—and drainage commissioners approve them—having these professionals aware of opportunities for technical assistance and funding as well as the watershed-based approach to improving water quality would be useful. The MPCA Smart Salting certification program would be a possible model.

## Clean Water Council Drainage Policy Statement 2<sup>nd</sup> DRAFT 17 Nov 2023

### Drainage Endorsement at MAWQCP

The Minnesota Agricultural Water Quality Certification Program (MAWQCP) is completely funded by the Clean Water Fund. More than 1200 farms and more than 900,000 acres are certified as of July 2023. The MAWQCP appropriation also includes grants to producers for specific practices.

There are already certain drainage practices that must be used to receive certification. For example, a farm with drain tile cannot be certified without installing [alternative tile intakes](#) that reduce the flow of nutrients and sediment into surface waters. MAWQCP has documented 504 cases of improved drain tile practices in the process of certification, and 41 farms received MAWQCP grant funding to install them for a total of \$101,507. The Council supports this and future water storage criteria that would resolve any downstream channel destabilization before receiving certification.

Overall, the program includes farms with saturated buffers and wetlands that receive and filter tile water. In addition, some farms (but not many) have drainage water management systems with gates to open and close at different heights to hold water in the field.

MAWQCP also includes endorsements for several categories where farmers are going beyond certification requirements in a certain area: integrated pest management; climate smart farm; soil health; irrigation management, and wildlife. The Council recommends the development of a conservation drainage endorsement.

A drainage endorsement would reward farmers that go beyond the drainage requirements for certification, including restoration of drained lands. MAWQCP staff indicate that they are open to the idea but require cooperation from all stakeholders involved to develop the criteria. Drainage-endorsed farms could qualify for 90 percent cost-share grants from the program instead of the current 75 percent maximum.





## REGION 5 ADMINISTRATOR

CHICAGO, IL 60604

Brooke Cunningham M.D.  
Commissioner  
Minnesota Department of Health  
Post Office Box 64975  
Saint Paul, MN 55164-0975

Thom Peterson  
Commissioner  
Minnesota Department of Agriculture  
625 Robert Street North  
Saint Paul, MN 55155-2474

Katrina Kessler  
Commissioner  
Minnesota Pollution Control Agency  
520 Lafayette Road N  
Saint Paul, MN 55155-4194

Dear Dr. Cunningham, Mr. Peterson, and Ms. Kessler:

On April 24<sup>th</sup>, 2023, Petitioners<sup>1</sup> requested that the U. S. Environmental Protection Agency exercise its emergency powers under Section 1431 of the Safe Drinking Water Act (SDWA) to address groundwater nitrate contamination that presents a risk to the health of the residents in eight counties of the Southeast Karst Region<sup>2</sup> (Karst Region) of Minnesota. Section 1431 authorizes EPA to act upon receipt of information that a contaminant is present in or is likely to enter a public water system (PWS) or an underground source of drinking water (USDW), which may present an imminent and substantial endangerment to the health of persons, and that appropriate state and local authorities have not

---

<sup>1</sup> Petitioners: Minnesota Center for Environmental Advocacy, Environmental Working Group, Minnesota Well Owners Organization, Center for Food Safety, Clean Up the River Environment, Food & Water Watch, Friends of the Mississippi River, Izaak Walton League Minnesota Division, Land Stewardship Project, Minnesota Trout Unlimited, and Mitchell Hamline Public Health Law Center.

<sup>2</sup> Minnesota's Karst Region referenced in the petition consists of eight counties: Dodge, Fillmore, Goodhue, Houston, Mower, Olmsted, Wabasha, and Winona county.

acted to protect the health of such persons. Approximately 390,682<sup>3</sup> people reside in the Karst Region; about 300,000 people are served by 93 PWSs and approximately 93,805<sup>4</sup> people rely on private wells as their primary source of drinking water. Based on the information currently available from past nitrate monitoring, it had been estimated that 9,218<sup>5</sup> residents in the Karst Region were or still are at risk of consuming water at or above the maximum contaminant level (MCL) for nitrate, with Minnesota Department of Agriculture reporting that 12.1% of the private wells tested (equating to 1,058 wells) exceeded the MCL of 10mg/L<sup>6</sup>. Several of the PWSs in the Karst Region have also been impacted by MCL exceedances resulting in additional treatment and/or having to drill deeper wells.

We appreciate the time that you and your staff have taken to meet with my staff on numerous occasions to share each agency's efforts to protect Minnesota's drinking water, including the information you shared in and after our meeting on August 28, 2023 (See Enclosure). While we appreciate the collective commitment to address nitrate contamination through state-administered programs, based on our discussions and current available drinking water data, there is an evident need for further actions to safeguard public health.

EPA's immediate priority is to protect human health by ensuring that residents impacted by nitrate contamination are: (1) identified; (2) provided notice in all applicable languages regarding their potential exposure to elevated nitrate concentrations and information regarding the associated health risks; and (3) provided the opportunity to obtain alternate drinking water until nitrate contamination in groundwater falls below the MCL for nitrate of 10 mg/L.

EPA expects state agencies to take timely actions to address the nitrate contamination, especially with respect to providing public notice and alternate water. To address these priorities, EPA requests that the Minnesota agencies develop a coordinated and comprehensive work plan to identify, contact, conduct drinking water testing and offer alternate water to all impacted persons in the Karst Region, as soon as possible, and to sustain these efforts for as long as nitrate concentrations in the groundwater of the Karst Region remain at or above the MCL. An adequate work plan to address immediate health concerns should include the following:

1. **Coordination** – The state should create a communication plan that identifies how information and responsibilities will be shared among the state agencies, local governments

---

<sup>3</sup> Calculated using the 2022 data, for each county, reported on the Minnesota State Demographic Center "PopFinder For Minnesota, Counties, & Regions". <https://mn.gov/admin/demography/data-by-topic/population-data/our-estimates/pop-finder1.jsp>

<sup>4</sup> Calculated using Minnesota Department of Health "Community Water Systems: MNPH Data Access" to determine population serviced by CWS's, then subtracted by the population in the region. <https://mndatamaps.web.health.state.mn.us/interactive/cwss.html> last updated 03/07/2023.

<sup>5</sup> Calculated using the Township Testing Program "Final Report" by adding up the estimated population at risk, reported in the "Estimates of Population at Risk" section of each report, for each county. Data used ranges from 2014 – 2019. <https://www.mda.state.mn.us/township-testing-schedule-reports>

<sup>6</sup> From the Township Testing Program county reports for this region.

(county, city, township), and any private businesses or local utilities that have volunteered or been required to act, so that each entity's efforts serve a singular and coordinated response.

**2. Identification of Impacted Residences** – The state should identify each residence that obtains drinking water from a private well within the Karst Region. This includes wells that were constructed prior to the adoption of Minnesota's Well Code.

**3. Education and Outreach** – The state should provide notice to newly and previously impacted residents and continue to provide notice as long as contamination persists at or above the MCL for nitrate. If notice has not been provided to those that were previously identified as having private drinking water wells at or above the MCL for nitrate, we expect the state to provide notice *immediately* to such residents.

Similarly, if notice has not been provided to customers served by regulated PWSs that had nitrate levels at or above the MCL, we expect the state or owner/operators to provide notice *immediately*. Public education and outreach should be conducted in a form and manner reasonably calculated to reach all impacted residents in all applicable languages.

The state should prioritize its education and outreach toward the most vulnerable populations for associated health risks (e.g., homes with infants, pregnant women), including efforts to work with health care facilities and daycares serving such populations.

In addition to public health information, clear instruction for private drinking water well users to request drinking water testing should be included in appropriate languages. Minnesota should measure its progress in contacting all private well users identified as part of outreach efforts. For those private well users that do not respond to public notices, Minnesota should attempt personal communications, such as visits to individual residences (e.g., Minnesota Water Stewards).

**4. Drinking Water Testing** – Responsible agencies should create and implement a plan to provide analysis of drinking water samples obtained from any private well users in the Karst Region that request testing. For any residents identified as having private drinking water wells at or above the MCL for nitrate, we expect the state to provide timely notice to such impacted residents.

**5. Provision of Alternate Water** – Alternate drinking water should be offered as soon as practicable to each residence where water tests show an exceedance of the MCL for nitrate in the private well. The state should prioritize provision of alternate water to particularly vulnerable populations (e.g., homes with infants, pregnant women). As part of your response to EPA, please provide a detailed plan for distribution (e.g., water made available to residents at centralized locations) and a timeline for provision of such water.

Alternate water should be provided as needed for drinking, cooking, and maintaining oral hygiene. This shall be at no cost to the resident and in a manner that minimizes the burden on the impacted resident to obtain safe drinking water, such as water distribution locations and/or delivery services, reverse osmosis treatment units, or connection to a public water system.

**6. Public Records** – Maintain and regularly publish records such that Minnesota residents and the general public can better understand the scope and severity of nitrate contamination in the Karst Region and measure Minnesota’s progress in implementing its response plan including provision of alternate water, and to establish an effective way to communicate updates to the general public.

**7. Communication with EPA** – EPA requests that the Minnesota agencies provide progress reports quarterly to EPA that (a) describe actions taken during the previous quarter to address the immediate health impacts of nitrate contamination; (b) identify major accomplishments and issues that arose; (c) describe actions and timelines planned for the next quarter; and (d) describe any problems or delays encountered and the solutions implemented to address them.

While this letter is largely focused on addressing immediate health concerns regarding nitrate contamination in drinking water in the Karst Region, Minnesota must also develop and implement a long-term solution to achieve reductions in nitrate concentrations in drinking water supplies.

Developing a complete understanding of potential sources of nitrate contamination is an important immediate step for the state. A risk analysis of current and future nitrate contamination of the impacted groundwater will be critical for determining long-term solutions, and such analysis should incorporate the latest science and technologies.

Minnesota has tools to effect reductions in nitrate concentrations through the National Pollutant Discharge Elimination System (NPDES) and State Disposal System permit programs, including development and implementation of more protective NPDES/SDS CAFO permits.

In addition, Minnesota should consider adopting monitoring requirements in NPDES/SDS permits related to (1) subsurface discharges from manure, litter, and process wastewater storage, as well as (2) discharges from land application, similar to those proposed by EPA as modifications to the EPA-issued CAFO general permit for Idaho: <https://www.epa.gov/npdes-permits/npdes-general-permit-concentrated-animal-feeding-operations-cafos-idaho>. We also encourage Minnesota to consider modifications to the state’s Technical Standards for Nutrient Management with regard to land application of manure, litter or process wastewater, and any Minnesota guidelines for land application of commercial fertilizer, specific to Karst areas.


EPA expects Minnesota to hold sources of nitrate accountable using all available tools to reduce the amount of nitrate they release to ground water. While the Agency appreciates the state agencies’ engagement and past efforts in addressing groundwater contamination in the Karst Region, EPA will

continue to closely monitor this situation and consider exercising our independent emergency and enforcement authorities.

Given the urgency inherent in any situation involving drinking water contamination with known potential health risks, we respectfully request confirmation of your agencies' plan to provide "Education and Outreach" and "Provision of Alternate Water" as soon as possible. EPA expects a reply with respect to the elements noted above within 30 days, which must include the anticipated timeframe for submission of the agencies' work plan.

Sincerely,

DEBRA  
SHORE

 Digitally signed by  
DEBRA SHORE  
Date: 2023.11.03  
08:31:31 -05'00'

Debra Shore  
Regional Administrator  
& Great Lakes National Program Manager

## Enclosure: Summary of Minnesota Efforts to Address Nitrate Contamination

EPA recognizes the Minnesota's past and current efforts to address nitrate contamination: The Clean Water council (consisting of MDA, MPCA, and MDH representatives) was able to advise the Legislature to appropriate \$100,000 of the state's Clean Water Fund to the "Tap In" initiative, which was carried out at the county level, including counties in the Karst Region. This initiative in 2021 assisted low-income private well owners with nitrate contamination that exceeds the MCL. The initial grant covered 186 tests, 7 reverse osmosis filters, 6 new wells, and one well repair.

MDA and MDH created a private well network for residents in which to participate in the Central Sands and Southeast Karst Region. The purpose of the Southeast Minnesota Volunteer Nitrate Monitoring Network was to monitor long term trends of nitrate concentrations in private drinking water wells throughout Southeastern Minnesota. Samples were collected from 2008 – 2012.

MDA and MDH provide technical assistance to CWSs when the nitrate level is detected above 3 mg/L. MDA had established Nitrate Testing Clinics, which has provided 50,000 well owners with testing services and educational outreach since 1993, and local partners with equipment to carry out nitrate analysis.

MDA provided free nitrate sampling to private well owners in vulnerable Townships throughout the state from 2013 to 2019 via the Township Testing Program. Of the 344 townships determined to be vulnerable statewide, 133 are in the Karst Region.

MDA was the initial partner in the *We are Water MN*, providing technical assistance, staff time, and financial investments.

MDA continues to develop and publish videos, infographics, and additional resources targeted for residents of the Karst Region.

MDA developed the Groundwater Protection Rule to support the 2015 Nitrogen Fertilizer Management Plan, which went into effect on June 28, 2019.

MDH established and enforces laws and rules for proper construction and sealing of wells and borings and provides guidance to private well owners. MDH assists and regulates public water systems by approving system construction and treatment plans in response to nitrate issues, as well as requiring PWSs to protect water sources from contamination and providing technical assistance and grants to do so. Since 1993, MDH has successfully returned 8 CWSs and 38 NCWSs back to compliance with SDWA's regulatory limits for nitrates.

MPCA created the state's Nutrient Reduction Strategy in 2014 to guide the state in reducing excess nutrients in water to meet state and downstream water quality goals.

MPCA had released the Groundwater Protection Recommendation Report in 2016 which states recommendations for preventing nitrate contamination in groundwater.

MPCA uses NPDES permits to (1) prevent manure, litter, and process wastewater discharge to surface water from Large CAFO production areas and (2) minimize nutrient movement to surface water from manure, litter, and process wastewater application to land under the control of Large CAFOs. State Disposal System-based conditions in these permits, and in SDS-only permits for Large CAFOs, are for the purpose of protecting ground water. In a July 22, 2021 letter from MPCA to EPA, MPCA underscored that it set conditions in its 2021 statewide NPDES/SDS general permit for Large CAFOs for the specific purpose of addressing existing elevated levels of nitrates in ground water (Peter Tester letter to Cheryl Newton, page one). For decades, Minnesota has operated a supplementary state law regulatory program for feedlots as small as 50 animal units (10 in shoreland).

In addition, we thank Minnesota staff for taking time to participate in recent calls and sharing information on your work to address nitrate contamination including calls with MDH on May 8, May 18, and June 20; MDA on May 18, MPCA on August 22, and a joint call with all three agencies on August 28.

