Clean Water Council Meeting Agenda

Monday, November 20, 2023

9:00 a.m. to 2 p.m.

IN PERSON with Webex Available (Hybrid Meeting)

9:00 Regular Clean Water Council Business

- **(INFORMATION ITEM)** Introductions
- **(ACTION ITEM)** Agenda - comments/additions and approve agenda
- **(ACTION ITEM)** Meeting Minutes - comments/additions and approve meeting minutes
- **(INFORMATION ITEM**) Chair and Council Staff update
    - Policy & Budget and Outcomes Committee Updates
    - Staff update
        - Communications plan/Impaired Waters List
        - Council member applications begin November 2023
        - Potential for a supplemental Clean Water Fund appropriation
- **(ACTION ITEM)** 2024 Meeting calendar

9:30 Strategic Planning: Review and Comment on First Draft

10:30 BREAK

10:45 Review and Discussion of U.S. EPA Response Letter to State Agencies

- Clean Water Council Staff
- Agencies

11:15 Presentation on Petition to U.S. EPA on Private Wells in SE Minnesota

- Carly Griffith & Leigh Currie, Minnesota Center for Environmental Advocacy

12:00 LUNCH

12:30 Discussion on Private Well Initiatives

- Michelle Stockness, Executive Director, Freshwater
- Jeff Broberg, Minnesota Well Owners Organization

1:15 Field Trip Preferences in Metro after Future Council Meetings in 2024

1:45 Public Comments

2:00 Adjourn

Immediately after: Steering Committee

Clean Water Council
October 16, 2023, Meeting Summary

Members present: John Barten (Chair), Steve Besser, Rich Biske (Vice Chair), Dick Brainerd, Gary Burdorf, Gail Cederberg, Steve Christenson, Tannie Eshenaur, Brad Gausman, Kelly Gribauval-Hite, Justin Hanson, Holly Hatlewick, Peter Kjeseth, Annie Knight, Sen. Nicole Mitchell, Jason Moeckel, Ole Olmanson, Jeff Peterson, Victoria Reinhardt, Peter Schwagerl, Glenn Skuta, Dan Sparks, Marcie Weinandt, and Jessica Wilson.
Members absent: Warren Formo, Rep. Josh Heintzeman, Rep. Kristi Pursell, and Sen. Nathan Wesenberg.
Others present: Brad Redline (MDA), Jim Stark (Subcommittee on MN Water Policy), Jen Kader (Met Council), Julie Westerlund (BWSR), Judy Sventek (Met Council), Annie Felix-Gerth (BWSR), Angelica Anderson (Nature Conservancy), Lori Cox, Sheila Vanney (MASWCD), Lucas Sjostrom (MN Milk Producers), Chengtao Weng, J. Peterson

To watch the WebEx video recording of this meeting, please go to https://www.pca.state.mn.us/clean-water-council/meetings, or contact Brianna Frisch.

Regular Clean Water Council Business

- Introductions
- Approval of the October 16th meeting agenda, motion by Dick Brainerd, and seconded by Steve Christenson. Motion carries.
- Current COVID guidelines and precautions: If You Are Sick or Test Positive: COVID-19 - MN Dept. of Health
- Chair and Council Staff update.
  - Policy & Budget and Outcomes Committee Updates
  - Staff update.
    - Field tour debrief: Council members really enjoyed it. They appreciated all the stops, and that they stayed on time. There are so many options around the metro, and if there are options for the future, those can be sent to Paul for a future trip. The first field tours often looked at the stressors happening around the state, and now the last few field tours look more at the outcomes of the work being done.
    - Council member applications begin November 2023: Paul will reach out to Council members who are up for reapproval.
    - Communications plan/Impaired Waters List: Paul has been working with MPCA communications staff on adding context to the draft impaired waters list. Impaired waters doesn't mean "off limits", Minnesota tests a lot more than other states, this list is used as a diagnostic tool, this list is a snapshot in time (trend data is a better indicator of success), it allows water managers to prioritize certain waters. Messaging for the impaired waters list includes context, focus on the list's value, showing trend data to show where we are succeeding and where there are challenges.
    - Paul also has three different story maps and would like the Council's input on them when ready.
    - There is a Clean Water Council slogan or tagline in the works. The Council can vote at this link: https://forms.office.com/Pages/ResponsePage.aspx?id=RrAU68QkGUWPJricIVmCjJL9LYPs2qZItjtRcL0g5MdUQTlSWldLNTVQT0JDSlNDUlVROEk2OFpJOC4u&wdLOR=c8034BFFF-C612-4D34-812E-88F47D46A8E2. This is to help distinguish the Clean Water Funds (CWFs) from just the logo. The highest ranking one so far is "your clean water funds at work". They are ranked.
      - Suggestion slogan from Brad Gausman: "Clean water is our Minnesota legacy."
      - Tannie Eshenaur, Minnesota Department of Health (MDH): There was a tagline used the first ten years, but as personnel changed it went away. It was "Protecting and restoring Minnesota's waters for generations to come."

Strategic Planning: Setting Expectations for Surface Water Outcomes *(Webex 01:36:00)*

- Concepts from the Budget & Outcomes Committee
- Social Measures: Changing norms and examples.
  - Agricultural practices: comprehensive changes to all farm operations that take water quality into account. Measure would be the number of farms and acres enrolled in Minnesota Ag Water Quality Certification

Program (MAWQCP). Additionally, acres planted with cover crops and/or those that avoid tillage. The measure for this would be federal agricultural census (the latest five-year results coming in 2024).
    - Chloride reduction: decrease waste of chloride de-icer. The measure would be the number of people receiving Smart Salting certification (MPCA program).
    - Lakeshore Best Management Practices (BMPs) stewardship: lakeshore property owners become more likely to improve shoreline management. The measure would be the enrollment in a lake stewardship certification program.
    - Planning: local stakeholders use the latest science and work better together to improve water quality more quickly on a watershed scale. Measure would be completion of One Watershed One Plan (1W1P).

Discussion:

- Kelly Gribauval-Hite: The Smart Salting is part of the MS4 training, so that should be considered. Perhaps another metric should be used. It is worth having a measure, but not sure what that should be.
- Steve Besser: Brought up a salt storage issue at the City of Litchfield. *Glen Skuta, MPCA will follow up*
- Paul Gardner: Has anyone figured out how to measure our capacity to do stuff?
    - Kelly Gribauval-Hites: What about competitiveness for federal funding? If you have a project in a plan, ready to go, and it can have leveraged money, that would be at that level.
    - Marcie Weinandt: I would add the ability of local governments to do the pre-work, to be able to get the funding to leverage, which could come from the CWFs.
    - Margaret Wagner, Minnesota Department of Agriculture (MDA): When I think about the ability to invest funds to get projects on the ground, it is an opportunity for programmatic organizations to work together to implement programs. So, there is some good information out there. For partners that were not working together, but did so on the 1W1P, there may be some metrics there, with important indicators with increased capacity. Is there a way to standardize this in a way that we have done so with other measures. It puts some science and structure around this too.
    - Tannie Eshenaur: The interagency groundwater drinking water team, about ten years ago, looked at Soil and Water Conservation Districts (SWCDs) and how they were dealing with groundwater and drinking water issues. The SWCDs felt very responsible for this but didn't feel like they had the tools or technical understanding for them. That is a baseline measure of capacity for SWCDs. Then, Mae Davenport with the University of Minnesota, did a follow up study with local leaders, to see what the political leaders understood about groundwater and actions they could take. Now would be a good time to revisit those studies, to see over the last decade, if the knowledge and practices have improved. There are some things out there that we need to follow up on.
- Tannie Eshenaur: The Council did a lot of work not long ago looking at equity, structural racism, inclusion of minority populations. That should be figured into the Council's Strategic Plan somewhere. There are various ways to measure that work.

Strategic Planning *(Webex 02:05:00)*

- Protection Strategies
    - How do we measure progress?
    - Steve Christenson: Some of the graphs that show water quality, if that same graph had another line that showed something (population, acres tilled, etc.), even though these are growing.
    - John Barten: We are allocating a significant portion of the CWFs into the upper Mississippi. Some measurement could be the drinking water supplies, the increase or decrease the cost of clean drinking water, or no change. If we are protecting the Mississippi River, those costs would reveal a lot. I don't know how easy it would be to figure out. It would be an interesting metric.
        - Tannie Eshenaur: The latest CWF appropriation allowed the MDH to begin a drinking water ambient monitoring project for surface and ground water. There may be some potential trends that could be created over time.
        - Rich Biske: The scale we are looking at may be important. It is important to not overlook the quality of information, because we are aware of how vulnerable it can be in some areas.
- Restoration Strategies

- The constitutional amendment says one of the responsibilities is to protect and restore lakes, rivers, and streams. State statute narrows that scope, and that Board of Water and Soil Resources (BWSR) must come up with a nonpoint priority funding plan, indicating how CWFs should be prioritized.
- Should we incorporate BWSR Nonpoint Priority Funding Plan (NPFP) into the plan? They are connected. The first version of the plan included nine criteria as a guide for evaluating program or project activities that are under consideration for receiving nonpoint implementation funding form the CWFs. The high-level state priorities include:
  - Restore those impaired waters that are closest to meeting state water quality standards.
  - Protect those high-quality unimpaired waters at greatest risk of becoming impaired.
  - Restore and protect water resources for public use and public health, including drinking water.
- Should we consider using CWFs by HUC-8 watershed (current) or basins?
- Are current priority criteria sufficient?

Discussion:

- John Barten: How well do the 1W1Ps, in terms of their prioritization, line up with this plan? *Answer:* It is more complicated. What the planning groups are doing is taking nearly/barely waters as local values, to where folks want to put their investments first.
- Marcie Weinandt: Paul, can you remind us of when the Council's Strategic Plan is due? *Answer:* The plan has been to have a draft that the Council is comfortable with by the end of the year. So, there are November and December meetings to hash it out. The plan would guide agencies for their proposals next year.
- Paul Gardner: How long should the Council's Strategic Plan cover vs. the NPFP? *Answer:* The statutory direction is less relevant today than it was previously, and it could potentially be changed down the road. It could adapt to this Strategic Plan format.
- Julie Westerlund: Would the BWSR board be seeing the Council's Strategic Plan and approving that as antecedent to that? *Answer:* Yes, that would be the plan.
- Julie Westerlund: Would the board have any issues? *Answer:* I do not see the board having any opposition. They are not looking to change items, it is incorporating, and items would live on and incorporated into someone else's plan.
- Jason Moeckel: The BWSR has a statute for this. The Council does not have a statute for the Strategic Plan. The Council thought it was a good idea to have one, to help make decisions about recommendations. So, the Council could also just hold off on updating and continuing the document. It is a little bit of a weird situation.
- Steve Christenson: I make a motion to have the Council support the proposal to fold in the BWSR NPFP the Clean Water Council's Strategic Plan that would direct the executive director to coordinate with relevant BWSR staff about how to operationalize it. Additionally, to provide at the December meeting a proposed plan to have up for approval by vote. Motion seconded by Holly Hatlewick.

  Discussion:

  - Tannie Eshenaur: I have some concerns. The BWSR is accountable to a board, which is different than the rest of the state agencies. The dynamics of how it would work when the Council is the primary funder, and makes choices about BWSR funding, feels a little uncomfortable to me. Another thing is there are many state plans around water, and they should all align. We do not want them to be in opposition of each other. We also do not want them to be duplicative of each other. They should reinforce each other. Does this mean the Council will adopt the state drinking water plan? Or, at the Council's direction, we are developing we are developing a state drinking water plan, and the Council will have input into that, does that become a part of the Council's Strategic Plan? Some of the benefits of the Council, is being able to stand outside of the state agencies. I am inviting you to have a critical eye towards our state drinking water plan.
  - John Barten: The way I see it, Paul would work with BWSR, to put together a potential way of integrating the Council's Strategic Plan and the NPFP, and then the Council would decide at the December meeting whether we would want to adopt it or not. It is not committing us to this, only looking at the possible way the two could be meshed. If we like it, we can move forward. If we don't, we can decide to stop it from moving forward. To Tannie's point, it may tie our hands a bit because we do want to be independent from the agencies. We also fund things that are not included in the BWSR plan. However, it is integrated, we don't lose that flexibility of the Council's desire to fund these items.

- Rich Biske: This would meet BWSR's statutory update requirement, which wouldn't bind BWSR from having to update the Council's Strategic Plan. I see there is a lot of alignment. It might be helpful to revisit the Clean Water Accountability Act, which this provision was included in as well. Others that have been here longer, after the roadmap process, I am wondering if this is also trying to provide a best path forward to demonstrate success with the time we have moving forward. By focusing on the principles within, these state priorities, the waters at risk, perhaps it is an overarching path the Council can consider. Where we can demonstrate success, where we have a high return on investment, and where the work the Council supports really resonates with communities and how they are connected to water. I think the NPFP really gets to the essence of that. If the Council were to adopt it, that becomes a criterion on how we evaluate programs, around recommendation time. Also, how we evaluate effectiveness, and collectively how we are making progress. It was difficult to tell how the plan has changed things. I understand it has changed how planning is done and granting is done. However, for the Council to consider including this, we should consider how we will be evaluating in the allocation phase, as well as years to come.
- Victoria Reinhardt: Looking at the last line of the purpose of the NPFP summary "…and required the Minnesota Board of Water and Soil Resources (BWSR) to prepare a priority funding plan to priorities how Clean Water Funds are used…" and I think BWSR would need to understand that the decision to prioritize how CWFs are used is still the Council's decision. It is a little confusing because it is the Council's job, and this says it is their job too. I think we need more information on how this would be put together. Would it meet its mandate if it is included with the Council's document. It is now about collecting information before deciding together.
- Justin Hanson, BWSR: I think it is important for you to see how this looks like. We need to bring an example of it to you. So, that is the exercise we would bring to you in December. It is a bit challenging to see that with what we have provided to you today. One of the things, we are giving up some control of the NPFP to do this, which is a shared and more inclusive partnership with the Council. It gives more lifeblood to the document as well.
- Dick Brainerd: Paul are you able to complete this work with what has been described here today.
  - Response from Paul Gardner: Reviewing the motion, the Council directs staff and BWSR staff to draft a merging of the NPFP with the Council's Strategic Plan and bring back a draft in December for the Council's review. This is the decide if the Council would move forward. Paul can follow up on potential ramifications of this joint document process, to follow up at the next meeting as well.
  - Julie Westerlund: We are waiting to hear from the Council today and will bring it up to the BWSR. This would be the kicking off the project, if it is pursued. We will need to explore the ramifications from the BWSR side as well. We will be prepared to explain them to the Council as well.
- John Barten: Our Strategic Plan is not a binding contract for the Council. It is simply a guidance document. So, if we integrated them, if we elect not to follow our Strategic Plan, it is perfectly okay for the Council to do so.
- Motion carries. Paul will work with BWSR to draft an integrated document and prepare the Council for review and voting at an upcoming meeting.

