July-September 2024 Update

ADDRESSING NITRATE IN SOUTHEAST MINNESOTA

This document provides updates from Minnesota Department of Health (MDH), Minnesota Pollution Control Agency (MPCA), and Minnesota Department of Agriculture (MDA) on their efforts to address nitrate in groundwater in southeast Minnesota from July through September 2024. The updates are categorized by how work is listed in the Work Plan: Addressing Nitrate in Southeast Minnesota (PDF) (https://www.health.state.mn.us/communities/environment/water/docs/wells/waterquality/epaworkplan.pdf).

Contents

Phase I: Immediate Response

Goal 1: Conduct education and outreach

Phase I education and outreach was completed in June 2024. Please see Phase II Goal 2: Conduct education and outreach for this quarter's education and outreach update.

Goal 2: Provide alternate water for vulnerable populations

Limited well testing

The MDH secured $25,000 for about 150 well test kits for private well households that have a pregnant person or baby under 1 year old in the home and have not tested their private well for nitrate since 2019. The intent is to provide this free testing opportunity for all five MDH-recommended contaminants (nitrate, coliform bacteria, arsenic, manganese, and lead) so that no household is excluded from limited bottled water due to not having a well test result from 2019 or after. The other four contaminants are included so that if the results come back below 10 mg/L for nitrate, the well owner does not mistakenly conclude the well does not exceed health guidance values for the other top priority contaminants. This effort officially launched on May 10, 2024 and will continue until all funds are used up and until the larger agreement is in place for any private well households to get their well water tested.

As of September 30:

- ***48 eligible households have requested and received a well test kit*.**
- ***17 households who received test kits returned them and received water test results***.

Outreach about this opportunity included:

- **Webpage:** The form to request a well test kit is available on the MDH Response to EPA Nitrate Letter for Southeast Minnesota (https://www.health.state.mn.us/communities/environment/water/wells/waterquality/nitratesemn.html) webpage.
- **Sharing through partners:** Local public health (including WIC clinics and Family Home Visiting), delegated well programs, soil and water conservation districts (SWCDs), and other local partners shared the information with interested households and partners who interact with private well users. MDH provided partners with flyers and written information about the opportunity.
- MDH shared the availability at the four **community meetings** in the region.
- Paid social media.

Future outreach plans include media releases and radio announcements once laboratory capacity increases.

Limited bottled water

The MDH secured $25,000 for a limited quantity of bottled water for the most vulnerable private well households—households that have nitrate at or above 10 milligrams per liter

(mg/L) and a pregnant person or baby under 1 year old in the home. MDH set up a contract with a bottled water vendor and their corresponding distributor that covers southeast Minnesota. The bottled water is a temporary option until a longer-term solution is available. Mitigation efforts for eligible households will transition to reverse osmosis installation instead of bottled water during the next quarter.

This effort officially launched on May 10, 2024. As of September 30, ***five eligible households have signed up to receive bottled water*.**

Outreach about this opportunity during this quarter included:

Webpage: The form to request bottled water is available on the MDH Response to EPA Nitrate Letter for Southeast Minnesota (https://www.health.state.mn.us/communities/environment/water/wells/waterquality/nitratesemn.html) webpage.

Sharing through partners: Local public health (including WIC clinics and Family Home Visiting), delegated well programs, soil and water conservation districts, and other local partners shared the information with potentially eligible households. MDH provided partners with flyers and written information about the opportunity.

MDH ran ads on Instagram and Facebook for two weeks focusing on populations of young parents, community health workers, and pregnant persons. The ads generated 601 link clicks and 41,958 views.

Reverse osmosis for eligible households

MDA executed an amended Joint Powers Agreement (JPA) that adds more funding for the implementation of a drinking water mitigation program in eight counties of southeastern Minnesota, including Dodge, Fillmore, Goodhue, Houston, Mower, Olmsted, Wabasha, and Winona. The JPA is administered by the Olmsted SWCD and will be accomplished through a unique partnership between local SWCDs, county water resource managers, and MDA.

Specific objectives

- Use existing water quality data to identify past participants of MDA private well testing programs that had elevated nitrate concentrations (10 mg/L or above) and/or elevated pesticide concentrations and shared the opportunity for reduced cost or free water treatment systems with users of these water systems. ***MDA sent information about the opportunity for a nitrate home treatment system to approximately 1,200 well owners who participated in an MDA well testing program. About 320 well owners responded with interest. After this initial effort to contact the MDA program participants is complete, mitigation efforts and cost share requirements will be broadened to include any private well owners in the eight-county area that have a test >10 mg/L nitrate.***
- Develop a process to provide mitigation using professional installation of reverse osmosis treatment systems including one year of system maintenance. ***This task is in progress. Two contractors have been awarded the bid to install reverse osmosis treatment system in homes within the eight-county area. During the next quarter, Olmsted SWCD will connect homeowners with contractors to get the systems installed.***

The Olmsted SWCD and local county partners have reached out to the initial households that are eligible and indicated interest in mitigation. These households have been sent a survey to fill out so distribution of the funding can be prioritized for households with young children or pregnant women, or that are below the 300% federal poverty level. The MDA will also provide mitigation for private wells that have tested at or above the drinking water health risk limit for pesticides. Many of the wells with elevated pesticides also have elevated nitrate.

The following criteria have been established to guide cost share for the purchase and/or installation of point-of-use reverse osmosis water treatment systems.

- 100% cost share for households with a private well that has a nitrate concentration above 10 mg/L and have pregnant person(s), or children under 1 year of age living in the household.
- 100% cost share for households with a private well that is equal to or exceeded the cyanazine or other pesticide health risk limit.
- 100% cost share for households with a private well that has a nitrate concentration above 10 mg/L and are at or below 300 percent federal poverty guideline.
- 100% cost share for households with a private well that has a nitrate concentration above 10 mg/L and do not meet the criteria above.