**BEFORE THE  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

---

Petition for Emergency Action Pursuant to  
the Safe Drinking Water Act, 42 U.S.C. § 300i,  
to Protect the Citizens of the Karst Region of  
Minnesota from Imminent and Substantial  
Endangerment to Public Health Caused By  
Nitrate Contamination of Underground  
Sources of Drinking Water.

EPA Docket No. \_\_\_\_\_  
April 24, 2023

---

**Submitted on Behalf of Petitioners  
Minnesota Center for Environmental Advocacy,  
Environmental Working Group,  
Minnesota Well Owners Organization,  
Center for Food Safety,  
Clean Up the River Environment,  
Food & Water Watch,  
Friends of the Mississippi River,  
Izaak Walton League Minnesota Division  
Land Stewardship Project,  
Minnesota Trout Unlimited,  
and  
Mitchell Hamline Public Health Law Center**

---

To: Administrator Michael S. Regan  
U.S. Environmental Protection Agency  
Mail Code 1101A  
1200 Pennsylvania Avenue, N.W.  
Washington, DC 20460  
Regan.Michael@epa.gov

Regional Administrator Debra Shore  
U.S. Environmental Protection Agency, Region V  
Ralph Metcalfe Federal Building  
77 West Jackson Blvd.  
Chicago, IL 60604  
Shore.Debra@epa.gov



## Table of Contents

I.	Introduction .....	1
II.	Interests of Petitioners.....	3
III.	Legal Background .....	6
	A. Safe Drinking Water Act .....	6
	B. EPA’s Emergency Powers.....	6
	1. Contaminant .....	7
	2. Imminent & Substantial Endangerment.....	8
	C. Minnesota’s Authority .....	9
	D. EPA’s Authority in Minnesota.....	10
IV.	Drinking Water Contamination in the Karst Region Constitutes an Endangerment Under the SDWA and Necessitates Emergency Action by EPA.....	11
	A. The Karst Region is Particularly Susceptible to Nitrate Pollution.....	12
	B. The Karst Region Has a Documented History of Nitrate Contamination.....	14
	C. Under-Regulated Animal Feeding Operations and Industrial Row Crop Agriculture Are Dominant Land Use Activities and the Predominant Causes of Nitrate Contamination in the Karst Region .....	19
	1. CAFOs.....	20
	2. Industrial Agriculture .....	22
	D. Conditions in the Karst Region Constitute an Imminent and Substantial Endangerment to Human Health Under the SDWA.....	24
V.	Minnesota Officials Have Failed to Achieve Safe Drinking Water Quality Despite Decades of Attempting to Implement Mitigation Plans.....	27
VI.	Requested Emergency Action to Abate Ongoing and Ever-Increasing Endangerment to Human Health from Nitrate Contamination .....	31
VII.	Conclusion .....	33

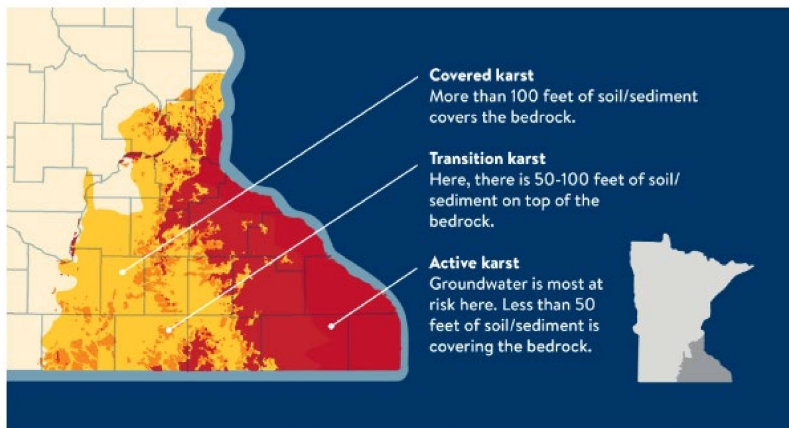
## I. Introduction

Petitioners respectfully petition the U.S. Environmental Protection Agency (EPA) to exercise its emergency powers established in Section 1431 of the Safe Drinking Water Act (SDWA), 42 U.S.C. § 300i, to address groundwater contamination that presents an imminent and substantial endangerment to the health of residents in southeastern Minnesota. Like many other parts of the Nation plagued by pollution from industrial agriculture, the residents in southeastern Minnesota are suffering from drinking water contamination. As detailed in this Petition, this region has an extensive and well-documented history of nitrate contamination in its underground sources of drinking water, which continues to put the health of residents at risk. The EPA must act now to address this too-long ignored health crisis and ensure clean drinking water for Minnesotans.

Southeastern Minnesota is particularly vulnerable to groundwater pollution due to its karst geography. According to the Minnesota Pollution Control Agency (MPCA):

Southeastern Minnesota is characterized by an unusual type of geography called karst. It features rolling hills, hollows, caves, sinkholes, and dramatic bluffs and valleys. In karst landscapes, the distinction between groundwater and surface water is blurry. . . . [C]ontaminated surface water can easily become groundwater pollution, and pose a health risk to those using it for drinking.<sup>1</sup>

The “karst region” of southeastern Minnesota is depicted in Figure 1 below.<sup>2</sup>



**Figure 1: Minnesota’s Karst Region**

Based on a map created by E. Calvin Alexander, Jr., Yongli Gao, and Jeff Green

<sup>1</sup> *Protecting water in karst regions*, MINN. POLLUTION CONTROL AGENCY, <https://www.pca.state.mn.us/air-water-land-climate/protecting-water-in-karst-regions> (last visited Apr. 13, 2023).

<sup>2</sup> *Id.*

The karst region<sup>3</sup> is a predominantly rural area of the State where many people rely on private wells, rather than public water supplies, for their drinking water.<sup>4</sup> All drinking water in this region – public and private – comes from groundwater aquifers. The population of the eight counties comprising this region is 380,513.<sup>5</sup> About 300,000 people in this area rely on community water systems while the remaining 80,000 use wells.<sup>6</sup> It is important to note that the populations more likely to be affected by nitrate contamination are people living in small towns, who are dependent on community water systems and private wells and who are also more likely to be of lower income.<sup>7</sup> The karst region of Minnesota is a community overburdened by pollution. The Administrator has called on EPA to strengthen the enforcement of cornerstone environmental statutes in these communities.<sup>8</sup>

This Petition is based on data that have been compiled by the Minnesota Department of Agriculture (MDA), the Minnesota Department of Health (MDH), the Minnesota Pollution Control Agency (MPCA), the Minnesota Department of Natural Resources (MDNR), Petitioner Minnesota Well Owners Organization, and Petitioner Environmental Working Group. The data demonstrate that nitrate concentrations in

---

<sup>3</sup> The karst region does not follow county lines, but for purposes of data analysis, this Petition uses the eight counties of Dodge, Fillmore, Goodhue, Houston, Mower, Olmsted, Wabasha, and Winona as a substitute. These counties are all fully within what is considered the karst region.

<sup>4</sup> For information on community water systems in Minnesota that rely on groundwater see *Interactive Map: Community Water Systems*, MINN. DEP'T OF HEALTH, <https://mndata.maps.web.health.state.mn.us/interactive/cwss.html> (last visited Apr. 13, 2023). For further data on private wells in Minnesota, see *Minnesota Well Index*, MINN. DEP'T OF HEALTH, <https://mnwellindex.web.health.state.mn.us/#> (last visited Apr. 13, 2023).

<sup>5</sup> See *Minnesota Demographics*, CUBIT PLANNING, [https://www.minnesota-demographics.com/counties\\_by\\_population](https://www.minnesota-demographics.com/counties_by_population) (last visited Apr. 13, 2023).

<sup>6</sup> The population served by each community water system in the eight-county region system can be determined by clicking on MDH's water system map, see *Interactive Map: Community Water Systems*, MINN. DEP'T OF HEALTH, <https://mndatamaps.web.health.state.mn.us/interactive/cwss.html> (last visited Apr. 13, 2023).

<sup>7</sup> *Tap Water for 500,000 Minnesotans Contaminated With Elevated Levels of Nitrate*, ENV'T WORKING GRP. (Jan. 14, 2020), [https://www.ewg.org/interactive-maps/2020\\_nitrate\\_in\\_minnesota\\_drinking\\_water\\_from\\_groundwater\\_sources/](https://www.ewg.org/interactive-maps/2020_nitrate_in_minnesota_drinking_water_from_groundwater_sources/) [hereinafter EWG Tap Water Report]; see also *Interactive Maps: Poverty in Minnesota counties*, MINN. DEP'T OF HEALTH, <https://mndatamaps.web.health.state.mn.us/interactive/poverty.html> (last visited Apr. 14, 2023).

<sup>8</sup> Memorandum from Lawrence E. Starfield, Acting Assistant Adm'r of U.S. EPA, on Strengthening Enf't in Communities with Env't Just. Concerns to Office of Enf't and Compliance Assurance (Apr. 30, 2021), <https://www.epa.gov/sites/default/files/2021-04/documents/strengtheningenforcementincommunitieswithejconcerns.pdf>.

public water systems and underground sources of drinking water routinely exceed federal and state drinking water standards, putting the health of area residents at serious risk.

As explained in this Petition, the well-documented nitrate contamination of drinking water in the karst region necessitates prompt and decisive EPA emergency action under the SDWA. Elevated levels of nitrate in drinking water are known to increase the risk of a wide range of very serious health problems, including birth defects, blue-baby syndrome, various cancers, thyroid disease, and other maladies. This contamination poses an imminent and substantial threat to human health, and the problem is not getting any better.

Despite Minnesota applying for and being granted “primacy” under the SDWA, state and local officials have failed to do what is needed to correct the pervasive threat to human health. The data confirm that past voluntary measures employed by the State have been unsuccessful at reducing nitrate concentrations in crucial drinking water sources to below federal and state standards. EPA is fully empowered under the SDWA to take emergency action to protect human health in the karst region of Minnesota given present circumstances.

Because of its landscape features, groundwater quality in the karst region is largely driven by land use practices, and land use in this region is dominated by industrial row crop agriculture and feedlots. Petitioners request that EPA act to protect human health and effectuate the goals of the SDWA in the karst region of Minnesota through an investigation focused on the agricultural land uses that are most likely driving the contamination of drinking water resources. Specifically, Petitioners request that EPA issue orders, as necessary, to protect the health of people who use the drinking water, including, at a minimum, orders that require responsible contaminators to provide a free and safe alternative source of drinking water for impacted communities; orders that prohibit concentrated animal feeding operations (CAFOs) from expanding or constructing new operations until nitrate concentrations fall below unsafe levels; public notice of potential contamination events, such as manure land applications; an investigation to determine the specific entities and land use practices causing the contamination; a survey to identify public water systems, private supply wells, or ground water monitoring wells near potentially contaminated areas; monitoring of contaminants; control of the source of contaminants; and cleanup of contaminated soils endangering underground sources of drinking water. Petitioners further request that EPA seek injunctions through civil actions, as needed, to return the area’s underground aquifers to a safe and drinkable condition.

## **II. Interests of Petitioners**

Minnesota Center for Environmental Advocacy (MCEA) is a nonprofit environmental advocacy organization with offices in St. Paul and Duluth, Minnesota.

Since 1974, MCEA has defended Minnesota's natural resources, water, air and climate, and the health and welfare of Minnesotans. MCEA is driven by the principle that everyone has a right to a clean and healthy environment, and that decisions must be based on fact, science, and the law.

Environmental Working Group (EWG) is a nonprofit, nonpartisan organization that empowers people to live healthier lives in a healthier environment. For 30 years, EWG has harnessed its signature blend of research, advocacy, and unique educational tools to drive consumer choice and inspire civic action.

Minnesota Well Owners Organization (MNWOO) is a statewide nonprofit with a mission to help ensure safe drinking for Minnesota private well users who depend on groundwater for their private water systems and wells. MNWOO works with well users and partners with other non-governmental organizations, and local and state government units to build individual and community values for the protection, enhancement, and restoration of Minnesota groundwater through outreach, education, and advocacy. MNWOO's goal is to conduct free water quality screening clinics and provide professional help to connect and activate the community of well owners, land managers, water managers, and policy makers who steward Minnesota's groundwater. MNWOO seeks to remove the threats to safe drinking water on a foundation of accurate, up-to-date, and practical information that addresses the personal, community, economic, technical, legal, and policy barriers faced by private well owners seeking safe drinking water. MNWOO works to motivate private well owners and decision makers to take the individual and collective steps necessary to assure safe drinking water from all private wells for future generations.

Center for Food Safety (CFS) is a nonprofit environmental advocacy organization that aims to empower people and protect the environment from the harmful effects of industrial agriculture, including groundwater contamination from the concentration of industrial animal operations and their waste. CFS represents over a million members and supporters across the country, including over 9,000 members in Minnesota. CFS uses education, science-based advocacy, and litigation to address the negative environmental and public health effects of industrial agriculture.

Clean Up the River Environment (CURE) is a rural Minnesota nonprofit organization headquartered in the Minnesota River valley. CURE's mission is to protect and restore resilient rural landscapes and build vibrant, just, and equitable rural communities. CURE embodies three core practices: (1) awakening people's bonds with the natural world around them; (2) inclusively, strategically, and dialectically exploring issues and actions; and (3) systematically building communities of change at critical intersections of ecological and social wellbeing. Among CURE's values and guiding principles are that the capacity of communities to flourish is directly connected to the condition of the landscapes that embrace them; a moral responsibility to future generations to be good stewards of the ecosystems in which they live; and the human use

of natural resources can be regenerative and a sustainable force. CURE, with its rural roots, is aware that the Dakota and Ojibwe Nations and other rural communities, already culturally, socially, and politically marginalized, are often most impacted by climate change, clean water scarcity, and environmental degradation. While local control is important to CURE, it is equally important that there is accountability to all Minnesotans and to future generations. Because rural communities are frontline communities when it comes to pollution from industrial agriculture, CURE requests that EPA exercise its broad emergency powers, per the SDWA, to address groundwater contamination in southeastern Minnesota. Too often industrial agriculture is given a pass on protections for our land and water, putting profits over people. CURE asks EPA to step in and be a voice for those communities impacted by groundwater contamination.

Food & Water Watch (FWW) is a national, nonprofit membership organization that mobilizes regular people to build political power to move bold and uncompromised solutions to the most pressing food, water, and climate problems of our time. FWW uses grassroots organizing, media outreach, public education, research, policy analysis, and litigation to protect people's health, communities, and democracy from the growing destructive power of the most powerful economic interests. FWW has long advocated for stronger regulation of factory farm pollution and industrial agribusiness to protect farmers, rural communities, and the environment.

Friends of the Mississippi River (FMR) engages people to protect, restore and enhance the Mississippi River and its watershed in the Twin Cities region. FMR's water quality and drinking water protection work focuses on addressing agricultural contamination of surface water and groundwater with a goal of ensuring all Minnesotans have access to clean, safe, and healthy waters.