- John Barten: How would a change of a HUC-8 watershed unit impact the 1W1P process?
  - Glenn Skuta, MPCA: From the MPCA perspective, states were encouraged to look at the geography. It has its pro and cons. Over time, the scale initially was too big, especially with scarce resources. The 80 watersheds of the state scale seem to be more manageable. If you go down a lower level, it could not be efficient. It is a scale that is currently in use. Historically, we gave the larger scale a go, but what we have now is more manageable. There are a lot of coordinating entities that try to bring things larger than the HUC-8 watershed scale, and that has worked out. At this point, if this scale is changed again, it would impact the work being done. The local coalitions with the current 1W1P would need to be redone. Nothing is perfect, but this current scale operates well.
  - Holly Hatlewick: The 1W1P includes the local buy in for the local plans. It concerns me to pivot to the basin level when we've done the WRAPS and 1W1P.
  - Jessica Wilson: I am in favor of keeping the HUC-8 scale. There is so much planning work that has already happened, and pivoting would be a drastic change. It would be harder to tell the stories as well.

- Jason Moeckel, DNR: The DNR has all our drought plan actions based at larger scale, and we are looking to switch to the HUC-8 scale. We layer the watersheds over the drought map, and it is difficult.
- John Barten: Staying at this scale seems to be important.
- Steve Besser: A basin-wide plan would be stupid. We cannot operate at that scale. Looking at the watersheds, they are in different biomes already. So, increasing it does not make sense. The variety and changes to water within the watershed are large enough. The last fifteen years have been at this scale, so it should remain.
- Victoria Reinhardt: It is all about trust. The buy-in exists. It would be difficult to go back on it. We are on a good path, and I think we need to stay there.
- Steve Christenson: I motion we stay with the current HUC-8 watershed scale versus basin level scale, for use of CWFs. Seconded by Steve Besser. Motion carries.

Public Comments *(Webex 03:52:00)*

- No public comments provided.

Adjournment *(Webex 03:55:40)*

News release

November 14, 2023

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Minnesota adds impairments in 54 streams and lakes to 2024 impaired waters list, fewest additions in recent years

15 lakes in central Minnesota removed from list; one added due to “forever chemicals”

The Minnesota Pollution Control Agency (MPCA) today released its proposed impaired waters list for 2024, adding 199 impairments over 54 water bodies. The number of water bodies added are a significant decrease compared to the 2022 list, which illustrates progress in restoring and protecting water — though challenges remain throughout the state, particularly related to difficult to manage pollutants such as “forever chemicals” and sulfate.

The list is required by the federal Clean Water Act. It includes waters that no longer meet water quality standards, as well as water bodies that have improved and are proposed to be taken off the list. This year’s list assessed and reviewed Mississippi River – Twin Cities, Minnesota River – Yellow Medicine River, Bois de Sioux River, and Mustinka River watersheds, among others throughout the state. The list underscores Minnesota’s progress in restoring and protecting waters while highlighting the need for long-term solutions.

Common impairments in these watersheds throughout central and west central Minnesota include conditions stressing fish and bug populations, such as poor habitat, sediment, and nutrients. These impairments have led to studies and plans to restore the waters to meet standards. Some successes seen in central Minnesota include 15 lakes removed for nutrient improvements. One such lake in Ramsey-Washington Metro Watershed District, Kohlman Lake, is proposed for removal after more than 20 years of restoration efforts that included parking lot improvements at the Maplewood Mall, church rain gardens, and technical projects from the watershed district.

“Minnesota’s 2024 impaired waters list reflects our continued work to safeguard our state’s water resources,” said MPCA Commissioner Katrina Kessler. “While progress is evident in the decrease in water body listings and impairments, the challenges we face, particularly in addressing sulfate levels and PFAS

contamination, remind us that our mission of water restoration and protection is critical for Minnesota's future."

Highlights from the 2024 impaired waters list include:

- Adding 199 impairments over 54 water bodies, bringing the total amount of listings from all years to 2,798 water bodies with 6,349 impairments.
- Removing 27 listings for improved water quality.
- This year's list demonstrates a significant decrease from 2022, which proposed 417 new impairments over 305 water bodies.
- This indicates an 82% decrease in water body listings and a 52% decrease in impairments
- Lake trend data also indicate 31% of monitored lakes are improving in clarity and 9% are declining.

Continued challenges to water quality

Per- and polyfluoroalkyl substances (PFAS), commonly known as the "forever chemicals" used in industrial settings and found in numerous consumer products, continue to be found in water bodies throughout the state. One type of PFAS, Perfluorooctane sulfonic acid (PFOS), can accumulate in fish and is transferred to humans when consumed, potentially causing adverse health effects. The MPCA proposes the addition of three more water bodies to the list due to high levels of PFOS: Sargent Creek and Miller Creek in Duluth, and Crystal Lake in Robbinsdale. This brings the total number of water bodies impaired for PFOS on the list to 26.

The MPCA is working collaboratively with other state agencies to identify and address water bodies impaired because of PFOS in fish tissue. This work is guided by the statewide PFAS blueprint, which outlines strategies to prevent, manage, and clean up PFAS contamination in the environment.

The 2024 list also includes 20 new water bodies that are impaired for sulfate — a naturally occurring nutrient that can also be found in discharges from mining operations, wastewater treatment plants, and industrial facilities. Sulfate negatively

impacts the growth of wild rice, which is an important part of the biological community in many Minnesota lakes, streams, and wetlands and a cultural and economic resource to many, particularly tribal nations.

Of the 20 new waters impaired for sulfate, 13 are wild rice lakes and 7 are streams. The MPCA has identified approximately 2,400 waters used for the production of wild rice, and this list is open for public comment for the first time, included among documents related to the 2024 impaired waters list.

A milestone achieved: monitoring and assessment of all 80 watersheds

The MPCA has completed the first round of monitoring and assessment of all 80 watersheds in Minnesota, which it began in 2010. This comprehensive data is gathered in conjunction with partners throughout the state and drives the development of the impaired waters list. It also informs strategies designed to improve water quality, called watershed restoration and protection strategy (WRAPS) reports. Moving forward, the agency's goal is to monitor and assess each of the 80 watersheds every 10 years to track changes in water quality and progress in restoration efforts. This work is funded by the Clean Water, Land, and Legacy Amendment.

Public comments encouraged through Jan. 12, 2024

Minnesota's draft impaired waters list, assessment manual, and revisions to appendix A of the statewide mercury TMDL will be on public notice through 11:59 p.m., Jan. 12, 2024. The MPCA invites Minnesotans to submit comments on whether additional waters should be placed on the list or be removed, and to attend one of several public meetings about the list. For the list, more information about impairments, upcoming public meetings, and how to comment, please visit the MPCA website.

As required by the federal Clean Water Act, Minnesota develops a list of impaired waters every two years. The draft 2024 list is due on April 1, 2024, to the U.S. Environmental Protection Agency, which will make the final decision on approving the list.

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RECENT NEWS AND STORIES

November 15, 2023

After more than 20 years, restoration of Kohlman Lake sees results

November 9, 2023

Molo-Twin LLC, Molo Oil Company, Twin City Petroleum and Properties LLC fined $107,392 for violations at numerous Minnesota gas stations

After more than 20 years, restoration of Kohlman Lake sees results

Kohlman Lake is one of several to come off the state's impaired waters list this year

A thin crust of ice covers much of Kohlman Lake after a week of chilly nights. It reflects the low cloud cover overhead and amplifies the calls of waterfowl flying over the wetlands by the lake's southeastern corner. The ice holds in its grip the grasses and reeds that rim the lake, duckweed in some pools along the shore, and scatterings of lily pads in the shallows.

Standing on the shore of the lake this late in the season, there's no sign of the mats of invasive curly-leaf pondweed that often choked the lake in the past. Nor do algal blooms spread across the surface of the water in a sickly green smear. And both are expected to continue to recede from Kohlman Lake in coming years as the lake responds to the more than two decades' worth of efforts to clean it up.

"Kohlman Lake is a good story about all the ingredients that had to go into this recipe to succeed," says Paul Gardner, the administrator of the Clean Water Council. "It's useful to tell that story because it does show how hard it is and how long it takes, but it is possible."

A problem with pondweed

The lake itself only covers about 74 acres. It's small by comparison to many of the rest of Minnesota's lakes. It's shallow, too; with an average depth of about four feet, an average-sized adult could walk across much of it. Aside from the wetlands, only suburban lawns and private docks occupy the shoreline. Anybody not living next to it would have a difficult time accessing the lake.

Water, however, has no problem making its way to Kohlman Lake. Creeks and drainage ditches direct rain and stormwater runoff to the lake from parking lots and roads and lawns across a 7,484-acre watershed that spans seven cities in eastern Ramsey County.

As that water trickled in to Kohlman Lake over the years, it brought with it whatever it picked up along the way, including plenty of sediment. Hitching a ride on that sediment was an overabundance of nutrients, primarily phosphorus, which turned the lake's ecosystem upside down. Curly-leaf pondweed took up the phosphorus and began to dominate the lake, as did algal blooms and another invasive plant species, Eurasian watermilfoil. An overabundance of carp in the lake didn't help matters, with the fish stirring up what phosphorus had settled into the sediment at the bottom of the lake.

Remnants of the channels cut through the pondweed at Kohlman Lake are visible even after boating season has ended.

While the excess phosphorus didn't directly impact the health of residents around the lake, the curly-leaf pondweed and the algae curtailed boating and swimming there. Residents had to hire aquatic plant harvesters to cut channels from their docks through the mats out to increasingly smaller patches of open water. According to one report, residents described the pondweed and algae as "bobbing expanses of green steel wool." And with Kohlman Lake emptying into a chain of lakes with Lake Phalen at the end, Kohlman's problems were sure to spread.

The lake needed help, and nothing proved that point more than when the Minnesota Pollution Control Agency added the lake to the impaired waters list in 2002.

The Clean Water Fund's role

While many factors and many pollutants can and do lead to the MPCA's decision to add lakes, rivers, and streams to the impaired waters list every other year, not all of them are necessarily detrimental to human health.

“People see the list and they think it means that those waters are off limits and they're usually not,” Gardner says. “You could have swum or fished in Kohlman Lake, but it was not going to be the greatest experience of your life.”

Under the federal Clean Water Act, every two years Minnesota and every other state must produce a list of all the lakes, rivers, and streams that fail to meet water quality standards. Those standards cover everything from bacteria that can make the water unsafe for swimming to sediment that can prevent fish from spawning to mercury, PFAS, and other pollutants that can harm people’s health.

> **“The Clean Water Fund is not used for random acts of conservation. There is a science-based and watershed-based approach to addressing our impaired waters.”**
>
> — Paul Gardner, Clean Water Council administrator

The Clean Water Fund came about in the late 2000s when the Minnesota Legislature took note of the state’s growing impaired waters list and put on the ballot the Clean Water Legacy Amendment, which raised sales taxes in the state by 3/8 of a percent and set aside a portion of that funding to pay for water restoration and protection projects. Voters then approved the plan in 2008.

“The Clean Water Fund is not used for random acts of conservation,” Gardner says. “There is a science-based and watershed-based approach to addressing our impaired waters.”

To do so, the fund’s administrators set aside 15 percent of its now $160 million annual budget for developing the impaired waters list as well as monitoring and

assessment to figure out how to best spend the rest of its budget. From that monitoring and assessment data, the MPCA develops a Watershed Restoration and Protection Strategy (WRAPS), essentially a big to-do list, to assist local water managers in prioritizing projects that will get that body of water off the impaired waters list. In the metro area, watershed districts and water management organizations will put together similar strategies and seek Clean Water Funds to complete them.

If, for instance, the WRAPS or local watershed plan for a lake specifies a reduction in phosphorus of 50 pounds per year and suggests an individual project that can reduce phosphorus by 12 pounds per year, Gardner weighs that benefit against the cost of the project.

“We’re not going to pay a million dollars per pound of phosphorus reduced, but $5,000 is not an uncommon number,” he says.

A 25-year restoration

According to the Ramsey-Washington Metro Watershed District, restoration of Kohlman Lake began in the late 1990s with the stabilization of the banks of Kohlman Creek and the installation of weirs in Kohlman Basin, a low-lying area just to the east of the lake. Over the next decade, the district also installed in an area just north of the basin an iron-enhanced sand filter designed to remove 90 percent of the phosphorus in the stormwater headed toward Kohlman Lake.

Those projects helped bring phosphorus levels in the lake down from a high of 171 micrograms per liter, as measured in 1982, to 98 micrograms per liter by the late 2000s. While a substantial reduction, the lake's phosphorus levels still needed to come down to 60 micrograms per liter, the target amount for MPCA staff to consider the lake healthy enough to come off the impaired waters list.

With the Clean Water Legacy Amendment in place, the Clean Water Fund could then start to contribute to that goal. Rather than scrub the waters entering Kohlman Lake, the projects made possible by the Clean Water Fund and other

locally raised funds focused more on reducing the amount of water running directly from paved surfaces in the area to the lake.

A rain garden at Casey Lake, one of several installed to keep stormwater from running into nearby Kohlman Lake.

In total, the Clean Water Fund distributed $2,341,000 in grants over the last decade toward dozens of projects. They helped the Maplewood Mall retrofit its expansive parking lot with tree trenches, rain gardens, and permeable pavers. They put 14 rain gardens around Casey Lake. They funded more rain gardens at several churches in the vicinity, including one about half a mile away on the far edge of the Kohlman Lake watershed.

Gardner notes that those projects are all in addition to other efforts by the MPCA, watershed districts, and soil and water conservation districts to minimize the amount of nutrients reaching lakes like Kohlman statewide.

“This watershed district is also a big advocate for getting their municipalities to do better street sweeping techniques – if you have a big tree canopy in your city, you actually can reduce phosphorus at a really low price per pound by just using the

right piece of equipment at the right time," he says. "And of course, we have better stormwater regulation too, I don't want to minimize that. Every time anybody builds something new in the Kohlman Lake watershed, the developer likely must improve practices to catch stormwater."

Impaired waters list as a tool

Appearing on the impaired waters list doesn't necessarily mean restoration of that body of water is inevitable or that the path toward restoration will be paved with unlimited grants from the Clean Water Fund.

"The impaired waters list is a diagnostic tool, it helps us figure out where to focus our efforts with finite resources," Gardner says.

He likens it to a pass/fail test for which the only way to pass is to get a perfect score on more than 30 standards.

"A body of water can improve its score over time, but might still be considered impaired," he says. "It doesn't always reflect all the improvement going on."

Nor does a quick review of the sheer numbers of lakes, rivers, and streams going on and off the list tell a complete story. As Gardner points out, the Clean Water Fund helped pay for 10 percent of the state's waters to be tested for impairments each year for the last 10 years.

The data from that effort caused the MPCA to label many more waters across the state impaired, which "really bulked up the list," says Leya Charles, a research scientist with the MPCA. "So now we're going to start revisiting those sites to see how they compare, and we expect to see most of them hold steady or improve in quality."