For over 100 years, the Izaak Walton League has fought for clean air and water, healthy fish and wildlife habitat, and conserving special places for future generations. It was the first conservation organization with a mass membership. Today, the League plays a unique role in supporting citizens locally and shaping conservation policy nationwide. The League is a grass roots member organization that has led efforts for clean water legislation achieving initial success with the passage of federal water pollution acts in 1948, 1956 and finally the Clean Water Act of 1972. The League continues to advocate for preserving wetlands, protecting wilderness, and promoting soil and water conservation. Its Save Our Streams (SOS) program involves activists in all fifty states in monitoring water quality. The Minnesota Division of the Izaak Walton League of America is composed of 16 chapters located throughout the state of Minnesota. The League's broader mission is to conserve, restore, and promote the sustainable use and enjoyment of our natural resources, including soil, air, woods, waters, and wildlife. More specifically in regard to groundwater, by a resolution passed at the 1988 Annual Meeting, the Division went on record pointing out the need for better protection and management of the state's groundwater. While some protections have been put in place at the state

level, it is clear that these have been inadequate. Greater federal protections are urgently needed.

Land Stewardship Project (LSP) is a private, nonprofit organization founded in 1982 to foster an ethic of stewardship for farmland, to promote sustainable agriculture, and to develop healthy communities. LSP is dedicated to creating transformational change in our food and farming system. LSP's work has a broad and deep impact, from new farmer training and local organizing to federal policy and community-based food systems development. At the core of all of LSP's work are the values of stewardship, justice, and democracy.

Minnesota Trout Unlimited (MNTU) is a nonprofit, nonpartisan conservation organization working to protect, restore, and sustain the watersheds and groundwater sources that support coldwater fisheries. For more than 60 years our members have advocated for clean water, both for recreational benefits and drinking. Minnesota trout streams are protected as Class 1 drinking water sources due to their close connection to groundwater. Nitrate contamination of southeast Minnesota groundwater and trout streams not only harms humans, but also the aquatic organisms on which these ecosystems depend. MNTU's several thousand Minnesota members regularly fish southeast streams and drink the water drawn from area aquifers.

Public Health Law Center (PHLC) is a nonprofit law and policy organization working to advance equitable public health policies through the power of law. For over 20 years, PHLC has fought to regulate and eliminate commercial tobacco, promote healthy food, support physical activity, and improve environmental health as a means of reducing chronic disease. PHLC partners with Tribal health leaders, federal agencies, health advocacy organizations, state and local governments, and many others to combat systems of institutional racism and create healthier communities across the country.

### **III. Legal Background**

#### **A. Safe Drinking Water Act**

Congress enacted the SDWA as a powerful tool for protecting drinking water resources throughout the United States. Under the Act, EPA may delegate duties to state authorities to develop policies, regulations, and programs to ensure access to safe drinking water. On the federal level, the SDWA "requires EPA to protect the public from . . . drinking water contaminants."<sup>9</sup>

---

<sup>9</sup> *City of Portland v. Env't Prot. Agency*, 507 F.3d 706, 709 (D.C. Cir. 2007).

States may apply for, and EPA may delegate, “primacy” to states, which shifts significant authority and responsibility to state officials to implement the SDWA.<sup>10</sup> To assume primacy, the state is supposed to adopt regulations at least as stringent as EPA’s national requirements, develop adequate procedures for enforcement and levying penalties, conduct inventories of water systems, maintain records and compliance data, and develop a plan for providing safe drinking water under emergency conditions.<sup>11</sup> While a state granted primacy has responsibility to implement the SDWA’s provisions in that state, EPA retains emergency powers under Section 1431 of the SDWA to take actions necessary to abate imminent and substantial endangerment to the health of persons caused by drinking water contamination when state officials have failed to effectively do so on their own.

## **B. EPA’s Emergency Powers**

For EPA to exercise its Section 1431 authority, two conditions must be met. First, EPA must have received “information that a contaminant which is present in or likely to enter a public water system or an underground source of drinking water . . . may present an imminent and substantial endangerment to the health of persons.”<sup>12</sup> Second, EPA must have received information that “appropriate State and local authorities have not acted to protect the health of such persons” in a timely and effective manner.<sup>13</sup>

### **1. Contaminant**

The SDWA defines a contaminant as “any physical, chemical, biological, or radiological substance or matter in water.”<sup>14</sup> While this broad definition does not require a substance to be regulated under the Act in order to be classified as a “contaminant,” nitrate is listed as a contaminant with an established maximum contaminate level (MCL) of 10 mg/L.<sup>15</sup> An MCL is the “maximum permissible level of a contaminant in water which is delivered to any user of a public water system.”<sup>16</sup> MCLs are promulgated after a determination by EPA based on the best available, peer-reviewed science and data that the regulation of the contaminant will reduce a threat to public health.<sup>17</sup> Establishing

---

<sup>10</sup> 42 U.S.C. § 300g-2; 40 C.F.R. §§ 142.10–142.19 (primacy enforcement responsibility).

<sup>11</sup> ELENA H. HUMPHREYS & MARY TIEMANN, CONG. RES. SERV., RL31243, SAFE DRINKING WATER ACT (SDWA): A SUMMARY OF THE ACT & ITS MAJOR REQUIREMENTS 7 (2021), <https://sgp.fas.org/crs/misc/RL31243.pdf>.

<sup>12</sup> 42 U.S.C. § 300i; *see also* U.S. ENV’T PROT. AGENCY, UPDATED GUIDANCE ON EMERGENCY AUTHORITY UNDER SECTION 1431 OF THE SDWA 8 (2018) [hereinafter EMERGENCY AUTHORITY GUIDANCE].

<sup>13</sup> 42 U.S.C. § 300i; *see also* EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 12-13.

<sup>14</sup> 42 U.S.C. § 300f(6).

<sup>15</sup> 40 C.F.R. § 141.62(b).

<sup>16</sup> 42 U.S.C. § 300f(3).

<sup>17</sup> 42 U.S.C. §§ 300g-1(b)(1)(A), (b)(3)(A).



nationwide, health-based MCLs is central to EPA's role in protecting drinking water under the SDWA.<sup>18</sup>

The MCL for nitrate was set at 10 mg/L to protect against blue-baby syndrome; however, recent studies have shown that even lower levels of nitrate can cause other health effects, including cancer and reproductive harm.<sup>19</sup> For example, recent studies have found statistically significant increased risks of colorectal cancer at drinking water levels far below the current MCL of 10 mg/L.<sup>20</sup>

## 2. Imminent & Substantial Endangerment

An endangerment from a contaminant is "imminent" if conditions that give rise to it are present, even if the actual harm may not be realized for years.<sup>21</sup> Courts have established that an "imminent hazard" may be declared at any point in a chain of events that may ultimately result in harm to the public.<sup>22</sup> Information presented to EPA need not demonstrate that residents are actually drinking contaminated water and becoming ill to warrant EPA exercising its Section 1431 emergency authority.<sup>23</sup> In other words, an actual injury need not have occurred for EPA to act, and to wait for such actual injury to befall the public would be counter to the precautionary intent behind the SDWA. Thus, while the threat or risk of harm must be "imminent" for EPA to act, actual and documented harm itself need not be.<sup>24</sup> While endangerments are readily determined to be imminent where MCL violations expose sensitive populations to a contaminant, contaminants that lead to chronic health effects may also cause "imminent endangerment."<sup>25</sup> In such cases, it is appropriate to consider the length of time a population has been or could be exposed to a contaminant.<sup>26</sup>

An endangerment is "substantial" "if there is a reasonable cause for concern that someone may be exposed to a risk of harm."<sup>27</sup> For instance, Congress has deemed an

---

<sup>18</sup> 42 U.S.C. § 300g-1(b)(4)(B).

<sup>19</sup> See, e.g., Mary. H. Ward et al., *Drinking Water Nitrate and Human Health: An Updated Review*, 15 INT'L J. ENV'T RSCH. & PUB. HEALTH 1557 (2018); Alexis Temkin et al., *Exposure-Based Assessment and Economic Valuation of Adverse Birth Outcomes and Cancer Risk Due to Nitrate in United States Drinking Water*, 176 ENV'T RSCH. 108442 (2019).

<sup>20</sup> See, e.g., Jorg Schullehner et al., *Nitrate in Drinking Water and Colorectal Cancer Risk: A Nationwide Population-Based Cohort Study*, 143 INT'L J. CANCER 73 (2018).

<sup>21</sup> EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 8 (citing *United States v. Conservation Chem. Co.*, 619 F. Supp. 162, 193-94 (W.D. Mo. 1985)).

<sup>22</sup> *Id.* n.15 (citing cases).

<sup>23</sup> See *Trinity Am. Corp. v. Env't Prot. Agency*, 150 F.3d 389, 399 (4th Cir. 1998).

<sup>24</sup> EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 8.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.* at 11.

endangerment sufficiently substantial where a substantial likelihood exists that contaminants capable of causing adverse health effects will be ingested by consumers if preventative action is not taken.<sup>28</sup> As with imminence, EPA has made clear that actual reports of human illness resulting from contaminated drinking water are not necessary to establish substantial endangerment.<sup>29</sup>

### C. Minnesota’s Authority

Minnesota has several state agencies with jurisdiction over the quality of underground sources of drinking water: MDH, MDA, and MPCA are the primary ones. The graphic below shows the differing roles of these agencies.<sup>30</sup>

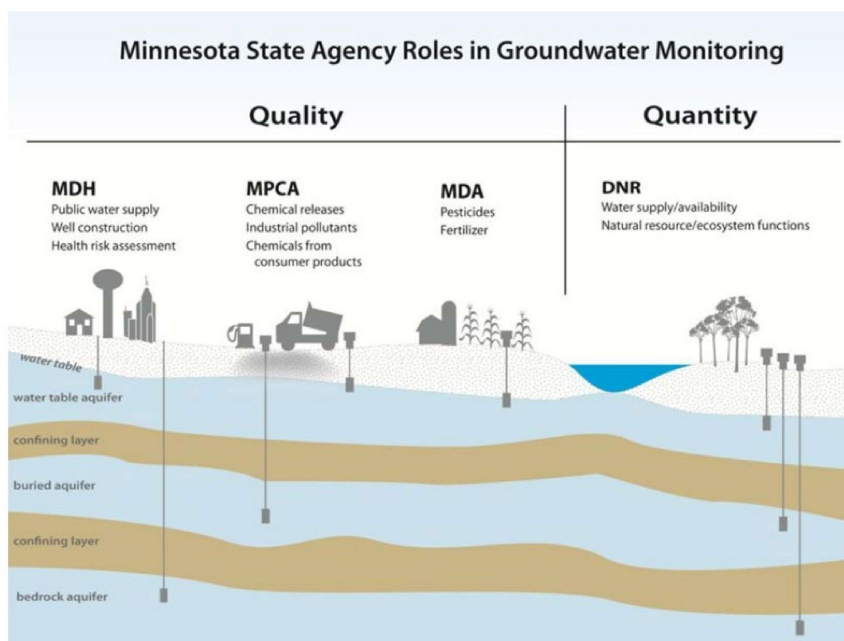


Figure 2: Agency Roles in Groundwater

<sup>28</sup> See H.R. REP. NO. 93-1185, at 35-36 (1974).

<sup>29</sup> See EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 11 (citing *United States v. North Adams*, 777 F. Supp. 61, 84 (D. Mass. 1991)).

<sup>30</sup> SHARON KROENING & SOPHIA VAUGHAN, MINN. POLLUTION CONTROL AGENCY, CONDITIONS OF MINNESOTA’S GROUNDWATER QUALITY 2013-2017, 4 (2019), <https://www.pca.state.mn.us/sites/default/files/wq-am1-10.pdf> [hereinafter MPCA GROUNDWATER QUALITY 2013-2017]. The graphic also depicts the MDNR, which controls water appropriation and has a role in agricultural drainage projects that affect public waters. MDNR also conducts some groundwater monitoring as part of its County Geologic Atlas program.

The MDH administers the Minnesota Well Code for the construction of new wells and borings<sup>31</sup> and Minnesota's SDWA.<sup>32</sup> EPA granted Minnesota primacy under the federal SDWA in 1976.<sup>33</sup> Although the SDWA allows states to set higher standards than the federal minimum, Minnesota state law sets the drinking water quality standard for nitrate at the same level as the federal standard: 10 mg/L.<sup>34</sup> Public water systems with nitrate levels over 10 mg/L must notify people who receive water from them.<sup>35</sup>

The MPCA's authority extends to discharges from point sources under its water pollution control laws.<sup>36</sup> Point sources include animal feeding operations, which, as discussed below, are a significant contributor of nitrate pollution to groundwater in the karst region. The MPCA regulates animal feeding operations with more than 1,000 animal units through the issuance of National Pollution Discharge Elimination System (NPDES) permits,<sup>37</sup> but smaller farms are unregulated. Finally, the MDA has statutory authority under the Minnesota Groundwater Protection Rule to regulate the use of pesticides and commercial fertilizer.<sup>38</sup>

#### **D. EPA's Authority in Minnesota**

Despite Minnesota's primacy under the SDWA, EPA retains emergency powers to abate present or likely contamination of public water systems (PWS) or underground sources of drinking water (USDW) when such contamination poses an imminent and substantial threat to human health and the state "ha[s] not acted to protect the health of [endangered] persons."<sup>39</sup>

EPA's Section 1431 authority extends to contaminated USDW and PWS that pose a threat to human health,<sup>40</sup> including sources that supply private wells.<sup>41</sup> EPA defines USDW as an aquifer or part of an aquifer "(1) [w]hich supplies any public water systems; or (2) which contains a sufficient quantity of ground water to supply a public water system; and (i) currently supplies drinking water for human consumption."<sup>42</sup> PWS are

---

<sup>31</sup> MINN. R. 4725.0500–4725.7605.

<sup>32</sup> MINN. STAT. §§ 144.381–144.387.

<sup>33</sup> MINN. DEP'T OF HEALTH, MINNESOTA DRINKING WATER ANNUAL REPORT FOR 2021 2 (2022), <https://www.health.state.mn.us/communities/environment/water/docs/report21.pdf>.

<sup>34</sup> MINN. R. 4720.0350 (adopting national standards by reference).

<sup>35</sup> MINN. STAT. § 144.385.

<sup>36</sup> MINN. STAT. § 115.03.

<sup>37</sup> MINN. R. 7020.2003, subp. 2(B).

<sup>38</sup> MINN. STAT. § 103H.275; MINN. R. 1573.0010–1573.0090.

<sup>39</sup> 42 U.S.C. § 300i(a).

<sup>40</sup> *Id.*

<sup>41</sup> EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 7-8.

<sup>42</sup> 40 C.F.R. § 144.3.

aquifers that provide water for human consumption and “ha[ve] at least fifteen service connections or regularly serve[] at least twenty-five individuals.”<sup>43</sup> The drinking water for the hundreds of thousands of residents of the karst region of Minnesota comes from either private or community wells that rely on groundwater. The underground aquifers that supply these wells therefore qualify as USDW and PWS within the purview of the SDWA.

To abate endangerment to human health that arises despite a state’s efforts to curtail it, Congress authorized EPA to, among other things, issue “such orders as may be necessary to protect the health of persons who are or may be users of” the affected drinking water supplies and to commence civil enforcement actions against entities causing threats to public health by contaminating drinking water supplies.<sup>44</sup> Petitioners ask EPA to use that authority here.

#### **IV. Drinking Water Contamination in the Karst Region Constitutes an Endangerment under the SDWA and Necessitates Emergency Action by EPA**

Nitrate contamination in Minnesota’s karst region is a widespread issue that has stubbornly persisted through decades as state officials continuously fail to effectively address the problem. “Nitrate contamination of surface water and groundwater is a long-standing issue in the region. Impacts to municipal and private drinking water supplies by nitrate are widespread and well-documented.”<sup>45</sup> According to MPCA, “[t]rends from the past 10, 20, and 40 years show that statewide . . . nitrate concentrations have generally been increasing.”<sup>46</sup> Figure 3 is a MPCA graphic which shows that there are no areas of the state where nitrate trends in surface water have decreased between 2008 and 2017.<sup>47</sup> The main contributors to this problem are large-scale animal agriculture facilities and industrial row-crop agriculture which dominate land use within the area and that are not effectively addressed by existing regulations and policies promoting voluntary actions.

---

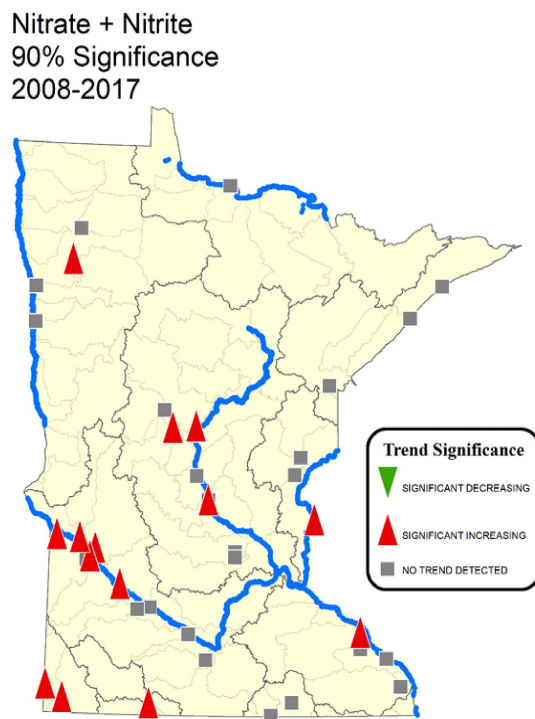
<sup>43</sup> 42 U.S.C. § 300f(4)(A).

<sup>44</sup> EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at Attach. 2.

<sup>45</sup> ANTHONY C. RUNKEL ET AL., GEOLOGIC CONTROLS ON GROUNDWATER AND SURFACE WATER FLOW IN SOUTHEASTERN MINNESOTA AND ITS IMPACT ON NITRATE CONCENTRATIONS IN STREAMS, MINN. GEOLOGIC SURV., 4 (2013) [hereinafter RUNKEL 2013].

<sup>46</sup> DAVE WALL ET AL., MINN. POLLUTION CONTROL AGENCY, 5-YEAR PROGRESS REPORT ON MINNESOTA’S NUTRIENT REDUCTION STRATEGY 17 (2020), <https://www.lrl.mn.gov/docs/2021/other/210420.pdf> [hereinafter 5-YEAR PROGRESS REPORT].

<sup>47</sup> *Id.*



**Figure 3: 5-year Progress on Nitrate**

Emergency action by EPA is necessary to address the dangerous levels of nitrate in the karst region because the contamination poses an imminent and substantial risk to the health of more than 380,000 residents who rely on groundwater, and because Minnesota officials have failed to improve drinking water quality, despite knowing about the problem, for over 40 years.<sup>48</sup>

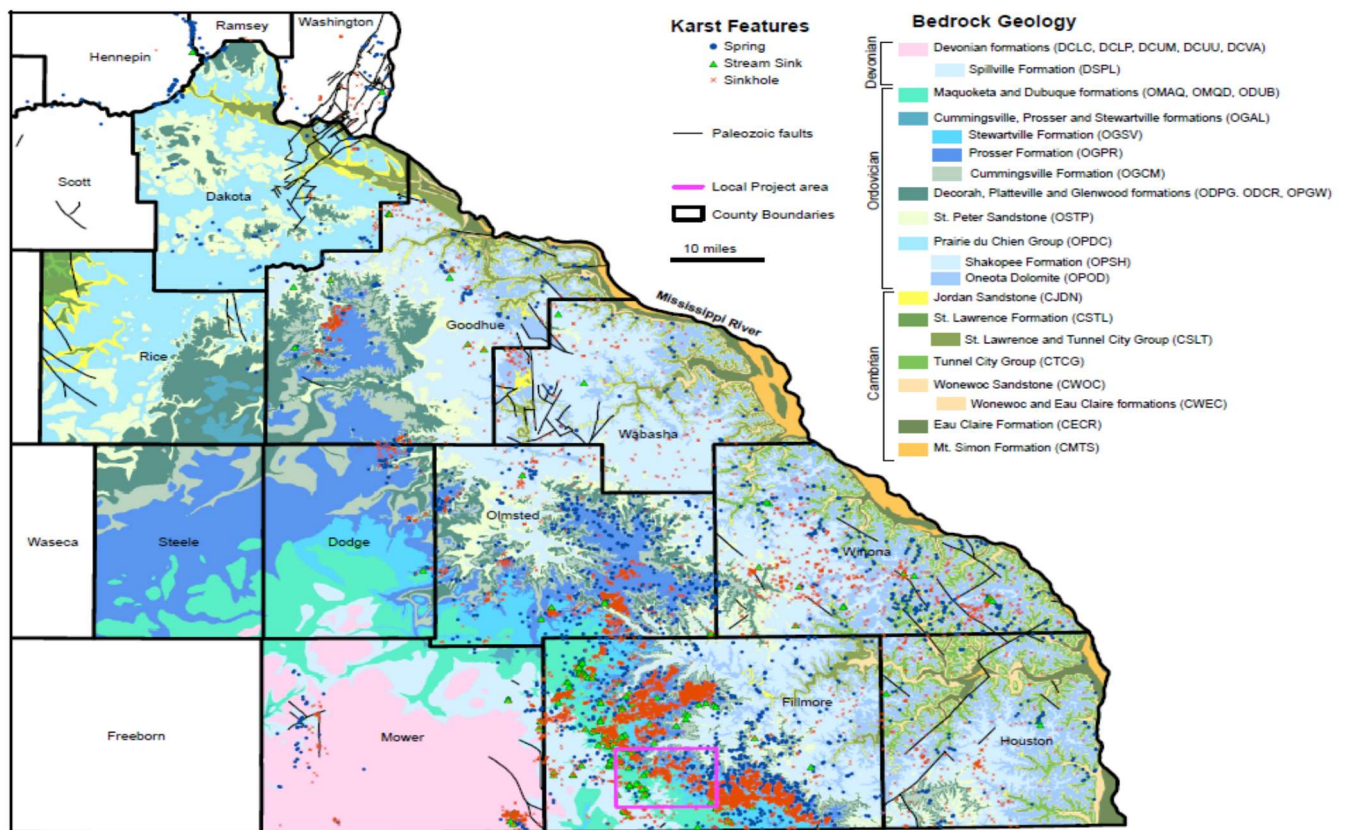
#### **A. The Karst Region is Particularly Susceptible to Nitrate Pollution**

Groundwater in the karst region is vulnerable to contamination because of the fluid interaction between groundwater and surface water. The rapid movement of water in and out of the ground in this region leaves a blurry distinction between groundwater and surface water that is compounded by Minnesota’s multi-agency approach to drinking water policies, regulation, and funding. Specific karst features such as stream sinks and sinkholes that inject water into the ground and the springs that discharge groundwater to the surface are depicted in Figure 4.<sup>49</sup> “[N]ot only does karst aquifer groundwater flow rapidly (flows have been measured in miles per day versus the inches, or feet, per year common to sandstones), but contaminants in the groundwater are not

<sup>48</sup> 5-YEAR PROGRESS REPORT, *supra* note 46, at 17.

<sup>49</sup> RUNKEL 2013, *supra* note 45, at Fig. 3.

readily filtered out. As a result, contaminants can reach domestic wells located miles from the source of contamination.”<sup>50</sup>



**Figure 4: Karst Features**

Nitrate pollution is particularly troublesome because nitrate is mobile in groundwater.<sup>51</sup> Nitrate mobility in karst regions can be largely determined by rainfall frequency and intensity.

Recent research indicates that up to 80% of nitrate loading in karst regions can be traced to fertilizers that are quickly flushed from soils into the karst and groundwater

<sup>50</sup> JEFFREY ST. ORES ET AL., GROUNDWATER POLLUTION PREVENTION IN SOUTHEAST MINNESOTA’S KARST REGION, 465 UNIV. OF MINN. EXTENSION BULL. 6 (1982), [https://conservancy.umn.edu/bitstream/handle/11299/169069/mn\\_2000\\_eb\\_465.pdf?sequence=1](https://conservancy.umn.edu/bitstream/handle/11299/169069/mn_2000_eb_465.pdf?sequence=1) [hereinafter ORES 1982].

<sup>51</sup> MINN. POLLUTION CONTROL AGENCY, EFFECTS OF LIQUID MANURE STORAGE SYSTEM ON GROUNDWATER QUALITY 3 (2001), <https://www.pca.state.mn.us/sites/default/files/rpt-liquidmanurestorage.pdf>.

systems during rain events.<sup>52</sup> Water carries the excess nitrogen from fertilizers on the surface through the soil column and into the fractured karst bedrock, where oxygenated conditions facilitate conversion of nitrogen to nitrate.<sup>53</sup> Combining nitrogen intensive land uses with the karst region's heightened vulnerability to nitrate contamination is a major hazard.

As a result, "[g]roundwater in uppermost bedrock units, especially on the karstic plateaus that dominate the landscape of southeastern Minnesota, is typically nitrate-enriched, with concentrations commonly between 5-15 ppm."<sup>54</sup> Rural communities are particularly at risk since private wells are more likely to draw from shallow aquifers than public water systems, which can pull water from deeper wells and multiple sources.<sup>55</sup>

Minnesota officials have been aware of the vulnerability of this region for at least 80 years. "S.P. Kingston, a former Minnesota health official, noted in 1943 that the regional groundwater system in southeast Minnesota is particularly vulnerable to contamination from many sources."<sup>56</sup> And nitrate was identified as one of the contaminants of concern as early as 1982: "Many shallow wells in southeast Minnesota contain coliform bacteria and high nitrate levels—both indicators of possible contamination."<sup>57</sup> The evidence of nitrate contamination in the groundwater of this region is robust.

## **B. The Karst Region Has a Documented History of Nitrate Contamination**

The karst region has an extensive history with nitrate contamination in groundwater aquifers. Although nitrate is a naturally occurring substance, the presence of nitrate in groundwater at concentrations above 3 parts per million or milligrams per liter is not natural and indicates an anthropogenic source of the nitrate.<sup>58</sup>

---

<sup>52</sup> Fu-Jun Yue et al., *Rainfall and Conduit Drainage Combine to Accelerate Nitrate Loss from a Karst Agroecosystem: Insights from a Stable Isotope Tracing and High-Frequency Nitrate Sensing*, 186 WATER RESCH. 116388 (2020), <https://doi.org/10.1016/j.watres.2020.116388>.

<sup>53</sup> PHILIP MONSON, MINN. POLLUTION CONTROL AGENCY, AQUATIC LIFE WATER QUALITY STANDARDS DRAFT TECHNICAL SUPPORT DOCUMENT FOR NITRATE 1 (2022), <https://www.pca.state.mn.us/sites/default/files/wq-s6-13.pdf>.

<sup>54</sup> RUNKEL 2013, *supra* note 45, at 59.

<sup>55</sup> *Learn About Private Water Wells*, ENV'T PROT. AGENCY (Mar. 1, 2023), <https://www.epa.gov/privatewells/learn-about-private-water-wells>.

<sup>56</sup> ORES 1982, *supra* note 50, at 3.

<sup>57</sup> *Id.*

<sup>58</sup> *Nitrate in Drinking Water*, MINN. DEP'T OF HEALTH (DEC. 8, 2022), <https://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.html>.

Regular sampling of wells to detect nitrate began over 30 years ago. Fifty-five wells in Winona County were first sampled in 1990 and 1991.<sup>59</sup> Twenty-five of the well samples were taken from the shallower Prairie du Chien aquifer and 30 were from the deeper Jordan aquifer. “Nitrate concentrations exceeded the 10 mg/l drinking water standard in 48 percent of Prairie du Chien wells and 3.2 percent of Jordan wells.”<sup>60</sup> Fifteen to thirty years later, nothing had improved: testing data from wells sampled between 2005 to 2017 revealed that 49% of wells in agricultural areas of the state, installed near the water table, exceeded the MCL for nitrate.<sup>61</sup>

Petitioners present a compilation of data in this Petition that shows nitrate contamination in private wells in the karst region. The data were compiled by Petitioners EWG and MNWOO. In 2020, EWG used data from the Township Testing Program<sup>62</sup> conducted by MDA, a Volunteer Nitrate Monitoring Network,<sup>63</sup> and new well tests required by MDH since the Well Code was adopted in 1975.<sup>64</sup> EWG used the data to create an interactive map showing nitrate contamination by township.<sup>65</sup> The Township Testing Program sampled and analyzed over 32,000 private wells between 2017 and 2020. The Volunteer Nitrate Monitoring Network in the karst region began in 2008 with a network of 675 private drinking water wells. “Between February 2008 and August 2018, 13 sampling events occurred representing 5,421 samples.”<sup>66</sup> And MDH provided EWG with location data and test results for each of the 45,598 wells sampled between 2009 and 2018.<sup>67</sup> Finally, MNWOO hosts well testing clinics that allow homeowners to test their

---

<sup>59</sup> David B. Wall & Charles P. Regan, *Water Quality and Sensitivity of the Prairie du Chien-Jordan Aquifer in West-Central Winona County*, MINN. POLLUTION CONTROL AGENCY, ES1 (1991).

<sup>60</sup> *Id.*

<sup>61</sup> MPCA GROUNDWATER QUALITY 2013-2017, *supra* note 30, at 2, 15.