In the case of Kohlman Lake, Charles said it took reports from more than half a dozen monitoring programs from the last several years — including the MPCA's program, the watershed district's program, the Metropolitan Council's program, Ramsey County Public Works's program, and a citizen lake monitoring program —

to contribute enough data to warrant removing the lake from the impaired waters list.

Gardner says he actually expects the rate of de-listings to accelerate in the coming years as restoration and cleanup projects already underway start to show results and as water managers apply what they've already learned about getting the best bang for their buck when it comes to cleaning up Minnesota's waters.

"The thing that is empowering is that we now know how to prioritize, target, and measure our efforts," he says. "We can do things in a more comprehensive way, and it keeps the decision making based on science."

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RECENT NEWS AND STORIES

November 14, 2023

Minnesota adds impairments in 54 streams and lakes to 2024 impaired waters list, fewest additions in recent years

November 9, 2023

Molo-Twin LLC, Molo Oil Company, Twin City Petroleum and Properties LLC fined $107,392 for violations at numerous Minnesota gas stations

POSSIBLE supplemental requests for Clean Water Fund for 2024 legislative session (no formal endorsement by agencies implied)

DNR	75,000	estimate	PFAS in fish
MPCA	326,000		PFAS monitoring to backfill cuts due to RiverWatch direct appropriation
MDA	402,000		AgBMP Loan Program--difference between $10 million request and what was eventually appropriated
MDH	384,000		guidance on PFAS in fish
	$ 1,187,000		
	$ 10,000,000	Suggestion by BOC for maximum surplus to make sure we don't leave anything on the table	
	$ 8,813,000	left to propose	

interest shown by the BOC in:

* What is "shovel-ready" that could deploy extra funds?
* What support could the CWF provide based on a response from the EPA on private well petition (or in anticipation of a future response?)
* What was left on the chopping block from the last cycle?

Meeting Dates for Clean Water Council for 2024

DRAFT As Proposed on November 20, 2023

Full Council (3rd Monday with Exceptions for Holidays)	Budget & Outcomes Committee (1st Friday with Exceptions for Holidays)	Policy Committee (4th Friday with Exceptions for Holidays)
9 am to 12:30 pm (if by WebEx) 9 am to 2 pm (if in person)	9:30 am to 12:30 pm (if WebEx) 9:30 am to 2 pm (if in person)	9:30 am to 12:30 pm (if WebEx) 9:30 am to 2 pm (if in person)
January 22 (MLK Day 1/15)	January 5	January 26
February 26 (Prez Day 2/19)	February 2	February 23
March 18	March 1	March 22 (during Ramadan)
April 15	April 5	April 26 (during Passover)
May 20	May 3	May 17 (Memorial Day is 5/27)
June 17	June 7	June 21
July 15	July 12 (Avoids 7/4 holiday)	July 26
August 19	August 2	August 23
September 16	September 6	September 27
October 21	October 4 (note: Rosh Hashana is 10/3-4)	October 25
November 18 (Thxgvg is 11/28)	November 1	November 22
December 16	December 6	December 20 (1 week early)

Draft Clean Water Council Strategic Plan

20 November 2023

The Clean Water Council is a state advisory council created as part of the Clean Water Legacy Act[i] (CWLA) in 2006. The Council's purpose is to advise on the implementation of the CWLA, and to foster coordination and cooperation among state agencies and other stakeholders and partners. In addition, in 2009, the Council was assigned the task of recommending how to use the Clean Water Fund, which is one-third of the dedicated sales tax revenue generated from the Clean Water, Land and Legacy Amendment.

This strategic plan is not a comprehensive plan for all water activities in Minnesota. It focuses on activities within the Council's assigned roles for the Clean Water Legacy Act and the Clean Water Fund. Purposely left out of the plan are most point source activities that are governed by permits or other requirements, or are supported by other major funding sources (landfills, large feedlots, manure management plans, leaking storage tanks, PFAS work funded by 3M settlement, etc.)

Several previous efforts provide the foundation for this plan, including Minnesota's *Nutrient Reduction Strategy* (NRS), the 2014 *Clean Water Road Map,* the 2011 *Minnesota Water Management Framework, and the Nonpoint Priority Funding Plan* produced by the Board of Water and Soil Resources, and others.

Much of the plan focuses on priorities for using the Clean Water Fund (CWF). In January of odd-numbered years, the Council must submit recommendations for the use of the CWF.

Statutory guidance and planning since 2008 have outlined several criteria for prioritizing the use of the CWF. Primary among them is constitutional language that the CWF must *supplement* existing funding and not *supplant* it. Other criteria include the following:

Groundwater Vision: Groundwater is clean and available to all in Minnesota.

Goal 1: Protect groundwater from degradation and support effective measures to restore degraded groundwater.

- Strategy: Develop baseline data on Minnesota's groundwater quality, including areas of high pollution sensitivity.
    - *Action: Complete groundwater atlases for all Minnesota counties.*
        - Measure: All Part B atlases completed by 2038.

- *Action: Monitor ambient groundwater quality throughout the state.*
  - Measure: Updates from MPCA Groundwater Monitoring Program.
- *Action: Characterize nitrate and pesticide contamination in vulnerable aquifers.*
  - Measure: Vulnerable aquifers mapped via Township Testing Program, Central Sands Private Well Network, and Southeast Minnesota Volunteer Nitrate Monitoring Network.
- *Action: Characterize natural and synthetic contaminants in groundwater.*
  - Measure: Locations with high concentrations of natural contaminants mapped.
  - Measure: Groundwater monitoring performed as appropriate for contaminants of emerging concern.

- Strategy: Develop and carry out strategies that will protect and restore groundwater statewide.
  - *Action: Complete and plans and fund activities for protection and restoration of groundwater statewide using a major watershed scale*
    - Measure: Groundwater Restoration and Protection Strategies (GRAPS) completed for all 80 major watersheds by YEAR.
    - Measure: Financial support provided for __% of strategies in each GRAPS by 2034.
  - *Action: Reduce risk of bacteria in groundwater.*
    - Measure: Maintain an 80 percent compliance rate for subsurface septic treatment (SSTS) systems with a stretch goal of 90 percent, as recorded in MPCA's annual SSTS report.
    - Measure: Financial assistance provided for low-income households to replace and repair individual SSTSs.
    - Measure: Demand met for under-sewered or unsewered small communities for long term solutions using Small Community Wastewater Treatment Program's intended use plan.
  - *Action: Reduce nutrient contamination of groundwater.*
    - Measure: Nitrogen Fertilizer Management Plan implemented in *priority townships* with vulnerable groundwater by assessing agricultural practices, forming local advisory teams, and publishing recommended practices that are adopted on 80% of row crop acres excluding soybean by year ____, and implemented in all remaining townships by year ____.
    - Measure: Alternative land management activities supported that protect groundwater such as easements, perennials, and continuous living cover.
    - Measure: Guidelines regularly updated to understand impacts of nitrogen application.
    - Measure: Support provided for irrigation management outreach, update to state irrigation BMPs, and irrigation water management endorsement from Minnesota Agricultural Certification Program (MAWQCP).

- *Action: Reduce risk of pesticide contamination in groundwater.*
  - Measure: Ambient groundwater quality wells maintained through MDA pesticide monitoring program and samples analyzed for 130 pesticides and pesticide breakdown products.
  - Measure: Outreach, demonstration sites, and technical assistance provided for recommended pesticide BMPs.
- *Action: Reduce risk of stormwater contaminants entering groundwater.*
  - Measure: Stormwater research that is protective of groundwater supported, with findings scaled to meet state needs.
  - Measure: Enhanced compliance provided for NPDES/MS4 permittees.
  - Measure: Priority unused groundwater wells that present a risk to drinking water aquifers are sealed.

Goal 2: Ensure groundwater use is sustainable and avoid adverse impacts to surface water features due to groundwater use

- Strategy: Support ongoing monitoring of groundwater quantity.
  - *Action: Maintain network of long-term groundwater monitoring wells and add wells as needed.*
    - Measure: 1,600 state-owned and managed wells established statewide by 2034.
  - *Action: Identify groundwater-dependent lakes; designated trout streams; calcareous fens, and wetland complexes.*
    - Measure: Data provided to water planners for development of WRAPS, GRAPS, and comprehensive watershed management plans.
- Strategy: Develop a sustainability standard for groundwater and support best management practices to achieve it.
  - *Action: Prioritize areas of high water use intensity.*
    - Measure: Groundwater Management Areas (GWMA), highly sensitive areas, and areas of high water use intensity from agricultural irrigation are designated.
  - *Action: Implement water efficiency BMPs, water use reduction, and irrigation water management in areas of high water use intensity by agricultural irrigators, highly sensitive areas, Groundwater Management Areas (GWMAs), and highly vulnerable Drinking Water Source Management Areas (DWSMAs).*
    - Measure: DNR has the tools available to address conflicts related to use of groundwater for economic and ecological purposes.
    - Measure: Monitoring wells have upward trend or no change in all six groundwater provinces.

- Strategy: Prepare for possible groundwater recharge in the Twin Cities Metropolitan Area to ensure continuous orderly and economic development.
    - *Action: Identify significantly contributing groundwater recharge areas to the aquifers in the Twin Cities Metropolitan Area.*
        - Measure: Map of potential recharge areas developed by YEAR.
    - *Action: Develop protection and management strategies for these aquifers.*
        - Measure: Strategies approved by Met Council by 2034.
- Strategy: Identify policy options that will accelerate progress to achieving a sustainable groundwater standard.
    - *Action: Clean Water Council Policy Committee biennial policy recommendations.*

Drinking Water Source Protection Vision: Drinking water is safe for everyone, everywhere in Minnesota.

Goal 1: Public Water Systems--Ensure that users of public water systems have safe, sufficient, and equitable drinking water.

- Strategy: Identify and reduce risks to drinking water sources by investing in technical training, planning, coordination, and source water protection grants.
    - *Action: Assist public water suppliers in completing Drinking Water Source Protection Plans (DWSPPs) and supporting implementation projects listed in the plans.*
        - Measure: All 900+ DWSPPs complete for groundwater public water systems.
        - Measure: All source water assessments for 23 surface water systems complete.
        - Measure: Source water protection plans complete for non-community public water systems.
        - Measure: Funding available for half of budget requests in DWSPPs.
    - *Action: Integrate drinking water source protection with surface water planning.*
        - Measure: Statewide drinking water plan complete.
        - Measure: Comprehensive watershed management plans incorporate drinking water source protection.

- Strategy: Prioritize implementation funding that supports the Ground Water Protection Rule (GPR).
    - *Action: Fully implement actions to reduce nitrate in DWSMAs that are Level 1 and Level 2 under the GPR.*
        - Measure: Public water suppliers at Level 1 or Level 2 under the GPR do not exceed the drinking water standard for nitrate by 2034.
- Strategy: Support prevention efforts to protect groundwater in DWSMAs.
    - *Action: Fund protective actions.*
        - Measure: Approximately 400,000 acres of vulnerable land surrounding drinking water wellhead areas statewide are protected by 2034.
        - Measure: Increase landowner adoption of soil health practices for drinking water protection through technical assistance, conservation equipment support, financial assistance, easements, drinking water protection/restoration grants, targeted wellhead protection grants, continuous living cover, soil health grants, etc.
- Strategy: Support prevention and management of newly identified contaminant risks.
    - *Action: Fund Contaminants of Emerging Concern (CEC) program.*
        - Measure: At least 20 chemicals are screened each biennium.
    - *Action: Fund adequate monitoring and assessment activities to examine emerging risks.*
        - Measure: Support of river and lake monitoring assessment, ambient groundwater and drinking water monitoring, with enough contingency for rapid response.
- Strategy: Identify policy options that will accelerate progress to achieving federal safe drinking water standards.
    - *Action: Clean Water Council Policy Committee will make annual policy recommendations.*

Goal 2: Private Water Supply Wells—Ensure that private well users have safe, sufficient, and equitable access to drinking water.

- Strategy: Identify risks to and fund testing of private well water.
    - *Action: Support free well testing in the most vulnerable areas of the state for nitrates and pesticides.*
        - Measure: Well users with the most vulnerable drinking water sources have water tested for nitrates and pesticides by the State.
    - *Action: Fund a ten-year effort to give every private well user the opportunity to test for five major contaminants.*
        - Measure: Private well testing offered for 10 percent of private well users each year for 10 years.
- Strategy: Encourage mitigation activities, including funding for low-income households.
    - *Action: Assist qualifying low-income households to replace private wells or install water treatment system.*
        - Performance Measure: Grant program reports from MDH.

- Strategy: Identify policy options that will accelerate the reduction in the number of unsafe private wells.
    - *Action: Clean Water Council Policy Committee will make annual policy recommendations.*

Surface Water Protection and Restoration Vision: Minnesotans will have fishable and swimmable waters throughout the state.

Goal 1: Monitor, assess, and characterize Minnesota's surface waters.

- Strategy: Maintain consistent funding for a comprehensive monitoring system.
    - *Action: Continue to monitor and assess on 10-year cycle and for emerging contaminants.*
        - Measure: Completion of second monitoring and assessment cycle.
        - Measure: Reports on contaminants of emerging concern as needed or requested.
    - *Action: Complete Total Maximum Daily Load (TMDL) reports as needed.*
        - Measure: Publication of TMDL reports by the MPCA.

Goal 2: Protect and restore surface waters by prioritizing and targeting resources by major watershed.

- Strategy: Identify and refine strategies required to meet water quality standards in each HUC-8 watershed.
    - *Action: Review and revise previously completed Watershed Restoration and Protection Strategies (WRAPS)*
        - Measure: Completion of second generation of WRAPS.

- Strategy: Prioritize waters for protection and restoration using comprehensive watershed management plans (One Watershed One Plan or other approved plans)[ii] updated every ten years.
    - *Action: Restore those impaired waters that are closest to meeting state water quality standards.*
        - Measure: Lists of "barely impaired" waters shared with local watersheds as they prepare One Watershed One Plans or other approved plans
        - Measure: List of "barely impaired" waters that show improving trends on an annual basis.
        - Measure: Percentage of lakes meeting acceptable recreation values reaches 70 percent by 2034.
        - Measure: Percentage of rivers and streams meeting acceptable healthy fish values reach 67 percent by 2034.

- *Action: Protect those high-quality unimpaired waters at greatest risk of becoming impaired.*
  - Measure: Comparison of "nearly impaired" waters list with prioritized waters in One Watershed One Plans.
  - Measure: List of "nearly impaired waters" as well as healthy waters that see no change or no degradation on an annual basis.
- *Action: Restore and protect water resources for public use and public health, including drinking water.*
  - Measure: List of waters with high public use that show improving trends or no degradation over time.
  - Measure: List of projects that show connection to Drinking Water Supply Management Areas (DWSMAs).
- *Action: Review formula for funding priorities among HUC-8 watersheds regularly.*
  - Measure: Watershed-Based Implementation Funding (WBIF) formula.
- *Action: Track completion of priorities (e.g., Tier One) in each One Watershed One Plan.*
  - Measure: Pilot tracker tool to show implementation progress against goals, followed by regional and then statewide deployment.