<sup>62</sup> MINN. DEP’T AGRIC., TOWNSHIP TESTING PROGRAM UPDATE - MAY 2022 (2022), [https://www.mda.state.mn.us/sites/default/files/docs/2022-05/ttpupdate2022\\_05.pdf](https://www.mda.state.mn.us/sites/default/files/docs/2022-05/ttpupdate2022_05.pdf) (hereinafter TOWNSHIP TESTING UPDATE 2022).

<sup>63</sup> MINN. DEP’T OF HEALTH, VOLUNTEER NITRATE MONITORING NETWORK: METHODS AND RESULTS (2012), <https://www.health.state.mn.us/communities/environment/water/docs/swp/no3methods.pdf>.

<sup>64</sup> MINN. R. 4725.0500–4725.7605.

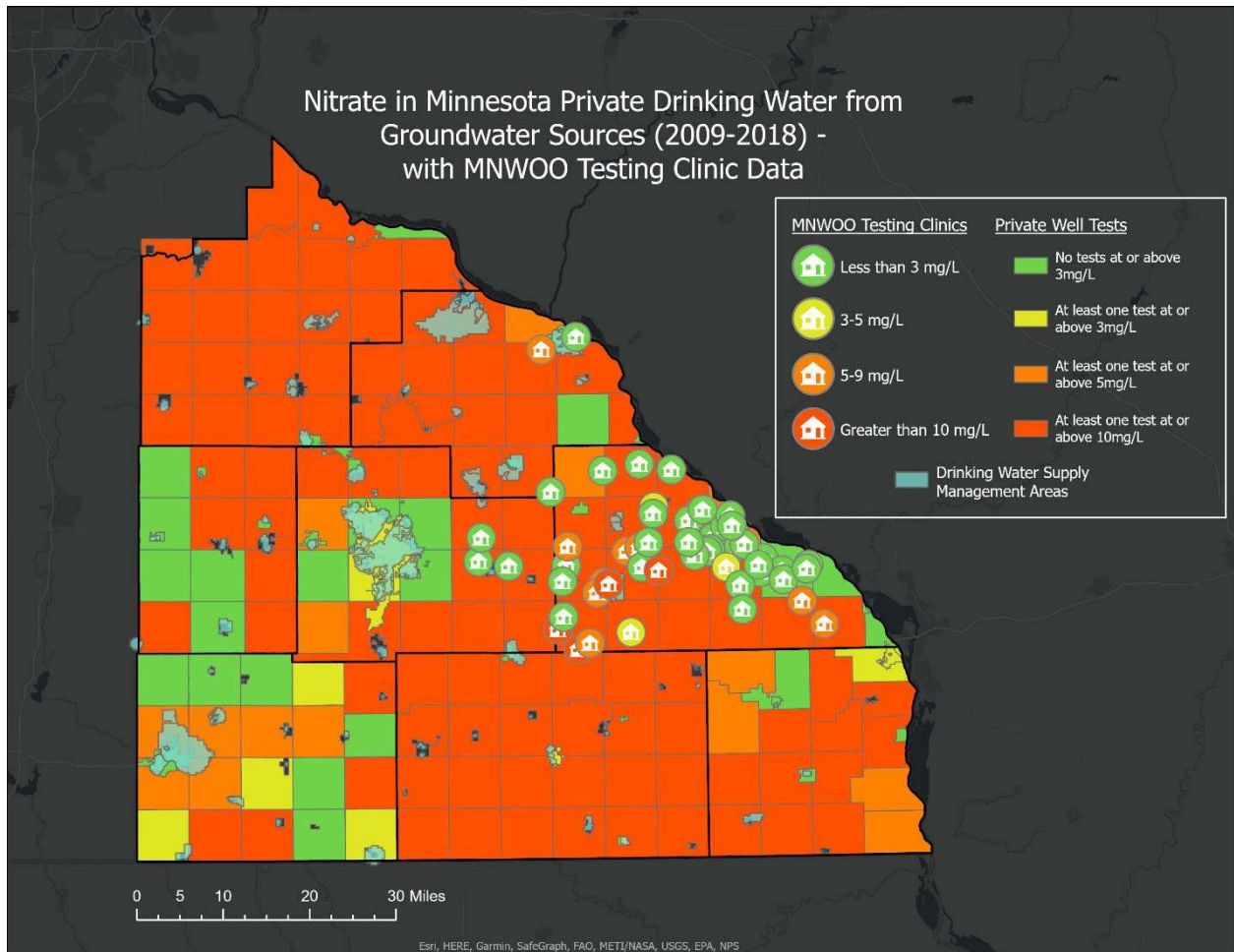
<sup>65</sup> *Interactive Map: Nitrate in Minnesota Private Drinking Water from Groundwater Sources (2009-2018)*, ENV’T WORKING GRP., <https://www.ewg.org/interactive-maps/2020-nitrate-in-minnesota-private-drinking-water-from-groundwater-sources/map/> (last visited Apr. 17, 2023).

<sup>66</sup> KIM KAISER ET AL., MINN. DEP’T OF AGRIC., NITRATE RESULTS AND TRENDS IN PRIVATE WELL MONITORING NETWORKS 2008-2018 2 (2019), <https://wrl.mnpals.net/islandora/object/WRLrepository%3A3395/datastream/PDF/view>.

<sup>67</sup> EWG Tap Water Report, *supra* note 7, at Methodology.



well water for nitrates and chlorides at no cost. MNWOO provided data from 119 different wells, from at least 24 townships from five counties in the karst region. To date, these data points do not appear in any other public record. The karst-region-specific data from these combined sources are depicted in Figure 5.



**Figure 5: Private Well Contamination**

Data from Township Testing Program, Southeast Volunteer Monitoring Network, MDH Well Index, and MNWOO clinic

Approximately 9% of the wells tested during the initial round of the Township Testing Program were found to have samples that exceeded the MCL for nitrate of 10mg/l. The multiple rounds of sampling and analysis also found a maximum nitrate concentration of 69.8 mg/L. The percentage of wells tested between 2008 and 2018 in the Volunteer Nitrate Monitoring Network (VNMN) above 10 mg/l ranged from a low of 7.5% in 2012 to a high of 14.6% in 2008. More recent data from the VNMN show that (among continuing participants) nitrate contamination continues: In 2019, 9% of wells

tested above 10 mg/l, in 2020 it was 9.4% and in 2021 it was 8.5%.<sup>68</sup> The MNWOO clinic conducted in the karst region in February 2023 showed a 6% rate of nitrate contamination above 10 mg/L.

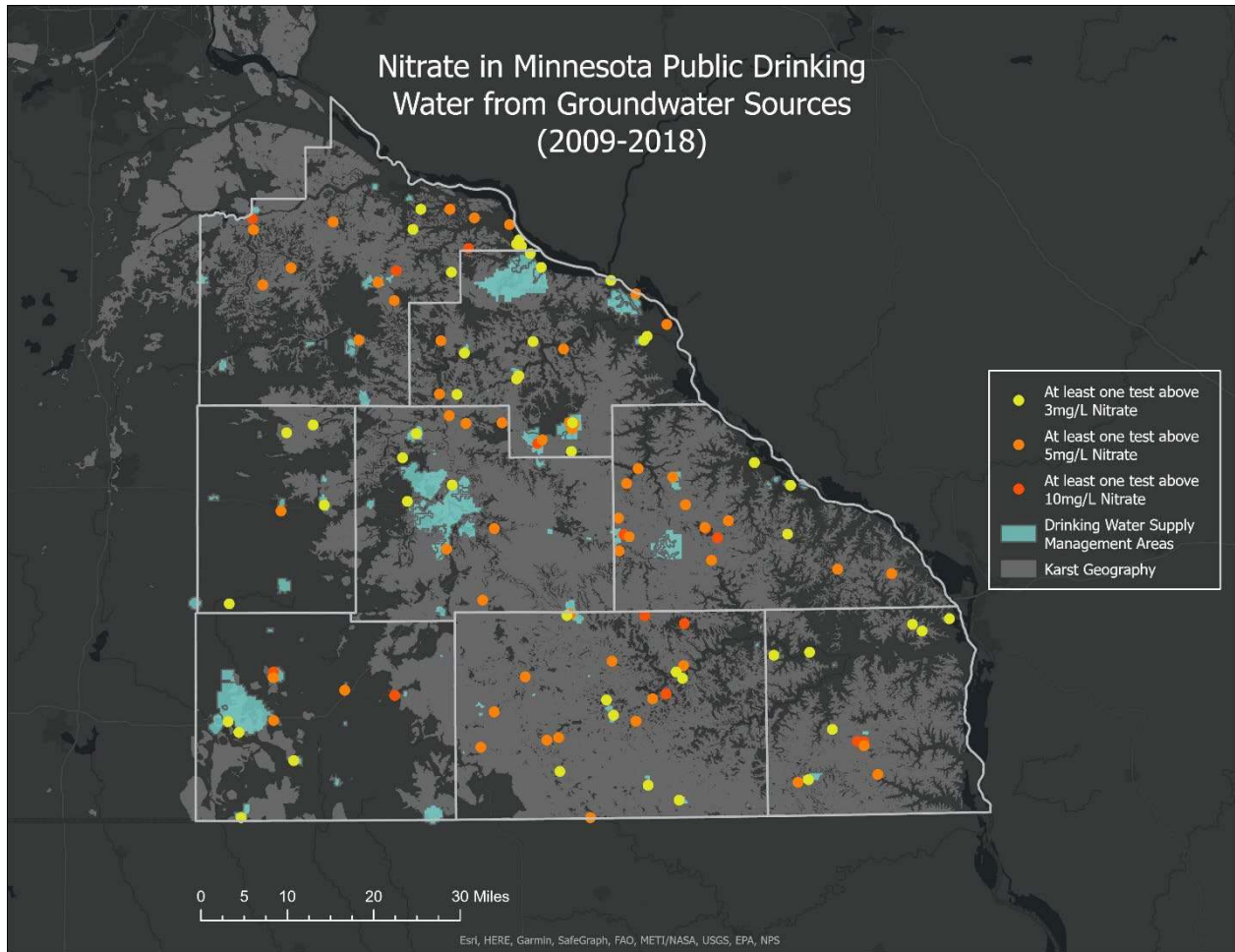
Figure 5 also depicts the location of the wells in comparison to the Drinking Water Supply Management Areas (DWSMAs). DWSMAs are defined geographic areas around public water supply wells that represent a 10-year travel time for water to reach the well. These areas are used by MDH and local communities in developing Well Head Protection Areas and are the geographic limitation for MDA's ability to protect groundwater under the Groundwater Protection Rule from commercial fertilizers and pesticides. As figure 5 demonstrates, many of the private wells in this region fall outside of a protected DWSMA. EPA needs to step in to afford private well owners protection against nitrate contamination.

It is also important to note that despite the additional protection available to protect PWS, many community water supplies with 25 or more connections to a well and many transient community water supplies like churches, campgrounds, and businesses in the area, are also affected by nitrate contamination. Petitioner EWG has also compiled Minnesota well testing data into an interactive map for public water systems,<sup>69</sup> and presents a karst-specific version of that map in Figure 6.

---

<sup>68</sup> *Southeast Minnesota Volunteer Monitoring Network*, MINN. DEP'T OF AGRIC., <https://www.mda.state.mn.us/southeast-minnesota-volunteer-nitrate-monitoring-network> (last visited Apr. 17, 2023).

<sup>69</sup> *Interactive Map: Nitrate in Minnesota Public Drinking Water from Groundwater Sources (2009-2018)*, ENV'T WORKING GRP., <https://www.ewg.org/interactive-maps/2020-nitrate-in-minnesota-public-drinking-water-from-groundwater-sources/map/> (last visited Apr. 17, 2023).



**Figure 6: Public Drinking Water Contamination**

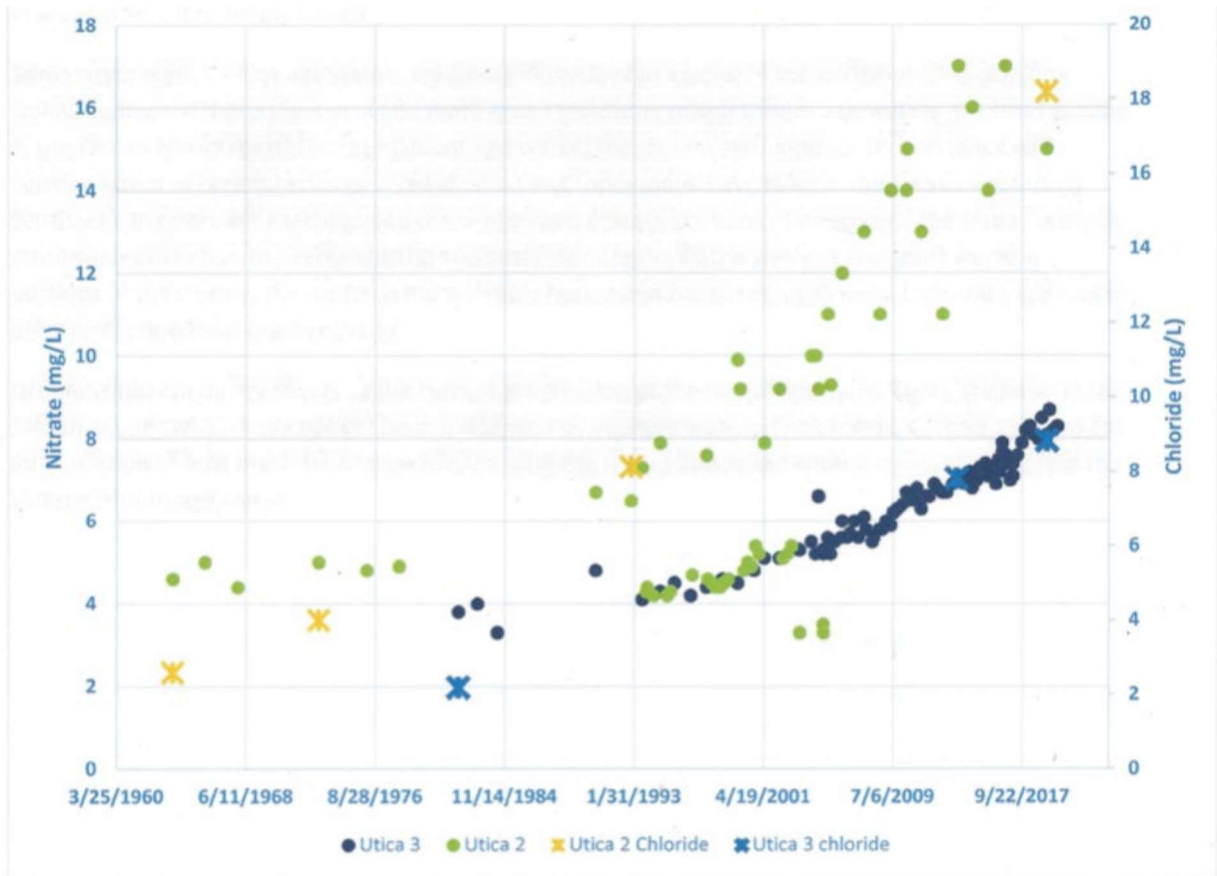
In its 2020 analysis, EWG determined that groundwater-derived drinking water for an estimated 150,000 Minnesotans is contaminated with nitrate at levels over the legal limit. For 4,178 Minnesotans, the level is more than double the legal limit.<sup>70</sup> Cities in the karst region have long struggled with high nitrate concentrations in their drinking water. For example, the city of Lewiston has dug multiple deeper wells to try to eradicate nitrate from the city’s water at a cost of approximately \$1 million per well.<sup>71</sup> Had the city pursued a treatment system, the cost would have risen to \$3.1 million, and doubled water rates for residents.<sup>72</sup>

<sup>70</sup> EWG Tap Water Report, *supra* note 7.

<sup>71</sup> Elizabeth Baier, *Even in Region with Abundant Water, Residents Turn to Bottles and Try to Conserve*, MPR NEWS (Mar. 20, 2014), <https://www.mprnews.org/story/2014/03/20/ground-level-beneath-the-surface-southeast-minnesota>.

<sup>72</sup> *Id.*

As another example, the city of Utica has two city wells, but as shown in the graph below, one well has been exceeding the 10 mg/L MCL since 2003 and is now for emergency use only. The other well, drilled in the late 1970s, began with a nitrate concentration of 3.9 mg/L, but that concentration has been steadily increasing and was as high as 8.6 mg/l in 2019.



**Figure 7: Utica City Well Contamination**

Data from Minnesota Geological Survey

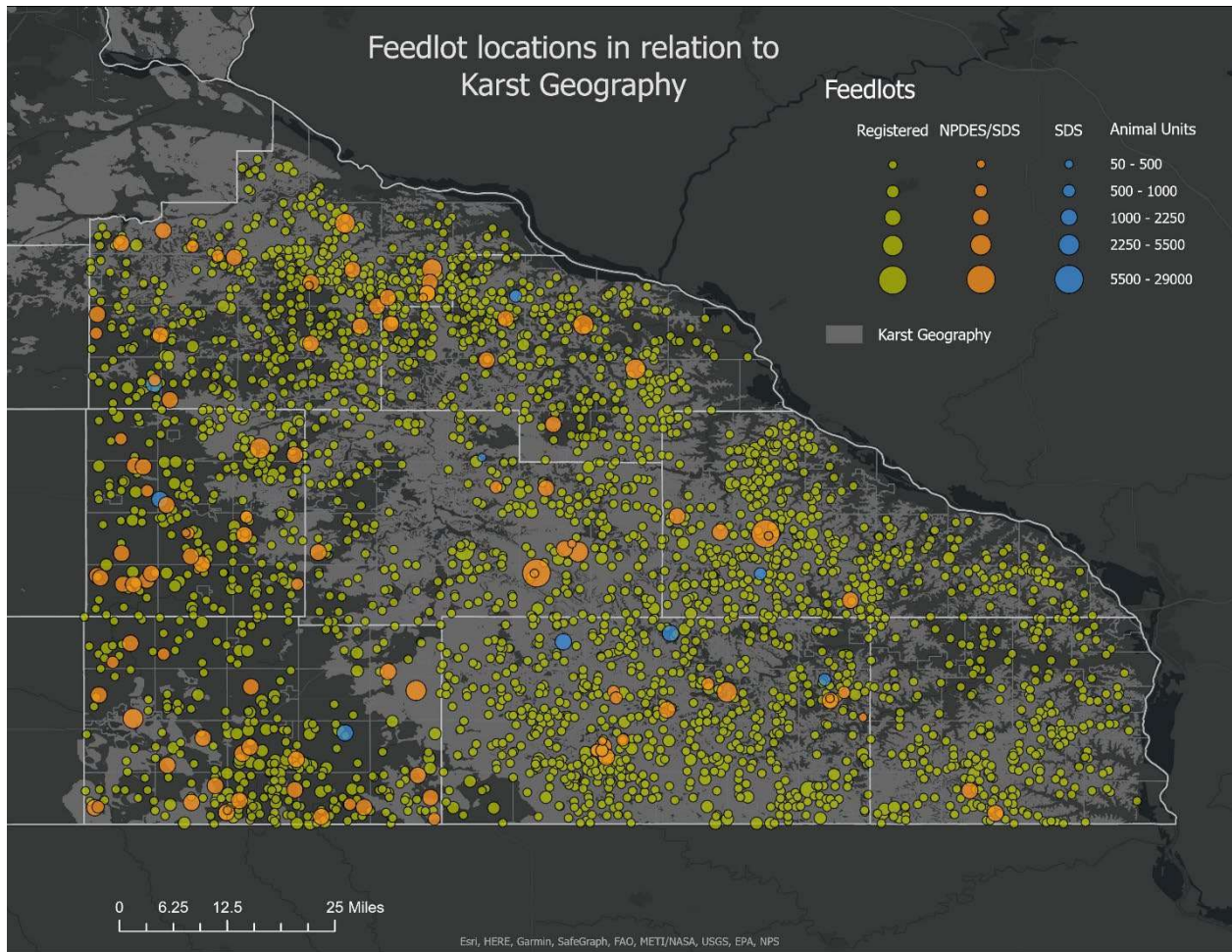
**C. Under-Regulated Animal Feeding Operations and Industrial Row Crop Agriculture Are Dominant Land Use Activities and the Predominant Causes of Nitrate Contamination in the Karst Region**

Most nitrate contamination in the karst region is caused by harmful agricultural practices on groundwater recharge areas that are not sufficiently addressed by Minnesota regulators. Despite evidence of adverse impacts on groundwater and public health caused by manure storage, the excessive or poorly timed application of manure, and animal feeding operations under MPCA, industrial row-crop agriculture under MDA, or the wellhead protections under MDH, Minnesota has had inadequate state and local regulation for decades, resulting in a public health crisis that requires emergency action

from EPA. The root cause of this pollution is public policy that makes polluting actions cheaper and easier than sustainable practices. The vast majority of farmers care deeply about stewardship of the land, but our policies do not reflect that same stewardship.

### 1. Animal Agriculture

Within the boundaries of Houston, Fillmore, Mower, Dodge, Olmsted, Wabasha, Winona, and Goodhue counties, there are currently approximately 3,170 animal feedlot operations that are required to register with MPCA’s Feedlot program, with more added every year.<sup>73</sup> In addition, as depicted in the map below, many more feedlots are located in this area that fall below the number of animal units that require a permit or registration.



**Figure 8: Karst Region Feedlots**  
Data from MPCA’s Feedlots in Minnesota Database

<sup>73</sup> *Counties Delegated to Administer the MPCA Feedlot Program*, MINN. POLLUTION CONTROL AGENCY (Apr. 2022), <https://www.pca.state.mn.us/sites/default/files/wq-f1-12.pdf>.

The counties that are subject to this Petition house approximately 500,000 dairy cow and cattle animal units and another 260,000 swine units.<sup>74</sup> And the number of feeding operations statewide is on the rise.<sup>75</sup> Current feeding operations also continue to grow: in February 2023, the Fillmore County Board of Commissioners voted unanimously to increase the county's animal unit cap from 2,000 to 4,000 animal units per feedlot.<sup>76</sup> Moreover, almost 65% of the cattle units and over 37% of the swine units are located within landscapes designated as prone to surface karst feature development by MDNR. Those numbers jump to 96% and 69% respectively if we look at facilities within one mile of areas prone to the development of surface karst features.<sup>77</sup>

The storage structures designed to contain millions of gallons of liquid manure, manure piles, and feedlot runoff, can also be significant sources of nitrogen to groundwater in this area.<sup>78</sup> Manure storage structures that are constructed in compliance with National Resource Conservation Service (NRCS) standards are actually designed to leak. According to the NRCS handbook, "properly" constructed lagoons can leak up to 5,000 gallons of manure wastewater per acre per day.<sup>79</sup> In one study conducted by MPCA, "[t]here was evidence of shallow ground water contamination down-gradient of manure storage areas at each [feedlot operation]."<sup>80</sup>

---

<sup>74</sup> *Feedlots in Minnesota*, MINN. GEOSPATIAL COMMONS, <https://gisdata.mn.gov/dataset/env-feedlots> (last visited Apr. 17, 2023).

<sup>75</sup> Sarah Porter & Craig Cox, *Manure Overload: Manure Plus Fertilizer Overwhelms Minnesota's Land and Water*, ENV'T WORKING GRP. (May 28, 2020), <https://www.ewg.org/interactive-maps/2020-manure-overload/> [hereinafter *Manure Overload*].

<sup>76</sup> Brian Todd, *Fillmore County doubles its animal unit cap for feedlots*, AGWEEK (Mar. 1, 2023), <https://www.agweek.com/news/policy/fillmore-county-doubles-its-animal-unit-cap-for-feedlots>.

<sup>77</sup> *Minnesota Regions Prone to Surface Karst Feature Development*, MINN. GEOSPATIAL COMMONS, <https://gisdata.mn.gov/dataset/geos-surface-karst-feature-devel> (last visited Apr. 17, 2023).

<sup>78</sup> MINN. POLLUTION CONTROL AGENCY, EFFECTS OF LIQUID MANURE STORAGE SYSTEMS ON GROUND WATER QUALITY-SUMMARY REPORT (2001), <https://www.pca.state.mn.us/sites/default/files/rpt-liquidmanurestorage-summary.pdf>.

<sup>79</sup> U.S. DEP'T OF AGRIC. NAT. RES. CONSERVATION SERV., AGRICULTURAL WASTE MANAGEMENT FIELD HANDBOOK, CHAPTER 10: AGRICULTURAL WASTE MANAGEMENT SYSTEM COMPONENT DESIGN App. 10D-16 (2009), <https://directives.sc.egov.usda.gov/OpenNonWebContent.aspx?content=31529.wba> ("NRCS guidance considers an acceptable initial seepage rate to be 5,000 gallons per acre per day.").

<sup>80</sup> MINN. POLLUTION CONTROL AGENCY, EFFECTS OF LIQUID MANURE STORAGE SYSTEMS ON GROUND WATER QUALITY-SUMMARY REPORT 2 (2001), <https://www.pca.state.mn.us/sites/default/files/rpt-liquidmanurestorage-summary.pdf>.

In addition to the manure storage structures themselves, manure from livestock operations in the karst region is commonly used as fertilizer for row crops in the area. When liquified manure storage systems reach capacity, operators must empty them, often by disposing of the liquified manure and process wastewater onto nearby agricultural fields, regardless of the season. These land applications of manure are one of the largest sources of nitrogen from animal feeding operations.<sup>81</sup>

The karst region includes a number of townships, such as Utica and Fremont, that have sandy soils derived from sandstone bedrock. Applications of manure to sandy soils at high agronomic rates leave nitrogen in the soil after the growing season, which then leaches into the groundwater as nitrate, endangering public health.<sup>82</sup> The townships with the highest percentages of private wells exceeding 10 mg/L nitrate concentration have sandy soils or thin soils over karst.

## 2. Industrial Agriculture

Another major contributor to the nitrate contamination is widespread industrial agriculture in the region. In the eight-county area, 73% of land cover is devoted to agriculture—60% is cropland and 13% is hay or pastureland.<sup>83</sup> This is a high concentration of agriculture for a sensitive karst landscape with a high sensitivity to groundwater contamination. In comparison, only 51% of Minnesota’s land cover is devoted to agriculture statewide.<sup>84</sup> A significant portion of this southeastern Minnesota land is related to the animal agriculture in the region: it is used to grow feed crops for

---

<sup>81</sup> *Estimated Animal Agriculture Nitrogen and Phosphorus from Manure*, ENV’T PROT. AGENCY (Jan. 11, 2023), <https://www.epa.gov/nutrient-policy-data/estimated-animal-agriculture-nitrogen-and-phosphorus-manure>.

<sup>82</sup> Michael J. Goss et al., *Chapter Five—A Review of the Use of Organic Amendments and the Risk to Human Health*, 120 *ADVANCES IN AGRONOMY* 275 (2013), <https://doi.org/10.1016/B978-0-12-407686-0.00005-1> (“Spreading manure on the land in fall or winter results in smaller recovery of applied nitrogen by the crops, while the risk of surface runoff, leaching and denitrification is greater.”) (“Leaching losses of labeled N from the manure application were considerably greater than those from the original fertilizer application in all years.”).

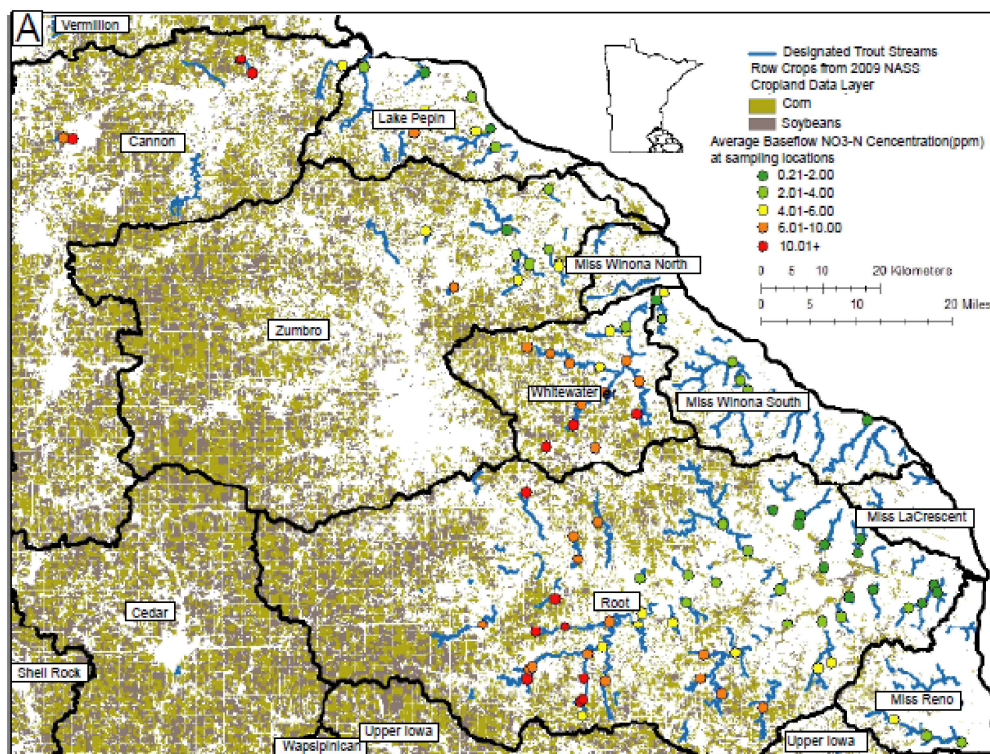
<sup>83</sup> These percentages were calculated using the Multi-Resolution Land Characteristics National Land Cover Database Enhanced Visualization Analysis Tool, *see* *MRLC NLCD EVA Tool*, MRLC, <https://www.mrlc.gov/eva/> (last visited Apr. 17, 2023).