Goal 3: Protect and restore surface waters through statewide, regional, or issue-specific programs that help meet water quality goals but are not necessarily prioritized and targeted according to geography.

- Strategy: Enhance compliance for regulatory programs to accelerate progress
  - *Action: Maintain compliance rates for subsurface sewage treatment systems (SSTS) at 80 percent with a stretch goal of 90 percent.*
    - Measure: MPCA Annual SSTS Report.
  - *Action: Ensure timely compliance with statewide municipal separate storm sewer systems (MS4) permits.*
    - Measure: Point source discharge permits incorporate gains from stormwater pollutant reductions.
    - Measure: Minnesota Stormwater Manual updated regularly.
  - *Action: Support small unsewered or under-sewered communities for long-term wastewater solutions.*
    - Measure: Small or no backlog for Small Community Wastewater Treatment.
  - *Action: Support wastewater treatment plants and stormwater projects seeking to meet tighter Total Maximum Daily Load requirements.*
    - Measure: Adequate support of Point Source Implementation Grant (PSIG) program.

- Strategy: Maintain and increase capacity of Minnesotans to improve water quality.
  - *Action: Engage farmers in water quality efforts.*
    - Measure: Number of farmers and acres enrolled in Minnesota Agricultural Water Quality Certification Program, with a target of 5,100 farms and 6.5 million acres by 2030.
    - Measure: Number of acres with continuous living cover, with a target of five million acres by 2034.
    - Measure: Meet targets for nutrients in the state's Nutrient Reduction Strategy, including a 45 percent decrease in nitrogen and phosphorus in the Mississippi River basin by 2040.
    - Measure: Number of acres enrolled in permanent easements.
    - Measure: Increasing number of renters and non-operating landowners participating in water quality efforts.
  - *Action: Engage non-traditional audiences and elevate absent narratives with an equity lens.*
    - Measure: Collaborations with state agencies and their equity efforts.
    - Measure: Evaluation of We Are Water exhibit and its outreach.
  - *Action: Engage lakeshore property owners and private landowners.*
    - Measure: Number of property owners enrolled in Lake Steward program.
    - Measure: We Are Water annual report.
    - Measure: Additional in-lake treatment and restoration projects proposed and funded for competitive grants.
    - Measure: Protection of 100,000 acres and restoration of 100,000 acres in the Upper Mississippi River headwaters basin by 2034.
  - *Action: Engage chloride users*
    - Measure: Number of snow removal contractors and public works departments who are Smart Salting certified and make measurable reductions in chloride use.
    - Measure: No increase in chloride concentration in metro rivers and streams over time.
  - *Action: Engage water managers statewide*
    - Measure: SWCDs, WDs, WMOs, drainage authorities, highway departments, municipalities, and counties have the skills necessary to carry out programs to meet water quality goals.
  - *Action: Support innovative efforts that accelerate progress toward clean water goals.*
    - Measure: Acres of income-generating continuous living cover planted.
    - Measure: Stormwater research identifies scalable solutions for pollutant reduction to assist MS4 permittees.
    - mussels, culverts

- *Action: Plan for funding resilience after expiration of Legacy Amendment in 2034.*
    - Measure: New funding sources (e.g., fees, bonding, general fund) identified that would be required to maintain support of critical programs.

- Strategy: Support competitive grants for protection and restoration activities.
    - *Action: Provide opportunities for competitive grants that meet statewide priorities but do not fit in comprehensive watershed management plans.*
        - Measure: Annual grant funding round by BWSR for projects and practices, multi-purpose drainage management, and accelerated implementation/capacity building.

- Strategy: Identify policy options that will accelerate the protection and restoration of surface waters.
    - *Action: Clean Water Council Policy Committee will make annual policy recommendations.*
        - Measure: Biennial policy recommendations.

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[i] Minn. Stat. 114D.30.

[ii] While most watersheds in the state now use One Watershed One Plan, there are also approved plans used under previous statutes, especially in the metro area. "Comprehensive local water management plan," "comprehensive water plan," "local water plan," and "local water management plan" mean the plan adopted by a county under sections 103B.311 and 103B.315. “Watershed management plan” is defined in sections 103D.401.

Draft Clean Water Council Strategic Plan

20 November 2023

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- Strategy: Develop baseline data on Minnesota's groundwater quality, including areas of high pollution sensitivity.
    - *Action: Complete groundwater atlases for all Minnesota counties.*
    - *Action: Monitor ambient groundwater quality throughout the state.*
    - *Action: Characterize nitrate and pesticide contamination in vulnerable aquifers.*

- *Action: Characterize natural and synthetic contaminants in groundwater.*

- Strategy: Develop and carry out strategies that will protect and restore groundwater statewide.
  - *Action: Complete and plans and fund activities for protection and restoration of groundwater statewide using a major watershed scale*
  - *Action: Reduce risk of bacteria in groundwater.*
  - *Action: Reduce nutrient contamination of groundwater.*
  - *Action: Reduce risk of pesticide contamination in groundwater.*
  - *Action: Reduce risk of stormwater contaminants entering groundwater.*

Goal 2: Ensure groundwater use is sustainable and avoid adverse impacts to surface water features due to groundwater use

- Strategy: Support ongoing monitoring of groundwater quantity.
  - *Action: Maintain network of long-term groundwater monitoring wells and add wells as needed.*
  - *Action: Identify groundwater-dependent lakes; designated trout streams; calcareous fens, and wetland complexes.*
- Strategy: Develop a sustainability standard for groundwater and support best management practices to achieve it.
  - *Action: Prioritize areas of high water use intensity.*
  - *Action: Implement water efficiency BMPs, water use reduction, and irrigation water management in areas of high water use intensity by agricultural irrigators, highly sensitive areas, Groundwater Management Areas (GWMAs), and highly vulnerable Drinking Water Source Management Areas (DWSMAs).*
- Strategy: Prepare for possible groundwater recharge in the Twin Cities Metropolitan Area to ensure continuous orderly and economic development.
  - *Action: Identify significantly contributing groundwater recharge areas to the aquifers in the Twin Cities Metropolitan Area.*
  - *Action: Develop protection and management strategies for these aquifers.*
- Strategy: Identify policy options that will accelerate progress to achieving a sustainable groundwater standard.
  - *Action: Clean Water Council Policy Committee biennial policy recommendations.*

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- Strategy: Identify and reduce risks to drinking water sources by investing in technical training, planning, coordination, and source water protection grants.
    - *Action: Assist public water suppliers in completing Drinking Water Source Protection Plans (DWSPPs) and supporting implementation projects listed in the plans.*
    - *Action: Integrate drinking water source protection with surface water planning.*
- Strategy: Prioritize implementation funding that supports the Ground Water Protection Rule (GPR).
    - *Action: Fully implement actions to reduce nitrate in DWSMAs that are Level 1 and Level 2 under the GPR.*
- Strategy: Support prevention efforts to protect groundwater in DWSMAs.
    - *Action: Fund protective actions.*
- Strategy: Support prevention and management of newly identified contaminant risks.
    - *Action: Fund Contaminants of Emerging Concern (CEC) program.*
    - *Action: Fund adequate monitoring and assessment activities to examine emerging risks.*
- Strategy: Identify policy options that will accelerate progress to achieving federal safe drinking water standards.
    - *Action: Clean Water Council Policy Committee will make annual policy recommendations.*

Goal 2: Private Water Supply Wells—Ensure that private well users have safe, sufficient, and equitable access to drinking water.

- Strategy: Identify risks to and fund testing of private well water.
    - *Action: Support free well testing in the most vulnerable areas of the state for nitrates and pesticides.*
    - *Action: Fund a ten-year effort to give every private well user the opportunity to test for five major contaminants.*
- Strategy: Encourage mitigation activities, including funding for low-income households.
    - *Action: Assist qualifying low-income households to replace private wells or install water treatment system.*
- Strategy: Identify policy options that will accelerate the reduction in the number of unsafe private wells.
    - *Action: Clean Water Council Policy Committee will make annual policy recommendations.*

Surface Water Protection and Restoration Vision: Minnesotans will have fishable and swimmable waters throughout the state.

Goal 1: Monitor, assess, and characterize Minnesota's surface waters.

- Strategy: Maintain consistent funding for a comprehensive monitoring system.
  - *Action: Continue to monitor and assess on 10-year cycle and for emerging contaminants.*
  - *Action: Complete Total Maximum Daily Load (TMDL) reports as needed.*

Goal 2: Protect and restore surface waters by prioritizing and targeting resources by major watershed.

- Strategy: Identify and refine strategies required to meet water quality standards in each HUC-8 watershed.
  - *Action: Review and revise previously completed Watershed Restoration and Protection Strategies (WRAPS)*
- Strategy: Prioritize waters for protection and restoration using comprehensive watershed management plans (One Watershed One Plan) updated every ten years.
  - *Action: Restore those impaired waters that are closest to meeting state water quality standards.*
  - *Action: Protect those high-quality unimpaired waters at greatest risk of becoming impaired.*
  - *Action: Restore and protect water resources for public use and public health, including drinking water.*
  - *Action: Review formula for funding priorities among HUC-8 watersheds regularly.*
  - *Action: Track completion of priorities (e.g., Tier One) in each One Watershed One Plan.*

Goal 3: Protect and restore surface waters through statewide, regional, or issue-specific programs that help meet water quality goals but are not necessarily prioritized and targeted according to geography.

- Strategy: Enhance compliance for regulatory programs to accelerate progress
  - *Action: Maintain compliance rates for subsurface sewage treatment systems (SSTS) at 80 percent with a stretch goal of 90 percent.*
  - *Action: Ensure timely compliance with statewide municipal separate storm sewer systems (MS4) permits.*
  - *Action: Support small unsewered or under-sewered communities for long-term wastewater solutions.*
  - *Action: Support wastewater treatment plants and stormwater projects seeking to meet tighter Total Maximum Daily Load requirements.*
- Strategy: Maintain and increase capacity of Minnesotans to improve water quality.
  - *Action: Engage farmers in water quality efforts.*
  - *Action: Engage non-traditional audiences and elevate absent narratives with an equity lens.*

    - *Action: Engage lakeshore property owners and private landowners.*
    - *Action: Engage chloride users*
    - *Action: Engage water managers statewide*
    - *Action: Support innovative efforts that accelerate progress toward clean water goals.*
    - *Action: Plan for funding resilience after expiration of Legacy Amendment in 2034.*
- Strategy: Support competitive grants for protection and restoration activities.
    - *Action: Provide opportunities for competitive grants that meet statewide priorities but do not fit in comprehensive watershed management plans.*
- Strategy: Identify policy options that will accelerate the protection and restoration of surface waters.
    - *Action: Clean Water Council Policy Committee will make annual policy recommendations.*

[i] Minn. Stat. 114D.30.

REGION 5 ADMINISTRATOR
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Brooke Cunningham M.D.
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Dear Dr. Cunningham, Mr. Peterson, and Ms. Kessler:

On April 24th, 2023, Petitioners[1] 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[2] (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

[1] 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.

[2] 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[3] people reside in the Karst Region; about 300,000 people are served by 93 PWSs and approximately 93,805[4] 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[5] 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[6]. 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

[3] 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

[4] 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.

[5] 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

[6] 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

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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.[1]

The "karst region" of southeastern Minnesota is depicted in Figure 1 below.[2]

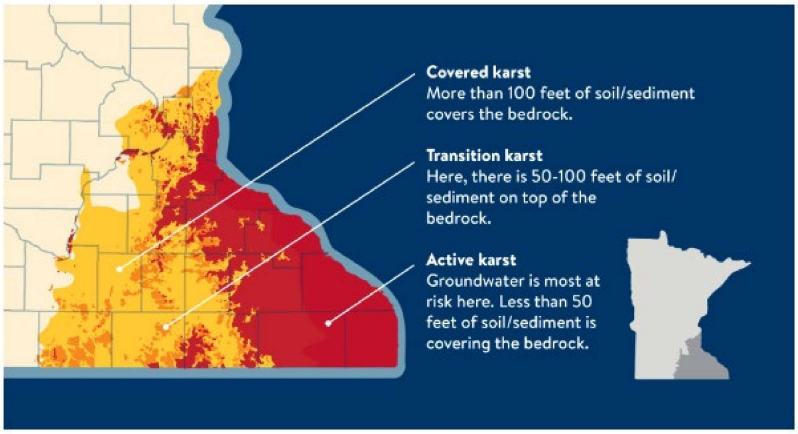

Figure 1: Minnesota's Karst Region
Based on a map created by E. Calvin Alexander, Jr., Yongli Gao, and Jeff Green

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[1] *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).
[2] *Id.*

The karst region[3] is a predominantly rural area of the State where many people rely on private wells, rather than public water supplies, for their drinking water.[4] 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.[5] About 300,000 people in this area rely on community water systems while the remaining 80,000 use wells.[6] 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.[7] 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.[8]

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

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[3] 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.

[4] For information on community water systems in Minnesota that rely on groundwater *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). 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).

[5] *See Minnesota Demographics*, CUBIT PLANNING, https://www.minnesota-demographics.com/counties_by_population (last visited Apr. 13, 2023).

[6] 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).

[7] *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/ [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).

[8] 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."[9]

[9] *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.[10] 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.[11] 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."[12] 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.[13]

1. Contaminant

The SDWA defines a contaminant as "any physical, chemical, biological, or radiological substance or matter in water."[14] 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.[15] An MCL is the "maximum permissible level of a contaminant in water which is delivered to any user of a public water system."[16] 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.[17] Establishing

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[10] 42 U.S.C. § 300g-2; 40 C.F.R. §§ 142.10–142.19 (primacy enforcement responsibility).
[11] 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.
[12] 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].
[13] 42 U.S.C. § 300i; *see also* EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 12-13.
[14] 42 U.S.C. § 300f(6).
[15] 40 C.F.R. § 141.62(b).
[16] 42 U.S.C. § 300f(3).
[17] 42 U.S.C. §§ 300g-l(b)(1)(A), (b)(3)(A).

nationwide, health-based MCLs is central to EPA's role in protecting drinking water under the SDWA.[18]

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.[19] 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.[20]

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.[21] 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.[22] 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.[23] 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.[24] 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."[25] In such cases, it is appropriate to consider the length of time a population has been or could be exposed to a contaminant.[26]

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

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[18] 42 U.S.C. § 300g-1(b)(4)(B).

[19] *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).

[20] *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).

[21] 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)).

[22] *Id.* n.15 (citing cases).

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

[24] EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 8.

[25] *Id.*

[26] *Id.*

[27] *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.[28] 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.[29]

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.[30]

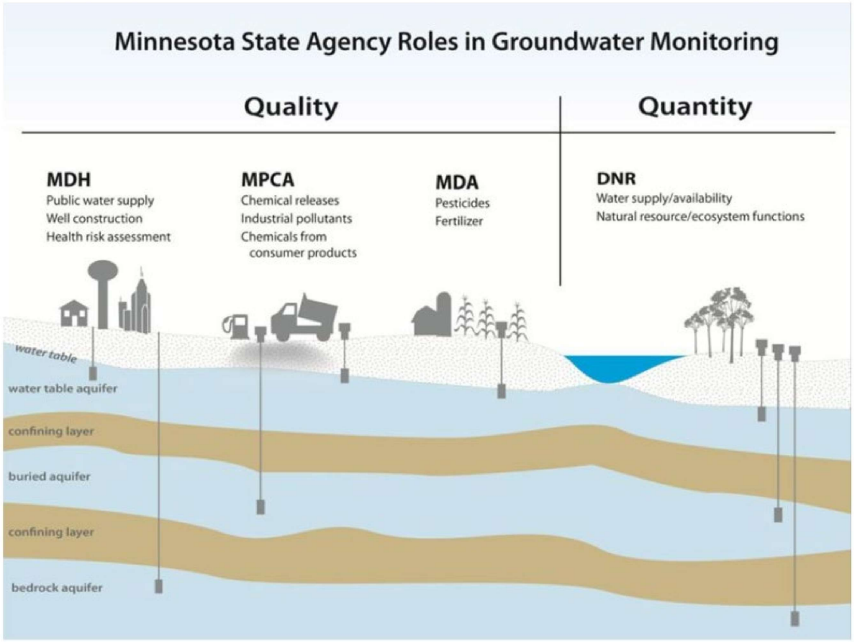

Figure 2: Agency Roles in Groundwater

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[28] *See* H.R. REP. NO. 93-1185, at 35-36 (1974).

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

[30] 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 is County Geologic Atlas program.

The MDH administers the Minnesota Well Code for the construction of new wells and borings[31] and Minnesota's SDWA.[32] EPA granted Minnesota primacy under the federal SDWA in 1976.[33] 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.[34] Public water systems with nitrate levels over 10 mg/L must notify people who receive water from them.[35]

The MPCA's authority extends to discharges from point sources under its water pollution control laws.[36] 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,[37] 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.[38]

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."[39]

EPA's Section 1431 authority extends to contaminated USDW and PWS that pose a threat to human health,[40] including sources that supply private wells.[41] 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."[42] PWS are

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[31] MINN. R. 4725.0500–4725.7605.
[32] MINN. STAT. §§ 144.381–144.387.
[33] 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.
[34] MINN. R. 4720.0350 (adopting national standards by reference).
[35] MINN. STAT. § 144.385.
[36] MINN. STAT. § 115.03.
[37] MINN. R. 7020.2003, subp. 2(B).
[38] MINN. STAT. § 103H.275; MINN. R. 1573.0010–1573.0090.
[39] 42 U.S.C. § 300i(a).
[40] *Id.*
[41] EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 7-8.
[42] 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."[43] 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.[44] 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."[45] According to MPCA, "[t]rends from the past 10, 20, and 40 years show that statewide . . . nitrate concentrations have generally been increasing."[46] 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.[47] 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.

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[43] 42 U.S.C. § 300f(4)(A).

[44] EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at Attach. 2.

[45] 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].

[46] 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].

[47] *Id.*

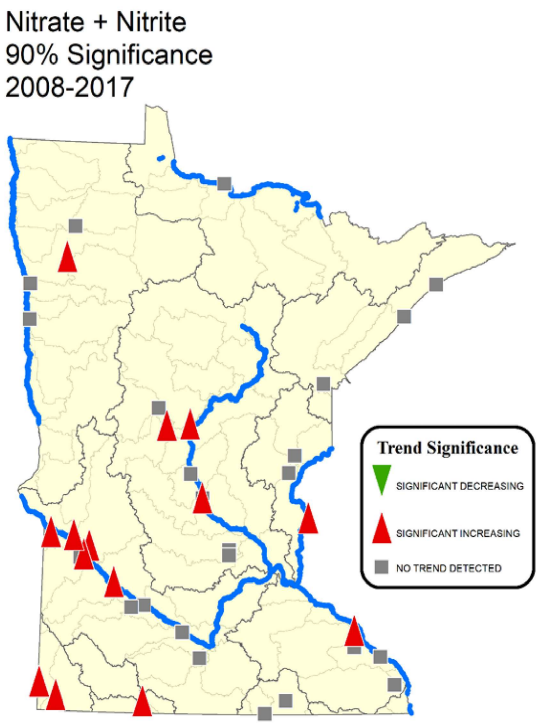

Figure 3: 5-year Progress on Nitrate

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.[48]

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.[49] "[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

[48] 5-YEAR PROGRESS REPORT, *supra* note 46, at 17.
[49] 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."[50]

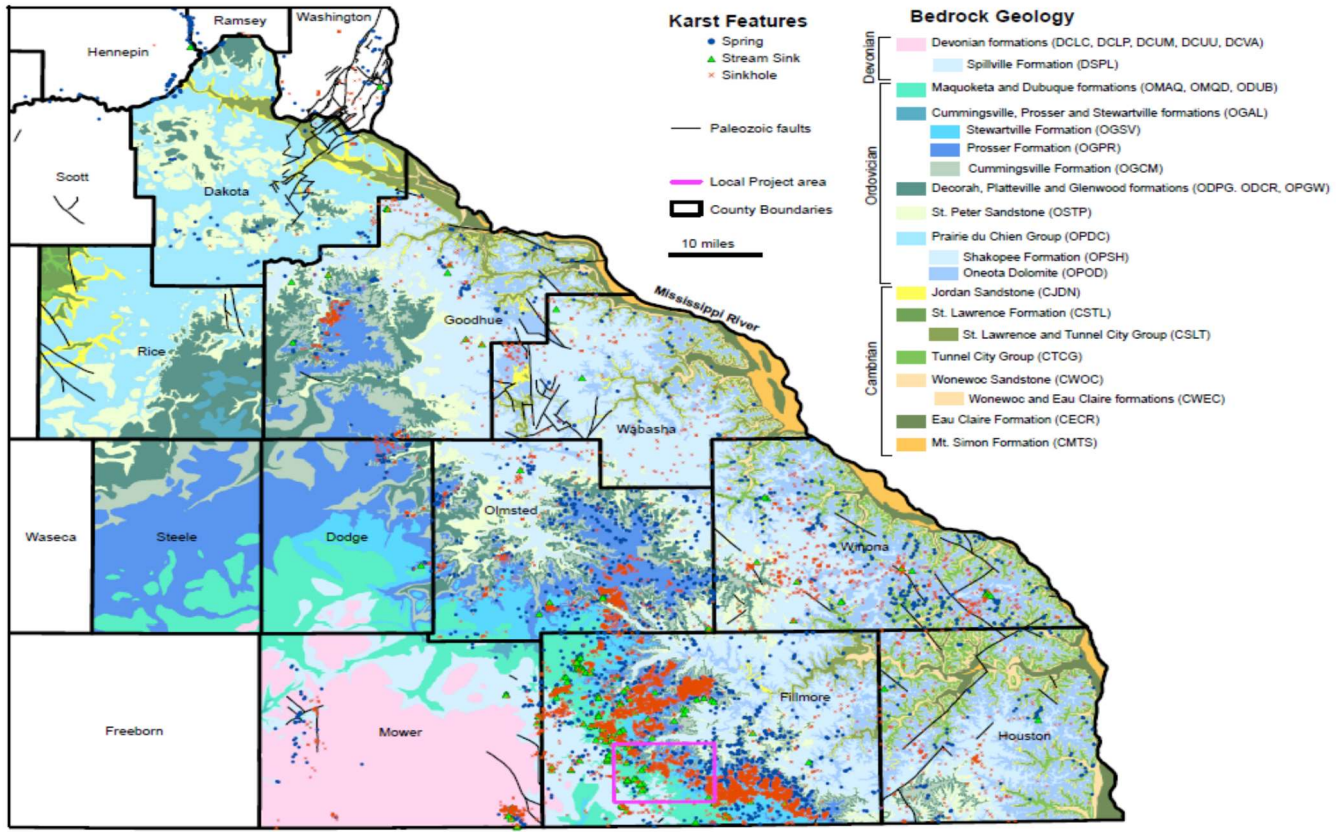

Figure 4: Karst Features

Nitrate pollution is particularly troublesome because nitrate is mobile in groundwater.[51] 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

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[50] 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 [hereinafter ORES 1982].

[51] 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.[52] 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.[53] 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."[54] 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.[55]

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."[56] 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."[57] 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.[58]

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[52] 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 RSCH. 116388 (2020), https://doi.org/10.1016/j.watres.2020.116388.

[53] 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.

[54] RUNKEL 2013, *supra* note 45, at 59.

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

[56] ORES 1982, *supra* note 50, at 3.

[57] *Id.*

[58] *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.[59] 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."[60] 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.[61]

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[62] conducted by MDA, a Volunteer Nitrate Monitoring Network,[63] and new well tests required by MDH since the Well Code was adopted in 1975.[64] EWG used the data to create an interactive map showing nitrate contamination by township.[65] 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."[66] And MDH provided EWG with location data and test results for each of the 45,598 wells sampled between 2009 and 2018.[67] Finally, MNWOO hosts well testing clinics that allow homeowners to test their

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[59] 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).

[60] *Id.*

[61] MPCA GROUNDWATER QUALITY 2013-2017, *supra* note 30, at 2, 15.

[62] 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 (hereinafter TOWNSHIP TESTING UPDATE 2022).

[63] 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.

[64] MINN. R. 4725.0500–4725.7605.

[65] *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).

[66] 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.

[67] 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.

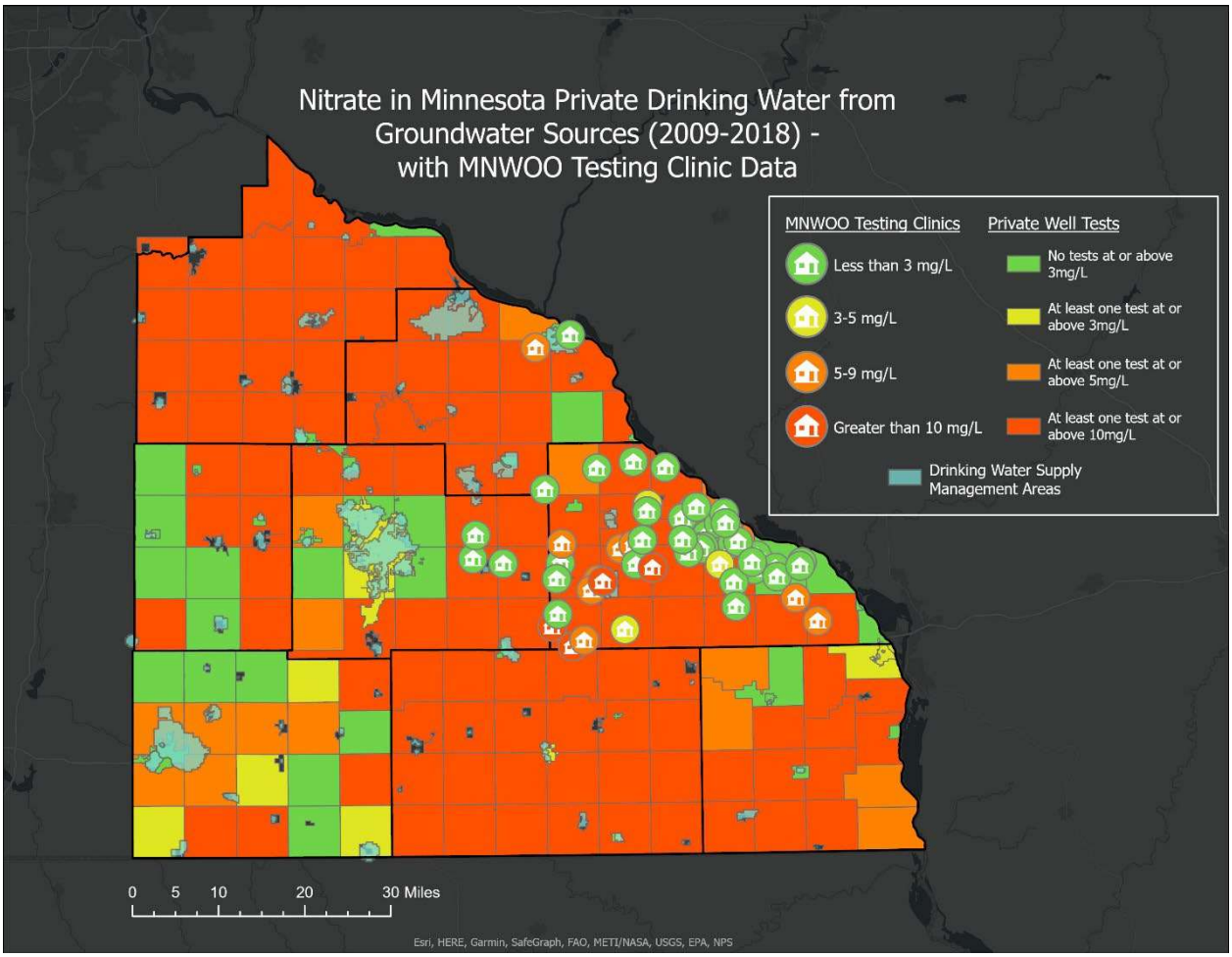

Figure 5: Private Well Contamination
Data from Township Testing Program, Southeast Volunteer Monitoring Network, MDH Well Index, and MNWOO clinic

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%.[68] 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,[69] and presents a karst-specific version of that map in Figure 6.

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[68] *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).

[69] *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).