<sup>84</sup> *Agricultural Lands*, MINN. BOARD OF WATER AND SOIL RES., <https://bwsr.state.mn.us/agricultural-lands> (last visited Apr. 17, 2023).

animals<sup>85</sup> and/or receives the application of manure and waste from the nearby CAFOs as fertilizer.

But much of this fertilizer is over-applied. EWG's modeling found that in 69 of Minnesota's 72 agricultural counties, nitrogen from manure combined with nitrogen in fertilizer exceeded the recommended agronomic rates of MPCA and the University of Minnesota.<sup>86</sup> EWG identified 13 counties in Minnesota where the percent of Nitrogen, from fertilizer and manure combined, was more than 150% of the recommended amount needed to maximize crop yields.<sup>87</sup> Five of these 13 counties are in the karst region.<sup>88</sup> The total estimated nitrogen overload in these five counties is 26,424 tons per year.<sup>89</sup>

The image below shows the coverage of corn and soybeans in the karst region along with average nitrate concentrations at areas near designated trout streams.<sup>90</sup>



**Figure 9: Industrial Agriculture and Nitrate-Contaminated Trout Streams**

<sup>85</sup> Up to 40% of domestic corn use is allocated to livestock feed. See *Feed Grains Sector at a Glance*, U.S. DEP'T OF AGRIC., <https://www.ers.usda.gov/topics/crops/corn-and-other-feed-grains/feed-grains-sector-at-a-glance/> (last visited Apr. 17, 2023).

<sup>86</sup> *Manure Overload*, *supra* note 75.

<sup>87</sup> *Id.*

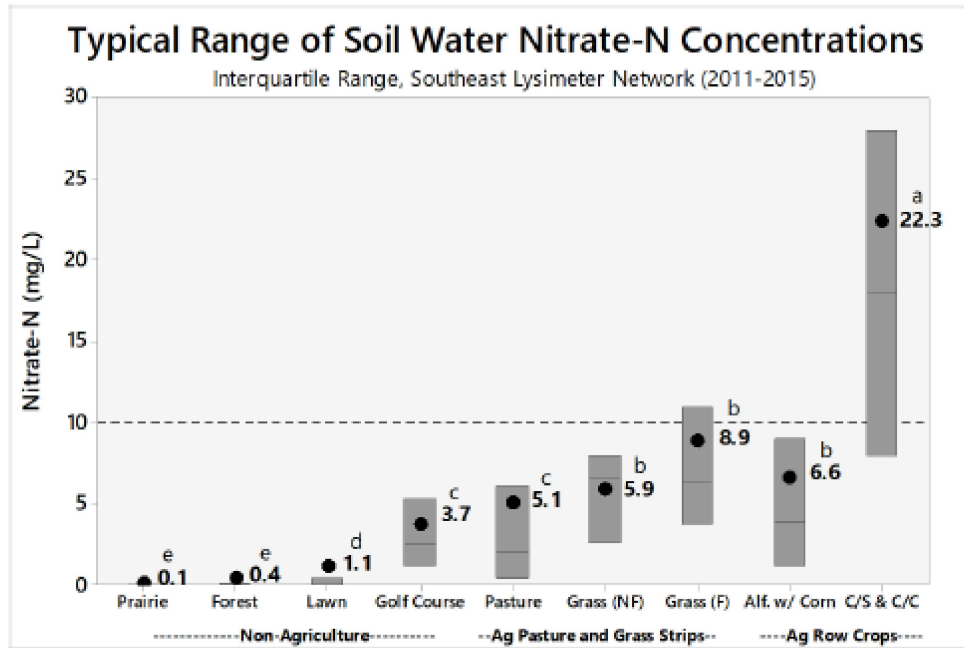
<sup>88</sup> *Id.*

<sup>89</sup> *Id.*

<sup>90</sup> RUNKEL 2013, *supra* note 45, at Fig. 37.



The correlation between land used to grow exclusively corn and soybeans and nitrate pollution is well documented. In a 2020 report, researchers at MDA found that the mean nitrate concentration of lysimeters placed on cropland that was in a constant corn or corn-soybean rotation was 22.3 mg/L.<sup>91</sup> The figure below compares this to other land uses.



**Figure 10: Land Cover and Nitrate Contamination**

As Figure 10 demonstrates, industrial agricultural land suffers from significantly more contamination than other types of land uses generating a risk to both surface and groundwater.

**D. Conditions in the Karst Region Constitute an Imminent and Substantial Endangerment to Human Health Under the SDWA**

The current levels of nitrate in drinking water in the karst region present an imminent and substantial endangerment to human health because consumption of drinking water that is contaminated with nitrate is known to cause serious health risks. Given the thousands of individuals who rely on either contaminated private wells or

<sup>91</sup> KEVIN KUEHNER ET AL., MINN. DEP'T OF AGRIC., EXAMINATION OF SOIL WATER NITRATE-N CONCENTRATIONS FROM COMMON LAND COVERS AND CROPPING SYSTEMS IN SOUTHEAST MINNESOTA KARST 14 (2020), <https://wrl.mnpals.net/islandora/object/WRLrepository%3A3654/datastream/PDF/view>.

contaminated PWS for drinking water in this region, there is reasonable cause for concern that individuals are, and will be, exposed to this risk at unhealthy concentrations.

Nitrate is plainly an endangerment to public health under the SDWA because EPA not only categorizes it as a “contaminant,”<sup>92</sup> but as an “acute contaminant” known to pose significant health risks. According to EPA, “[n]itrate is an acute contaminant, meaning that one exposure can affect a person’s health. Too much nitrate in your body makes it harder for red blood cells to carry oxygen.”<sup>93</sup> EPA previously found that nitrate levels above the MCL of 10 mg/L present an imminent and substantial endangerment to human health.<sup>94</sup>

Nitrate is a particularly insidious contaminant because it is colorless, odorless, and tasteless, meaning that people do not have a way of identifying its presence in their drinking water without testing.<sup>95</sup> MNWOO reports that at their testing clinics across the state, many of the people with high nitrate tests were unaware of the contamination and reported that they liked the taste of their well water.

Additionally, boiling nitrate-laden drinking water, as is often done in preparation of baby formula, increases the nitrate concentration of the water because nitrates do not evaporate and become more concentrated in the formula.<sup>96</sup> Shallower aquifers are both more likely to be used for private wells and are more contaminated. For example, in the karst region, the Prairie du Chien aquifer is shallower and much more nitrate contaminated than the deeper Jordan aquifer.<sup>97</sup> But deep wells can also be contaminated. For example, the well on the farm of one of MNWOO’s directors is a multi-aquifer well with a total depth of 400 feet, but the water from that well has exceed 13 mg/L nitrates for over 20 years.<sup>98</sup>

---

<sup>92</sup> 40 C.F.R. § 141.62(b).

<sup>93</sup> *Frequently Asked Questions About Nitrates & Drinking Water*, ENV’T PROT. AGENCY (Sept. 2012),

<https://nepis.epa.gov/Exe/ZyPDF.cgi/P10150PM.PDF?Dockey=P10150PM.PDF>.

<sup>94</sup> See, e.g., Administrative Order on Consent, *In the Matter of Yakima Valley Dairies*, SDWA-10-2013-0080, at 7 (Mar. 19, 2013) (finding that “above the concentration of 10 mg/L in drinking water, nitrate may present an imminent and substantial endangerment to the health of persons”), <https://www.epa.gov/sites/default/files/2017-12/documents/lower-yakima-valley-groundwater-consent-order-2013.pdf>.

<sup>95</sup> *Nitrate in Drinking Water*, MINN. DEP’T OF HEALTH (Dec. 8, 2022), <https://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.html>.

<sup>96</sup> *Frequently Asked Questions About Nitrates and Drinking Water*, ENV’T PROT. AGENCY (Sept. 2012),

<https://nepis.epa.gov/Exe/ZyPDF.cgi/P10150PM.PDF?Dockey=P10150PM.PDF>.

<sup>97</sup> RUNKEL 2013, *supra* note 45, at 45.

<sup>98</sup> Jeffrey S. Broberg, MNWOO founder and board member, personal communication.

Drinking water contaminated with nitrate has well-documented adverse health risks including a variety of cancers, “blue-baby syndrome,” and reproductive problems.<sup>99</sup> Childhood brain cancer has been linked to high nitrate levels in drinking water.<sup>100</sup> MDH also reports other potential health effects such as “increased heart rate, nausea, headaches, and abdominal cramps.”<sup>101</sup> Nitrate in water supplies has also been linked to spontaneous miscarriages and birth defects.<sup>102</sup>

The numerous studies demonstrating that a contaminant known to cause disease and illness is present at unsafe levels in wells used by tens of thousands of residents proves an unambiguous SDWA “endangerment.”

Because the present contamination of the region’s drinking water and risk of significant adverse health effects from drinking contaminated water are both thoroughly documented, endangerment is clearly imminent. As explained above, endangerment is “imminent” if conditions that give rise to it are present, even if actual harm has not already been documented in the contaminated area. Unsafe levels of nitrate contamination in the karst region drinking water supply were first identified over 30 years ago,<sup>103</sup> and recent data trends indicate that nitrate contamination is continuing at a persistent – and harmful – level.<sup>104</sup>

---

<sup>99</sup> *Nitrate in Drinking Water*, MINN. DEP’T OF HEALTH (DEC. 8, 2022), <https://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.html>;

N. BEAUDET ET AL., NITRATES, BLUE BABY SYNDROME, AND DRINKING WATER: A FACTSHEET FOR FAMILIES, PEDIATRIC ENV’T HEALTH SPECIALTY UNITS (2014), [https://ldh.la.gov/assets/op/Center-EH/envepi/PWI/Documents/PEHSU\\_Nitrates\\_Consumer\\_1.20.15\\_FINAL.pdf](https://ldh.la.gov/assets/op/Center-EH/envepi/PWI/Documents/PEHSU_Nitrates_Consumer_1.20.15_FINAL.pdf); Roberto Picetti et al., *Nitrate and Nitrate Contamination in Drinking Water and Cancer Risk: A Systematic Review with Meta-Analysis*, 210 ENV’T RSCH. 112988 (2022), <https://www.sciencedirect.com/science/article/pii/S0013935122003152#bib109>.

<sup>100</sup> A. Zumel-Marne et al., *Environmental Factors and the Risk of Brain Tumours in Young People: A Systematic Review*, 53 NEUROEPIDEMIOLOGY 121 (2019), [https://www.karger.com/Article/Fulltext/500601?utm\\_source=external&utm\\_medium=referral&utm\\_campaign=getFTR](https://www.karger.com/Article/Fulltext/500601?utm_source=external&utm_medium=referral&utm_campaign=getFTR); see also, Yanqi Xu, *Nebraska’s Dirty Water*, THE READER (Oct. 28, 2022), <https://thereader.com/2022/10/28/nebraskas-dirty-water/> (“Areas of the state that have higher pediatric cancer rates and birth defect rates also have higher nitrate levels, researchers say.”).

<sup>101</sup> *Nitrate in Drinking Water*, MINN. DEP’T OF HEALTH (DEC. 8, 2022), <https://www.health.state.mn.us/communities/environment/water/contaminants/nitrate.html>.

<sup>102</sup> Allison R. Sherris et al., *Nitrate in Drinking Water during Pregnancy and Spontaneous Preterm Birth: A Retrospective Within-Mother Analysis in California*, 129 ENV’T HEALTH PERSPECTIVES, (2021), <https://ehp.niehs.nih.gov/doi/full/10.1289/EHP8205>.

<sup>103</sup> ORES 1982, *supra* note 50.

<sup>104</sup> TOWNSHIP TESTING UPDATE 2022, *supra* note 62.

The public health risks associated with nitrate contamination in the karst region constitute a “substantial” endangerment under the SDWA. According to EPA’s updated guidance on SDWA emergency authority, an example of substantial endangerment is “a substantial likelihood that contaminants capable of causing adverse health effects will be ingested by consumers if preventative action is not taken.”<sup>105</sup> Well sampling has consistently shown elevated nitrate levels in residential drinking water wells across the karst region. Thus, residents of the karst region have been, and continue to be, ingesting this contaminant. This alone demonstrates that the endangerment is substantial.

## V. Minnesota Officials Have Failed to Achieve Safe Drinking Water Quality Despite Decades of Attempting to Implement Mitigation Plans

EPA should exercise its emergency authority under Section 1431 of the SDWA because users of USDW and PWSs in the karst region face imminent and substantial endangerment and actions by Minnesota officials have been ineffective. The chronology below describes state agencies’ recognition of, and attempts to address, the substantial and imminent endangerment posed by nitrate pollution. The persistent contamination despite these efforts demonstrates their ineffectiveness.

Minnesota enacted the Groundwater Protection Act in 1989. It was based on a growing recognition of the vulnerability of Minnesota’s groundwater resources.<sup>106</sup> In part, it was based on groundwater testing in the 1980s that showed nitrate levels exceeding the health limits in 40% of private wells tested and 7% of public wells.<sup>107</sup> It was followed closely by the development of the Nitrogen Fertilizer Management Plan by MDA in 1990.<sup>108</sup> Neither of these initiatives resulted in effective protection of Minnesota’s groundwater resources from nitrate pollution, as evidenced by the persistent contamination of private and public water supplies at or above the health risk limit.<sup>109</sup> In 2010, MDA began the process of revising the Nitrogen Fertilizer Management Plan.<sup>110</sup> The updated Nitrogen Fertilizer Management Plan was finalized by MDA in 2015 and led to the Township Testing Program discussed above. One of the objectives for the Township Testing Program was to better grasp the extent and severity of the nitrate

---

<sup>105</sup> EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 11 (explaining that an endangerment is substantial “if there is a reasonable cause of concern that someone may be exposed to a risk of harm”).

<sup>106</sup> JOHN HELLAND, MINN. H.R. RSCH. DEP’T, A SURVEY OF THE GROUNDWATER ACT OF 1989, (2001), <https://www.house.mn.gov/hrd/pubs/gdwtract.pdf>.