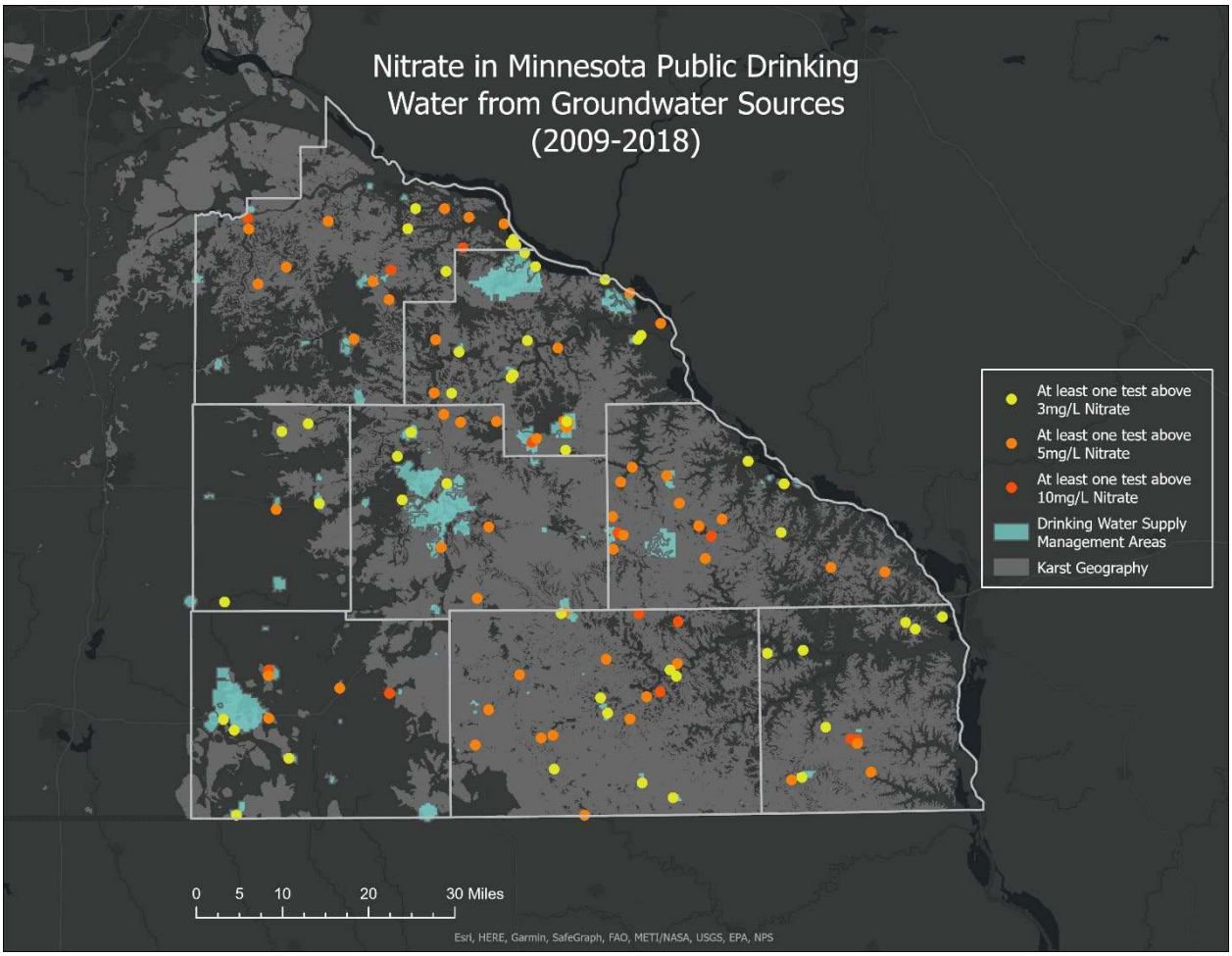

Figure 6: Public Drinking Water Contamination

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.[70] 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.[71] Had the city pursued a treatment system, the cost would have risen to $3.1 million, and doubled water rates for residents.[72]

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[70] EWG Tap Water Report, *supra* note 7.

[71] 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.

[72] *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.

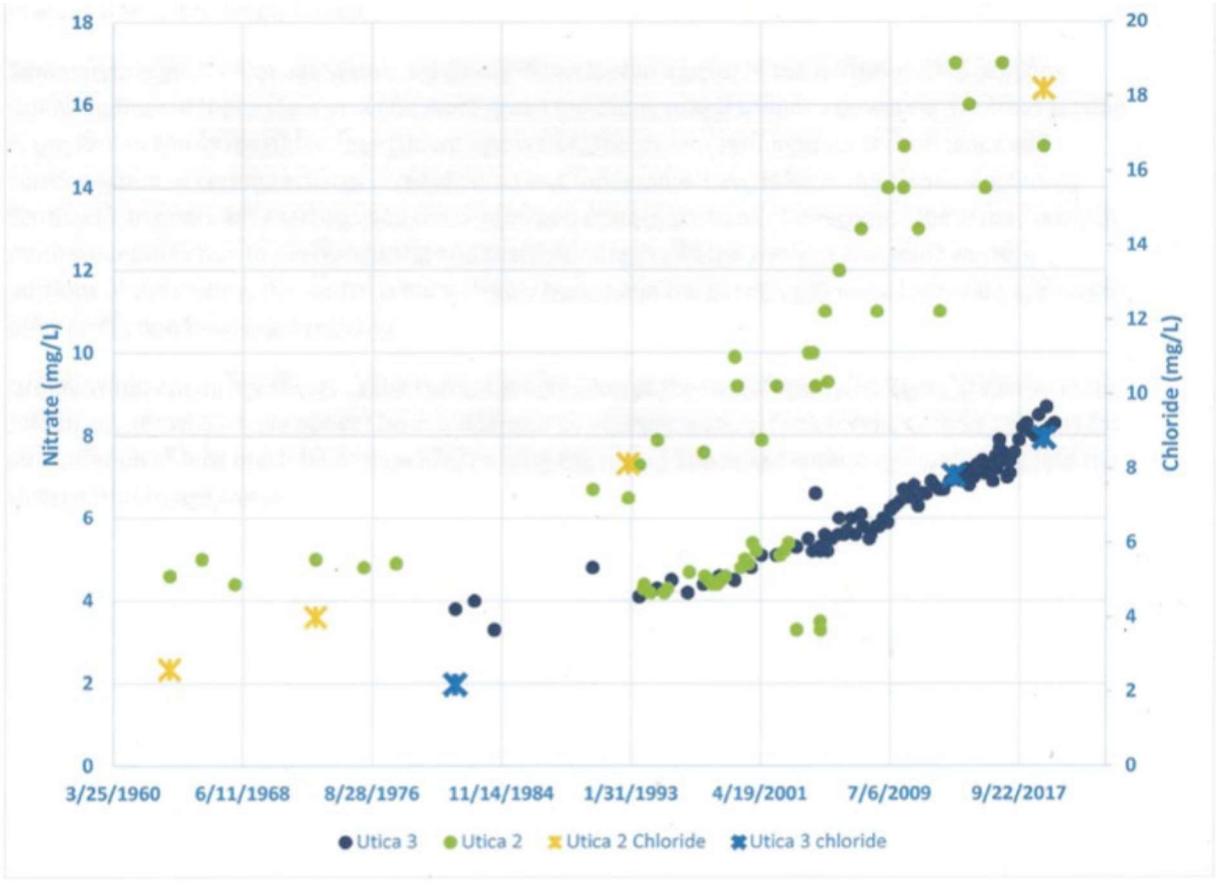

Figure 7: Utica City Well Contamination
Data from Minnesota Geological Survey

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.[73] 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.

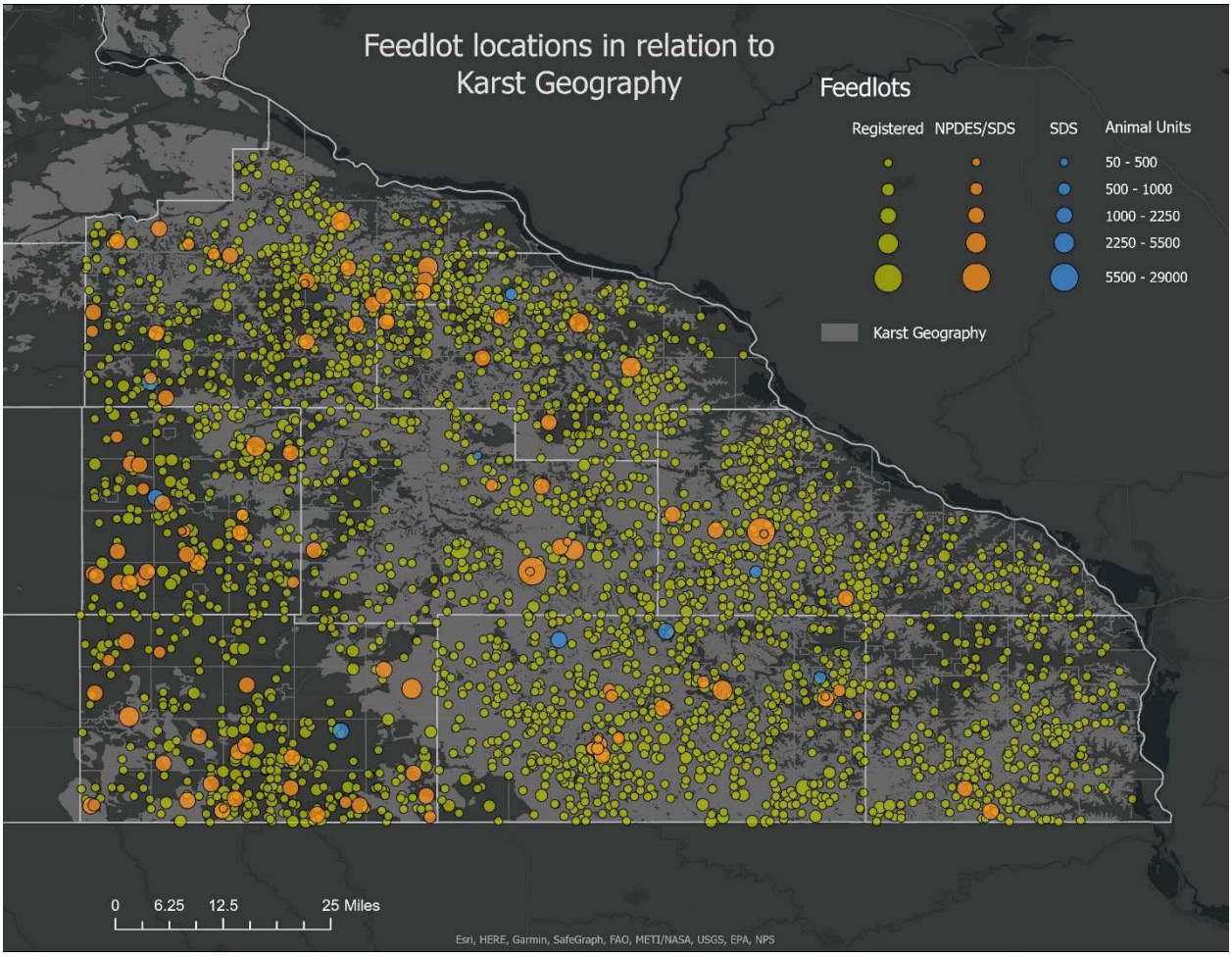

Figure 8: Karst Region Feedlots
Data from MPCA's Feedlots in Minnesota Database

[73] *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.[74] And the number of feeding operations statewide is on the rise.[75] 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.[76] 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.[77]

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.[78] 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.[79] 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]."[80]

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

[75] 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*].

[76] 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.

[77] *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).

[78] 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.

[79] 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.").

[80] 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.[81]

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.[82] 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.[83] 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.[84] 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

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[81] *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.

[82] 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.").

[83] 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).

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

animals[85] 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.[86] 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.[87] Five of these 13 counties are in the karst region.[88] The total estimated nitrogen overload in these five counties is 26,424 tons per year.[89]

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.[90]

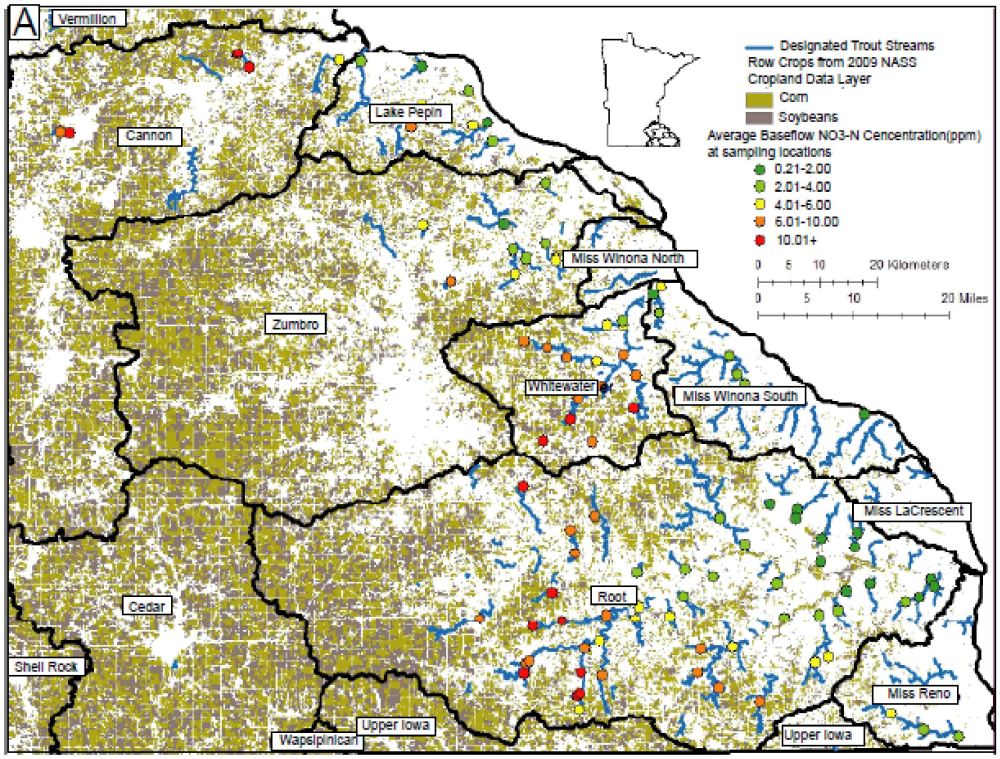

Figure 9: Industrial Agriculture and Nitrate-Contaminated Trout Streams

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[85] 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).

[86] *Manure Overload*, *supra* note 75.

[87] *Id.*

[88] *Id.*

[89] *Id.*

[90] 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.[91] The figure below compares this to other land uses.

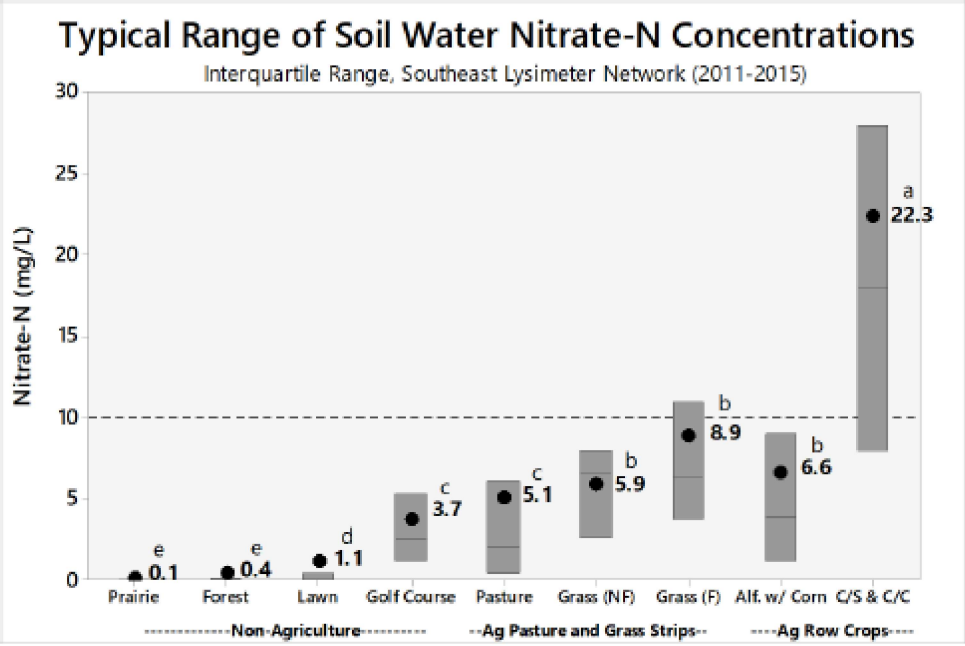

Figure 10: Land Cover and Nitrate Contamination

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

[91] 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,"[92] 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."[93] EPA previously found that nitrate levels above the MCL of 10 mg/L present an imminent and substantial endangerment to human health.[94]

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.[95] 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.[96] 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.[97] 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.[98]

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[92] 40 C.F.R. § 141.62(b).