<sup>107</sup> *Id.*

<sup>108</sup> MINN. DEP’T OF AGRIC., NITROGEN FERTILIZER MANAGEMENT PLAN (2015, addended July 2019), [https://www.mda.state.mn.us/sites/default/files/2019-08/nfmp2015\\_addendedada\\_0.pdf](https://www.mda.state.mn.us/sites/default/files/2019-08/nfmp2015_addendedada_0.pdf) [hereinafter NITROGEN FERTILIZER MANAGEMENT PLAN].

<sup>109</sup> JOHN HELLAND, MINN. H.R. RSCH. DEP’T, A SURVEY OF THE GROUNDWATER ACT OF 1989, (2001), <https://www.house.mn.gov/hrd/pubs/gdwtract.pdf>.

<sup>110</sup> NITROGEN FERTILIZER MANAGEMENT PLAN, *supra* note 108, at ix.

contamination problem – which it did. These data were used to inform the development of the Groundwater Protection Rule, which was passed in 2019 but falls short of the regulatory response needed to address the issue for the reasons documented below.

Also in 2010, the Minnesota Legislature approved funds for MPCA to develop aquatic life water quality standards for nitrate, in recognition of the need to protect Minnesota’s aquatic life from the toxic effects of high nitrate. In response, MPCA issued its Aquatic Life Water Quality Standards Technical Support Document for Nitrate, which recommended a chronic nitrate standard of 3.1 mg/L to be protective of aquatic life.<sup>111</sup> The MPCA did not adopt water quality standards for nitrate, however, and has continued to defer to that 2010 legislative mandate to this day.

In 2013, MPCA published a report titled “Nitrogen in Minnesota Surface Waters.” The report documents the widespread extent of nitrate contamination in Minnesota’s waters, noting that in southeastern Minnesota, there are several streams where “groundwater baseflow provides a continuous supply of high nitrate water to streams throughout the year.”<sup>112</sup> In other words, MPCA recognized that the groundwater in this area is so polluted, it is polluting the surface water.

In 2014, eleven Minnesota organizations jointly published a Nutrient Reduction Strategy for nitrogen and phosphorous pollution, led by MPCA.<sup>113</sup> The goal was to ultimately reach Minnesota’s state water quality goals and downstream impacts like eutrophication in the Gulf of Mexico. In 2020, MPCA issued its 5-year progress report, considering whether the 2014 Nutrient Reduction Strategy was successful. The progress report shows that while phosphorous concentration trends in Minnesota waterways have generally decreased over the past 10-20 years, nitrate concentration trends have increased – in some major rivers by 20-60%. The Progress Report identifies row crop agriculture as the largest source of nitrogen.

Even with overwhelming data and analysis showing the trends and the reasons for concern, more recent strategies have been similarly ineffective. In 2019, MDA finalized

---

<sup>111</sup> PHIL MONSON, MINN. POLLUTION CONTROL AGENCY, AQUATIC LIFE WATER QUALITY STANDARDS TECHNICAL SUPPORT DOCUMENT FOR NITRATE (2010), <https://wrl.mnpals.net/islandora/object/WRLrepository%3A77>. Although MPCA’s regulatory focus has been on surface water, in the karst region the connection between surface and groundwater is so immediate, that surface water quality standards are highly relevant to protecting groundwater quality.

<sup>112</sup> MINN. POLLUTION CONTROL AGENCY, NITROGEN IN MINNESOTA SURFACE WATERS 3 (2013), <https://www.pca.state.mn.us/sites/default/files/wq-s6-26a.pdf>.

<sup>113</sup> MINN. POLLUTION CONTROL AGENCY, THE MINNESOTA NUTRIENT REDUCTION STRATEGY (2014), <https://www.pca.state.mn.us/sites/default/files/wq-s1-80.pdf>.

the Groundwater Protection Rule, which has several deficiencies.<sup>114</sup> For example, although fall application of commercial fertilizer is restricted in the karst region, as well as in identified DWSMAs, fall application of manure is not. There are other significant flaws in the rule that fail to adequately protect USDWs. First, the regulatory scope of the rule is limited to DWSMAs for community wells and provides no direct assessment or protection of private wells that fall inside a DWSMA and no assessment or protection for those outside of a DWSMA (see Figure 5 above). As both MCEA and MDH noted in comments on the Groundwater Protection Rule, the Rule should include a mitigation process for private wells and non-community public water supply wells that is equivalent to what it establishes for public water supplies.<sup>115</sup> Without this equitable approach, MDH notes that the rule “does not serve the public health needs of rural Minnesotans, many of whom already suffer inequities relative to public health outcomes.”<sup>116</sup> Second, there can be a significant lag time from days to years from the initial contamination of groundwater or surface water from sources of nitrogen and the necessary action taken by the state agencies to address the source. The MDA has the general authority to issue penalties for violations of its rules through Minnesota Statutes 18D, but the Groundwater Protection Rule requires a monitoring period that can last decades before enforcement actions are taken.<sup>117</sup> Lastly, the rule only requires best management practices to be used once a water source reaches mitigation level 3 or 4 contamination and even then, MDA cannot require application rates below that recommended by the University of Minnesota’s Extension Services. Since the Groundwater Protection Rule went into effect, none of the DWSMAs with elevated nitrates have been classified at mitigation level 3 or 4, and thirteen mitigation level decisions have been “delayed for good cause.”<sup>118</sup> This means that thus far, the Rule continues to rely on voluntary approaches that have not remedied the problem over the last several decades.

---

<sup>114</sup> Attached to this Petition as Exhibit A is Petitioner MCEA’s Comment to MDA, which explains the deficiencies of the rule in greater detail.

<sup>115</sup> Ex. A; *see also* Minn. Dep’t of Health Comment Letter on Proposed Minnesota Department of Agriculture Rules Governing Groundwater Protection, Add. 1 (Aug. 14, 2018), [https://speakup-us-production.s3.amazonaws.com/uploads/attachment/file/5b746f627d79656b8800e3cb/MDH\\_GW\\_ProtRuleComments.pdf](https://speakup-us-production.s3.amazonaws.com/uploads/attachment/file/5b746f627d79656b8800e3cb/MDH_GW_ProtRuleComments.pdf).

<sup>116</sup> Minn. Dep’t of Health Comment Letter on Proposed Minnesota Department of Agriculture Rules Governing Groundwater Protection, at 2 (Aug. 14, 2018), [https://speakup-us-production.s3.amazonaws.com/uploads/attachment/file/5b746f627d79656b8800e3cb/MDH\\_GW\\_ProtRuleComments.pdf](https://speakup-us-production.s3.amazonaws.com/uploads/attachment/file/5b746f627d79656b8800e3cb/MDH_GW_ProtRuleComments.pdf).

<sup>117</sup> MINN. DEP’T OF AGRIC., STATEMENT OF NEED AND REASONABLENESS IN THE MATTER OF PROPOSED PERMANENT RULES RELATING TO GROUNDWATER PROTECTION 131-133 ( 2018).

<sup>118</sup> *Delayed for Good Cause: Drinking Water Supply Management Area Mitigation Level Determination*, MINN. DEP’T OF AGRIC., <https://www.mda.state.mn.us/delayed-good-cause> (last visited Apr. 21, 2023).

In 2021, MPCA released the final General NPDES Permit for CAFOs, which also has several deficiencies.<sup>119</sup> First, there is no monitoring required to ensure that nitrate is not leaching from storage lagoons into groundwater or whether the land application practices are causing or contributing to water quality problems. Both of these practices are known to contribute nitrate to Minnesota’s waters, and all NPDES permits are required to have conditions that assure compliance with applicable limitations.<sup>120</sup> Second, there is no prohibition on fall application of manure, and winter application of solid manure is allowed in December and January. There are also no controls on summertime application of manure on hayfields without incorporation into the sensitive soils of the karst region. Third, there is no required pre-plant testing for nitrate to ensure that farmers properly account for residual nitrates that remain from manure applied in previous years when they calculate expected crop nitrogen needs.<sup>121</sup>

The Minnesota Department of Health is charged with insuring that public water supplies meet drinking water standards and implementing wellhead protection measures.<sup>122</sup> In a March 2021 report, MDH stated that “currently, there are approximately 400,000 acres in vulnerable groundwater Drinking Water Supply Management Areas,” and that MDH’s Source Water Protection Program “has a goal to protect vulnerable land in DWSMAs statewide by 2034.”<sup>123</sup> However, the implementation of land use changes in Source Water Protection Plans is largely voluntary and does not protect underground sources of drinking water supply for private well owners who live outside of DWSMA boundaries. Finally, under the Minnesota Well Code MDH regulates private well construction and initial testing for nitrate and other pollutants like total coliform. However, “private drinking water testing and monitoring are otherwise unregulated and voluntary, with no formal tracking of water quality over time.”<sup>124</sup>

Most recently, in 2022, MPCA stated that it was still not going to develop water quality standards for nitrate pollution in surface waters used for recreation and aquatic

---

<sup>119</sup> Attached to this Petition as Exhibit B is Petitioner MCEA’s Comment to MPCA, which explains the deficiencies of the CAFO General Permit in greater detail.

<sup>120</sup> 33 U.S.C. § 1342(a)(2); *see also* 40 C.F.R. § 122.48(b), Minn. R. 7001.0150 subp.2B.

<sup>121</sup> Ex. B at 22-23.

<sup>122</sup> James Lundy et al., *Minnesota’s 1989 Ground Water Protection Act: Legacy and Future Directions*, 5 MINN. GROUNDWATER ASSOC. (2022).

<sup>123</sup> *Protecting Vulnerable Drinking Water Sources*, MINN. DEP’T OF HEALTH (March 23, 2021), <https://www.health.state.mn.us/communities/environment/water/docs/cwf/vulnacres.pdf>.

<sup>124</sup> James Lundy et al., *Minnesota’s 1989 Ground Water Protection Act: Legacy and Future Directions*, 5 MINN. GROUNDWATER ASSOC. 34 (2022).

life, despite the recognition that such a standard is necessary.<sup>125</sup> The State's repeated failures to mitigate nitrate levels in drinking water put more and more people at risk of drinking contaminated water. Allowing agricultural practices to continue in the karst region without meaningful changes to commercial fertilizer application, manure management, and manure disposal practices, will perpetuate the imminent and substantial endangerment to residents' health in direct violation of the SDWA. Although Minnesota officials have clear authority to adopt the mandatory regulations necessary to resolve the imminent and substantial endangerment, they have consistently refused to act. EPA must not let Minnesota officials continue to sit on the sidelines for another decade as the threat to the health of Minnesota citizens grows ever more severe.

## **VI. Requested Emergency Action to Abate Ongoing and Ever-Increasing Endangerment to Human Health from Nitrate Contamination**

As discussed in detail above, the statutory prerequisites for emergency action under 42 U.S.C. § 300i are satisfied here. First, nitrate, which is a "contaminant" under the SDWA, is present in and continues to leach into USDW in the karst region. Second, the presence of nitrate contamination in groundwater is causing an imminent and substantial endangerment to public health; an alarming number of karst region residents rely on USDW that have been identified as carrying substantial nitrate risks for users. Finally, the State of Minnesota has not taken timely or effective action to abate the public health endangerment.

EPA has broad authority to investigate and remediate threats to public health under the SDWA. "Once EPA determines that action under Section 1431 is needed, a very broad range of options is available" as necessary to protect users of USDW.<sup>126</sup> The tools available to EPA include conducting studies, halting the disposal of contaminants that may be contributing to the endangerment, and issuing orders such as mandatory changes to manure generation, handling, and land application practices. In fact, "EPA may take such actions notwithstanding any exemption, variance, permit, license, regulation, order, or other requirement that would otherwise apply."<sup>127</sup>

EPA should prioritize investigating and abating nitrate contamination in the karst region. Specifically, Petitioners respectfully request EPA take at least the following measures under its SDWA Section 1431 emergency powers, either by administrative order or through civil action:

---

<sup>125</sup> PHIL MONSON, MINN. POLLUTION CONTROL AGENCY, AQUATIC LIFE WATER QUALITY STANDARDS TECHNICAL SUPPORT DOCUMENT FOR NITRATE (2010), <https://www.pca.state.mn.us/sites/default/files/wq-s6-13.pdf>.

<sup>126</sup> EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 14.

<sup>127</sup> *Id.* at 9.



#### Investigation and Risk Assessment:

- Conduct investigation and monitoring throughout the karst region to more accurately trace the sources and quantities of nitrogen pollution, and to identify which sources are causing nitrate contamination;
- Investigate MPCA's CAFO permit requirements and MDA's and MPCA's best management practices for nutrient management to determine why they have been unsuccessful at protecting groundwater in the karst region;

#### Engagement and Communication:

- Work with MDH to notify the public of the existing nitrate hazards and provide public updates throughout the process of returning drinking water to a safe condition;

#### Planning:

- Determine what enforcement measures should be implemented to effectively reduce nitrogen pollution from CAFO and industrial agriculture sources;
- Provide a timetable for implementing a remedy to abate nitrate contamination from identified contaminators;

#### Assistance:

- Order the parties responsible for the nitrate contamination to supply free water testing and ensure a free source of clean drinking water to residents of the karst region whose private wells or PWSs exceed safe limits for nitrate to prevent blue-baby syndrome, cancer, and other adverse health effects;
- Provide assistance to private well owners to engage in effective private well management practices;

#### Regulation:

- Prohibit CAFOs from opening, expanding, or modifying operations in the karst region unless and until nitrate concentrations in wells with historically high levels of nitrate consistently fall below the MCL of 10 mg/L;
- Require CAFOs and agricultural operators land-applying CAFO waste or other nitrogen fertilizers to modify their practices so that these operations will cease overburdening the area with nitrogen pollution via lagoon leakage, land application of manure, and/or spills and leaks.

The threat to public health in the karst region from nitrate pollution of groundwater is present and pervasive, and all signs indicate a continuation and exacerbation of dangerous contamination levels absent EPA action. Therefore, the

undersigned Petitioners respectfully request that EPA use its emergency powers under the SDWA to take the actions necessary to abate the sources of contamination that increasingly place the public at substantial risk and provide other forms of relief within its authority as long as the endangerment persists.

## **VII. Conclusion**

In conclusion, for the reasons stated above, the undersigned Petitioners respectfully request that EPA invoke its emergency authority under Section 1431 of the Safe Drinking Water Act to urgently address the imminent and substantial endangerment to public health within the karst region of Minnesota caused by ongoing and increasing nitrate contamination. Please contact the undersigned for more information regarding this Petition.

/s/Carly Griffith

Carly Griffith  
Water Program Director  
Minnesota Center for Environmental  
Advocacy  
1919 University Avenue West,  
Suite 515  
Saint Paul, MN 55104  
(651) 223-5969  
cgriffith@mncenter.org

/s/Leigh Currie

Leigh Currie  
Director of Strategic Litigation  
Minnesota Center for Environmental  
Advocacy  
1919 University Avenue West,  
Suite 515  
Saint Paul, MN 55104  
(651) 223-5969  
lcurrie@mncenter.org