[93] *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.

[94] *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.

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

[96] *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.

[97] RUNKEL 2013, *supra* note 45, at 45.

[98] 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.[99] Childhood brain cancer has been linked to high nitrate levels in drinking water.[100] MDH also reports other potential health effects such as "increased heart rate, nausea, headaches, and abdominal cramps."[101] Nitrate in water supplies has also been linked to spontaneous miscarriages and birth defects.[102]

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,[103] and recent data trends indicate that nitrate contamination is continuing at a persistent—and harmful—level.[104]

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[99] *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/oph/Center-EH/envepi/PWI/Documents/PEHSU_Nitrates_Consumer_1.20.15FINAL.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.

[100] 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; *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.").

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

[102] 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.

[103] ORES 1982, *supra* note 50.

[104] 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."[105] 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.[106] In part, in 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.[107] It was followed closely by the development of the Nitrogen Fertilizer Management Plan by MDA in 1990.[108] 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.[109] In 2010, MDA began the process of revising the Nitrogen Fertilizer Management Plan.[110] 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

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[105] 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").

[106] 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.

[107] *Id*.

[108] MINN. DEP'T OF AGRIC., NITROGEN FERTILIZER MANAGEMENT PLAN (2015, addended July 2019), https://www.mda.state.mn.us/sites/default/files/2019-08/nfmp2015addendedada_0.pdf [hereinafter NITROGEN FERTILIZER MANAGEMENT PLAN].

[109] 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.

[110] 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.[111] 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."[112] 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.[113] 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

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[111] 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.

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

[113] 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.[114] 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.[115] 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."[116] 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.[117] 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."[118] This means that thus far, the Rule continues to rely on voluntary approaches that have not remedied the problem over the last several decades.

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[114] Attached to this Petition as Exhibit A is Petitioner MCEA's Comment to MDA, which explains the deficiencies of the rule in greater detail.

[115] 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.

[116] 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.

[117] MINN. DEP'T OF AGRIC., STATEMENT OF NEED AND REASONABLENESS IN THE MATTER OF PROPOSED PERMANENT RULES RELATING TO GROUNDWATER PROTECTION 131-133 (2018).

[118] *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.[119] 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.[120] 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.[121]

The Minnesota Department of Health is charged with insuring that public water supplies meet drinking water standards and implementing wellhead protection measures.[122] 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."[123] 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."[124]

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

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[119] 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.
[120] 33 U.S.C. § 1342(a)(2); *see also* 40 C.F.R. § 122.48(b), Minn. R. 7001.0150 subp.2B.
[121] Ex. B at 22-23.
[122] James Lundy et al., *Minnesota's 1989 Ground Water Protection Act: Legacy and Future Directions*, 5 MINN. GROUNDWATER ASSOC. (2022).
[123] *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.
[124] 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.[125] 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.[126] 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."[127]

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:

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[125] 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.

[126] EMERGENCY AUTHORITY GUIDANCE, *supra* note 12, at 14.

[127] *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.

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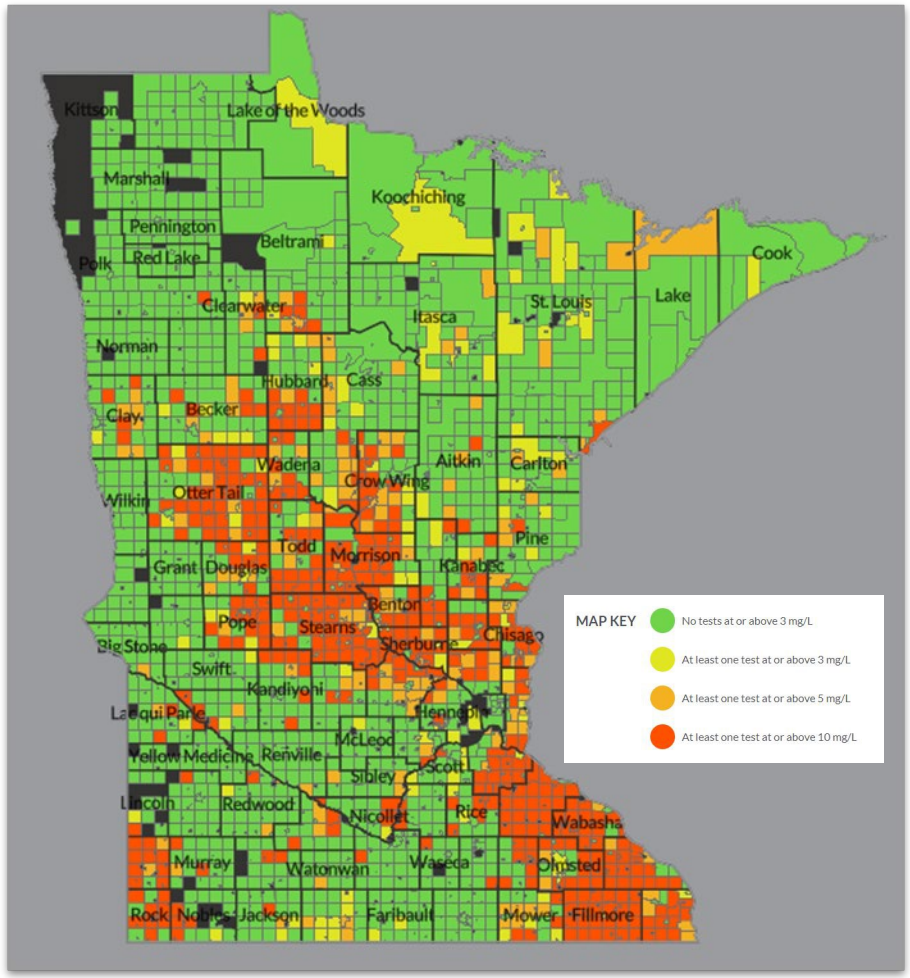
Clean Water Council

November 20, 2023

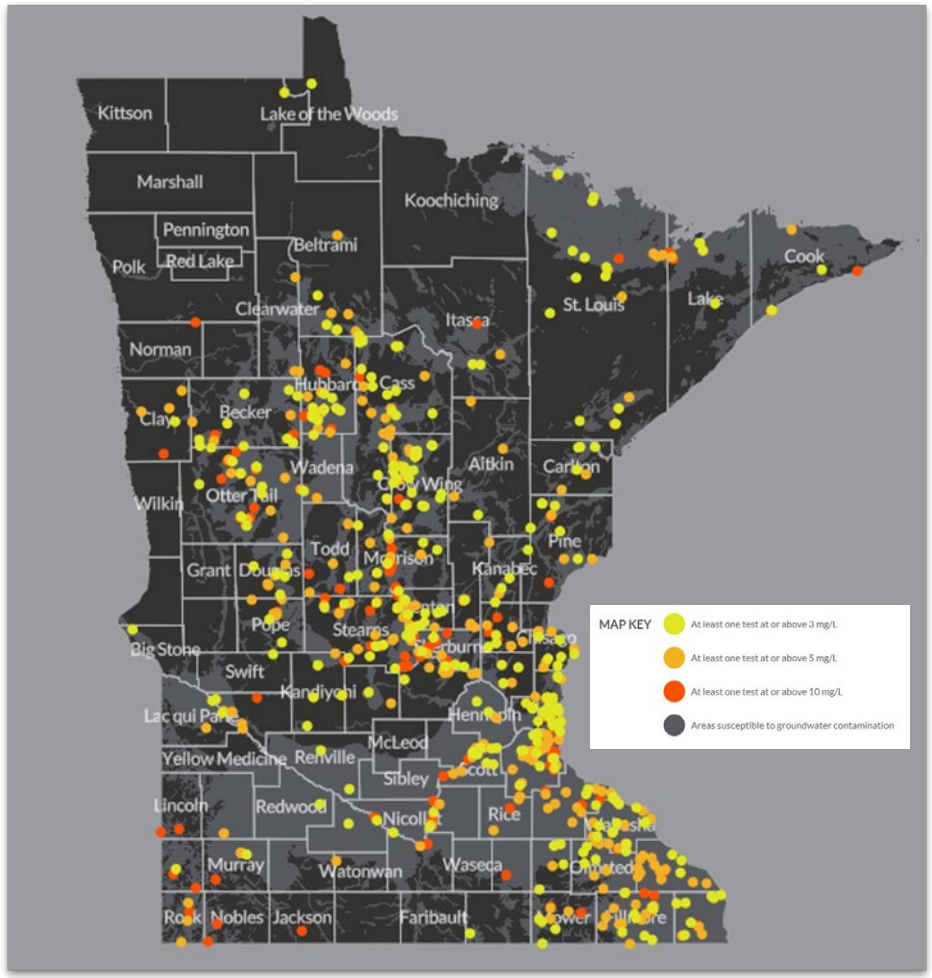
Minnesota Center for Environmental Advocacy
Carly Griffith & Leigh Currie

Nitrate Contamination

Private Wells



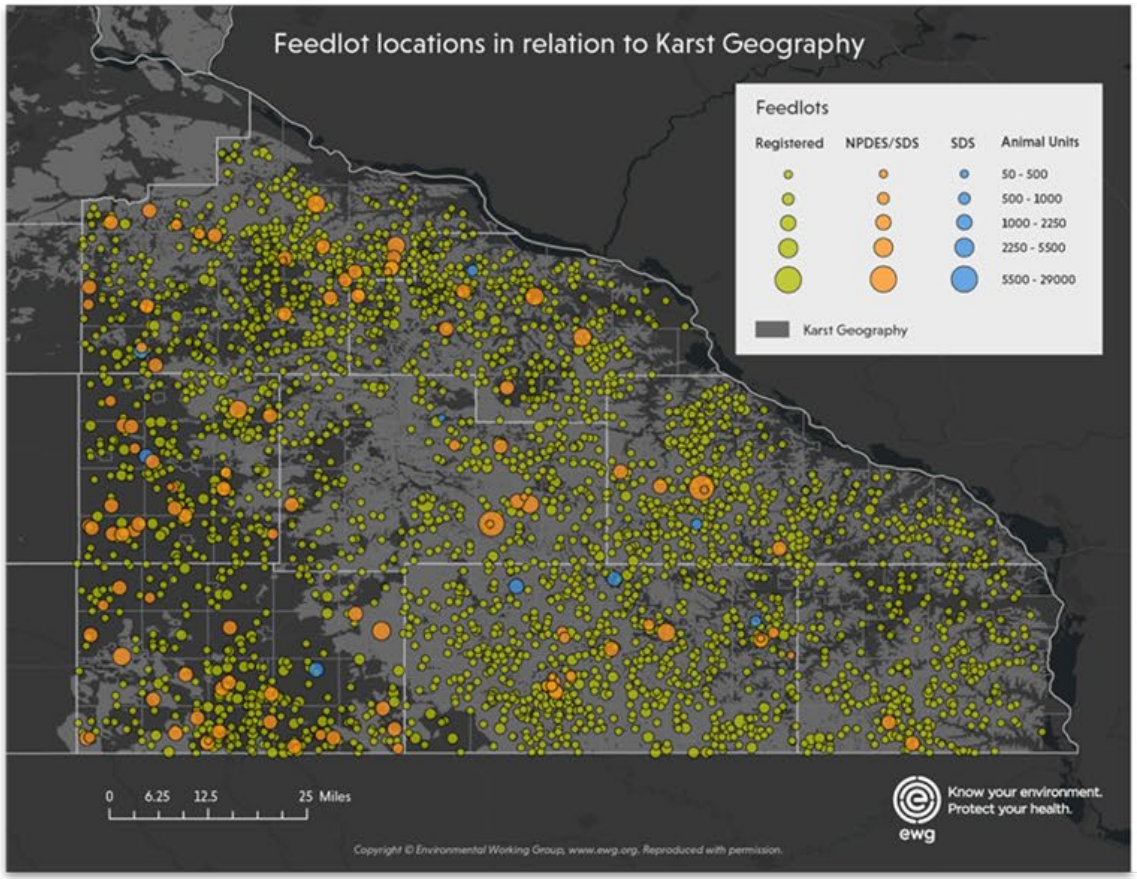
Public Water Systems

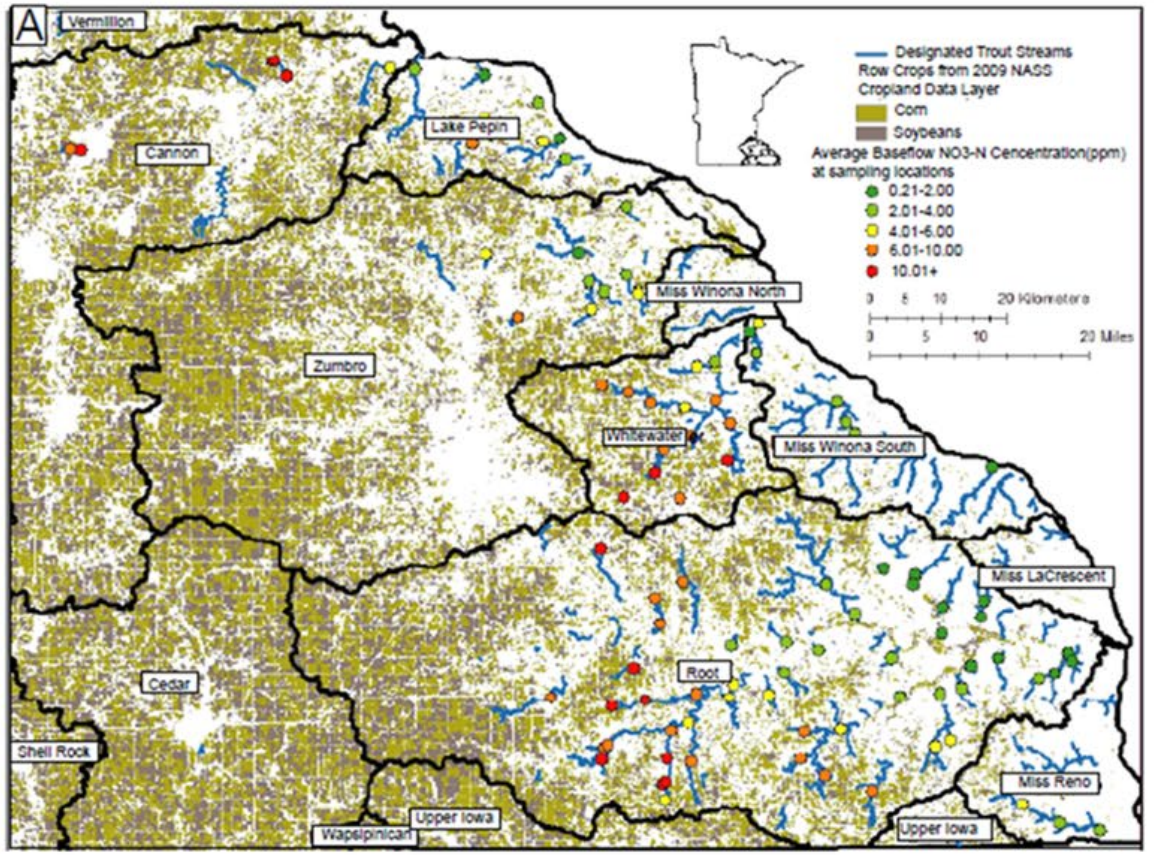


Health Impacts

- Federal limit of 10mg/L set in 1962 to protect against blue baby syndrome
- Increased risk for various cancers (colorectal, thyroid, ovarian) and adverse birth outcomes (neural tube defects, premature birth) from levels as low as 3 mg/L

Land Use


Feedlot locations in relation to Karst Geography
Feedlots
Registered
NPDES/SDS
SDS
Animal Units
50 - 500
500 - 1000
1000 - 2250
2250 - 5500
5500 - 29000
Karst Geography
0 6.25 12.5 25 Miles
Know your environment.
Protect your health.
ewg
Copyright © Environmental Working Group, www.ewg.org. Reproduced with permission.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Zumbro
Whitewater
Miss Winona South
Miss LaCrescent
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Cedar
Shell Rock
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Wapsipinicon
Upper Iowa
Miss Reno
Designated Trout Streams
Row Crops from 2009 NASS Cropland Data Layer
Corn
Soybeans
Average Baseflow NO3-N Concentration(ppm) at sampling locations
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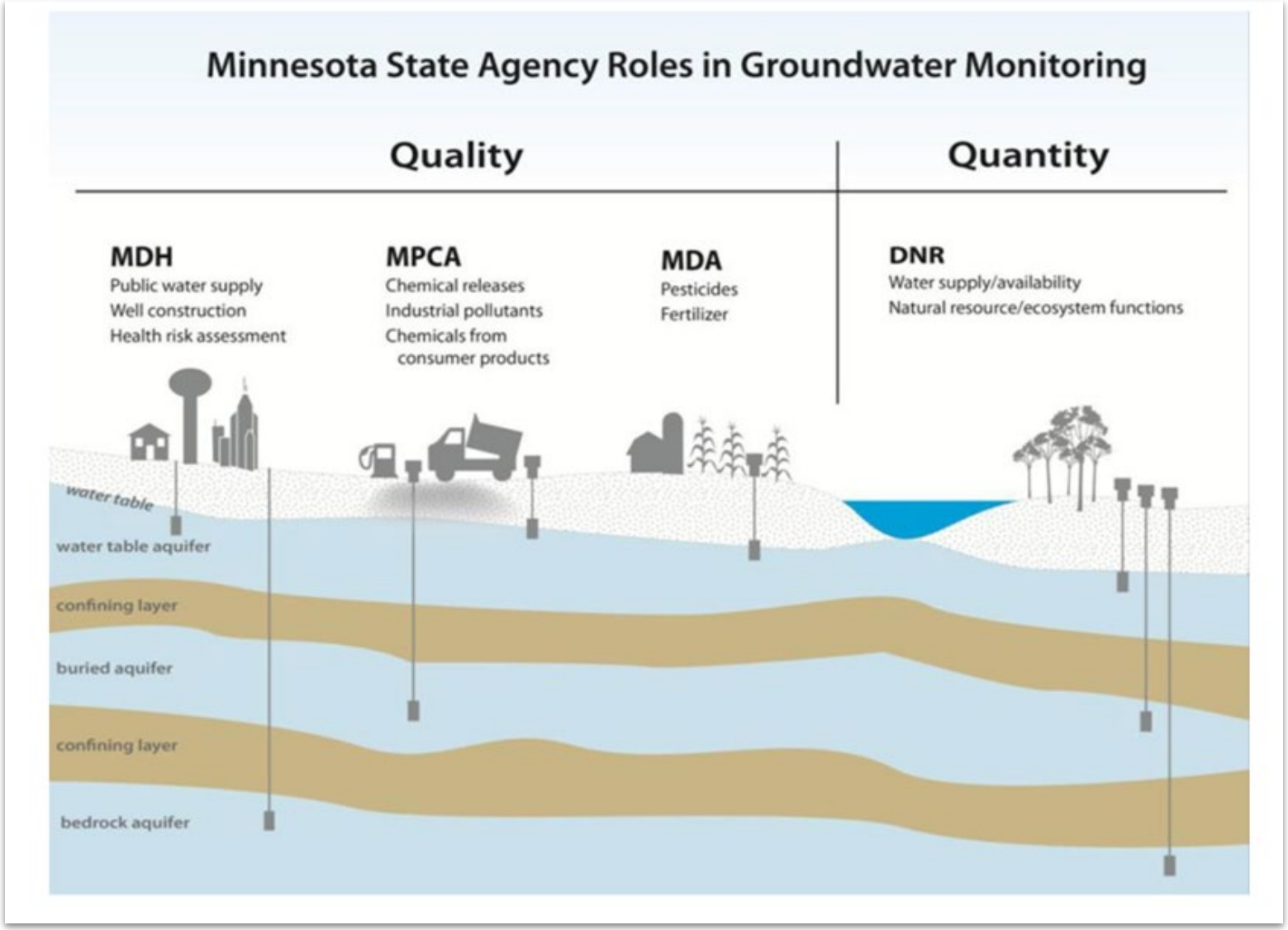
0 5 10 20 Miles

State Agency Jurisdiction over Groundwater



Safe Drinking Water Act Section 1431

EPA retains emergency powers to abate present or likely contamination of a public water system or underground source of drinking water if it receives "**information**" that the **contamination** "may present an **imminent and substantial endangerment** to the health of persons" and "appropriate State and local authorities have not acted to protect the health of such persons."

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
- Public Health Law Center

EPA Response

- Create a plan to communicate among the state and local governments to ensure a coordinated response;
- Identify all private wells in the karst region, including pre-code wells;
- Provide education and outreach to impacted well owners and residents about contamination and testing;
- Provide water testing to residents of the karst;
- Provide free alternate drinking water for residences that tested above the maximum contaminant limit for nitrate;
- Maintain public records about the problem and the plan to address it; and
- Provide quarterly progress reports to EPA.

Public Health

- Coordinated communications plan to inform residents of health risks, how to test
- Hazard assessment with a focus on pre-code wells
- Education and outreach partnership with local health care providers
- Laboratory analysis of water samples
- Permanent fund source for private well mitigation

Prevention

- Revise feedlot rules for vulnerable groundwater areas like the karst
- CAFO General Permit
- Township-scale nutrient management recommendations under NFMP
- Local controls like animal unit caps to limit the growth of feedlot operations
- Broader adoption of best management practices like cover crops and diverse crop rotation
- Grant programs to increase manure storage capacity, incentivize AMMPs for small and midsize feedlots

Discussion on Private Well Initiatives

November 20, 2023

minnesota
well owners organization

FRESHWATER

Presenters

Backgrounds in drinking water, engineering, geology, and private wells.

Michelle Stockness, PE

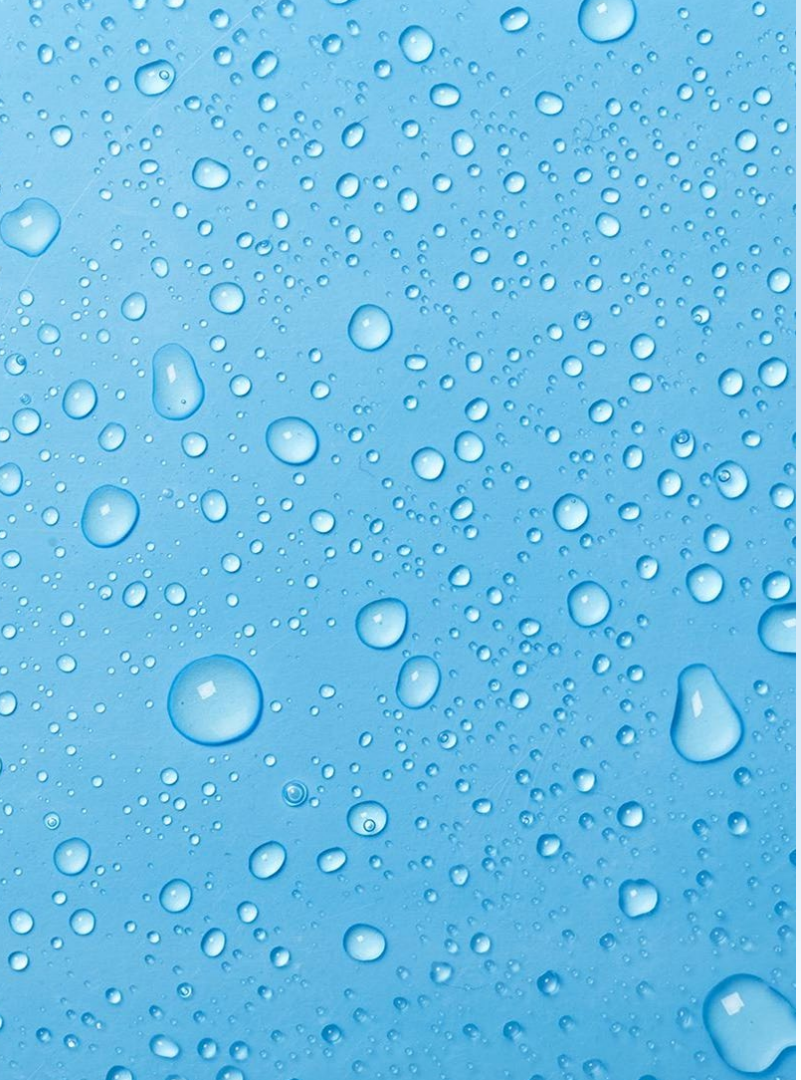
Freshwater

Executive Director

Jeff Broberg, PG

Minnesota Well Owners Organization

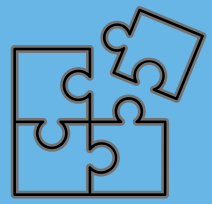
Founder



Agenda

- Background and a call to action *(5 min)*
- Ideas for program management, policy, education, testing, treatment and support *(10 min)*
- Discussion *(30 min)*

We understand this is complicated



Environment

EPA says 'further actions' needed to protect human health from nitrate in southeast Minnesota

Kirsti Marohn November 8, 2023 12:05 PM

LOCAL

EPA to Minnesota: Take action to protect people from polluted wells in eight counties

A coalition of groups had asked the EPA to declare a public health emergency.

"**Somebody needs to put the big picture together**."
-Paul Wotzka, MPR October 31, 2023

Current Fractured Landscape

Agency

Statewide

County and Township

Individual

Three Pillars for Advancing Water Equity

PILLAR 1

Ensure all people have access to clean, safe, affordable water service.

- Affordability
- Access to Infrastructure
- Water Quality

PILLAR 2

Maximize the community and economic benefits of water infrastructure investment.

- Workforce Development
- Contracting and Procurement
- Neighborhood Revitalization

PILLAR 3

Foster community resilience in the face of a changing climate.

- Planning and Assessment
- Funding
- Project Delivery

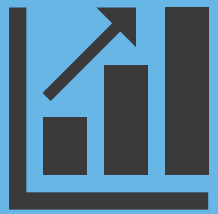
US Water Alliance

Call to action

We challenge you to grow and coordinate current private well policies and programs to show national leadership for public health and safe drinking water in rural communities.

Program Management

Proposed Ideas



- Create a new Clean Water Council program to help with coordination, tracking, funding.
- Collaborate and clearly delineate roles, responsiblities and budget needs for a permanent program.
- MDH should be the lead agency due to public health.
- Hire outside entities to help manage the process, fill staffing needs, grow in size and speed.

Policy

Proposed Ideas

- Strengthen MDH authority to lead communication of public health risks for aquifers that supply drinking water.
- Include regional karst areas as GWPAs and DWSMAs in statute.

Education

Proposed Ideas

- Community-based education via community partners such as U of M Extension, SWCD, MAP, MNWOO, or Minnesota Water Stewards.
- Communicate with tribal governments, cities, county and township boards, civic groups, faith groups, local public health officials.

Inventory

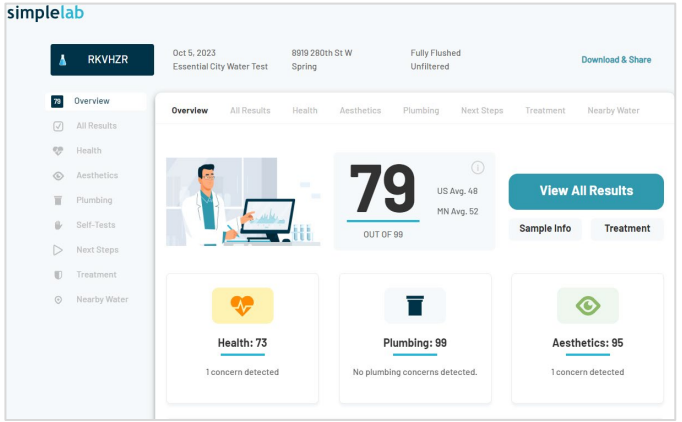
Proposed Ideas

- Work with community partners to locate wells and owners.
- Communicate with tribal governments, cities, county and township boards, civic groups, faith groups, local public health officials.

Testing

Proposed Ideas

- Tests to all in 1-year
- Organize free well screening and testing with local partners.
- Lead with pubic health view.
- Offer technical guidance and follow-up resources.



Treatment and Support

Proposed Ideas

- Community-based education to interpret water quality results, treatment needs, ongoing well operation, and maintenance.
- Provide grants for treatment or alternate water supply.

In Summary

Coordinate and clarify roles and responsiblities with MDH leading

Use outside entities to speed up and grow the process

Work with local community partners to provide trusted information.


Discussion:
Comments? Ideas? How can we help?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