All efforts will be made by Olmsted SWCD to minimize costs for reverse osmosis system purchase, installation, and maintenance in order to provide as many systems as possible.

Goal 3: Engage stakeholders and develop partnership

Stakeholder engagement and partnership development work started in Phase I has been completed and/or transitioned to Phase II.

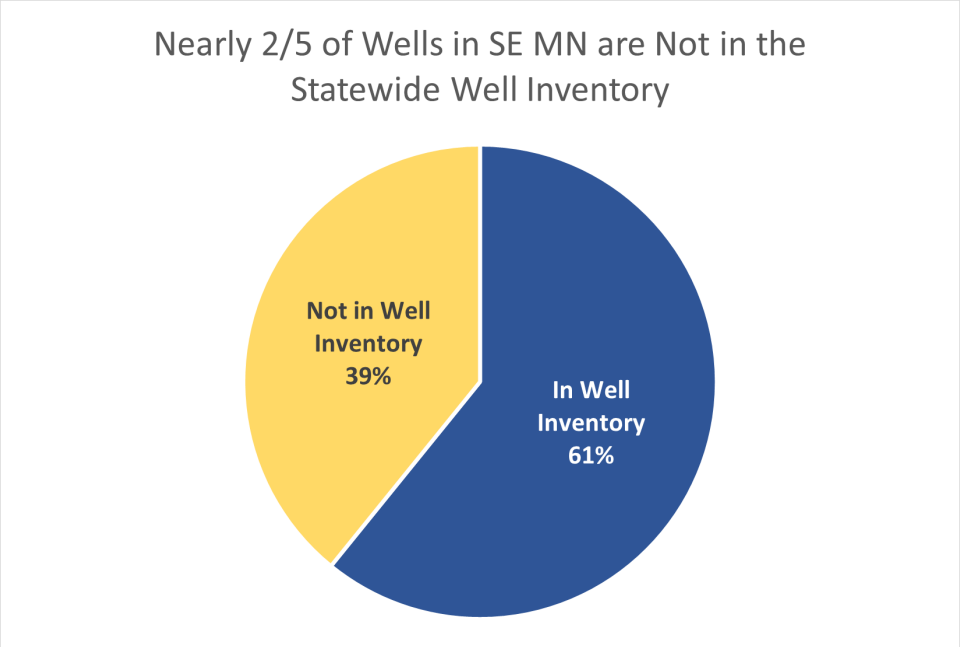
Phase II Work

Phase II work began in July 2024 and will continue throughout the duration of the effort.

Goal 1: Identify impacted residences

Well Inventory

MDH worked with mapping experts from the MDH Environmental Epidemiology Unit to help identify households that most likely use private wells. They also identified households that likely have a well, but are not recorded in the County Well Index, Minnesota's well inventory. The number of possible wells was determined by referencing tax parcel information for properties outside of drinking water system service area boundaries. The Environmental Epidemiology Unit identified an estimated 35,390 potential well locations in the eight-county area. Out of the 35,390 potential well locations 21,533 have wells recorded in the inventory, leaving approximately 13,857 with wells that need to be added to the inventory.



MDH is developing partnerships with local agencies to identify and add existing wells to the County Well Index. Next steps include meeting with each county to understand their interest in the well inventory work and capacity to help.

Goal 2: Conduct education and outreach

Minnesota Private Well Education and Steward Network

The University of Minnesota Water Resources Center is defining the initial focus and approach for developing a peer-to-peer learning network for private well owners, starting in southeast Minnesota. Candidates were interviewed for this position in early September.

Establishment of contract for marketing

MDH is establishing a contract with MP+G (https://www.mpgmarketingsolutions.com), a marketing firm in Minnesota, that will provide outreach plans and designs to help educate the public on water testing and health impacts of nitrate. Many of the deliverables will not be complete until spring of 2025.

State Fair Eco Experience Booth

MDH created a groundwater exhibit for the Minnesota State Fair and participated in the "Question of the Day" activity which provided volunteers and opportunity to discuss groundwater science, common contaminants, and the difference between private and public water supplies. 218,354 State Fair attendees visited the eco experience building where the exhibit was located.

In addition to the work noted above, in July, the TAP-IN Collaborative launched their well testing campaign that is funded by a Clean Water Fund grant. While this funding is not directly tied to response efforts, the campaign supports efforts to offer well testing in southeast Minnesota. See Find Testing Services (https://safe-drinking-water-for-private-well-users-gis-olmsted.hub.arcgis.com/pages/testing-services). TAP-IN did a great job announcing the launch; several media outlets picked up the launch. For example, see Minnesota Public Radio's article: Program provides free water test kits for private well users in southeastern Minnesota (https://www.mprnews.org/story/2024/07/15/program-provides-free-water-test-kits-for-private-well-users-in-southeastern-minnesota).

Goal 3: Test private well drinking water

Phase I free testing of private wells used by vulnerable populations continues. Free testing will broaden to include all private well users in the eight-county area as soon as contracts are finalized with SEMWAL. This expanded testing is planned to be available in the next quarter.

Goal 4: Provide alternate water

Phase II work continues the work started in Phase I to provide reverse osmosis to eligible households. During next quarter, mitigation efforts and cost share requirements will be broadened to include any private well owners in the eight-county area that have a test >10 mg/L nitrate. See *Phase I Goal 2: Reverse osmosis for eligible households* in this report for more detailed information about the mitigation work started in Phase I that will continue in Phase II.

Goal 5: Provide public record of work

MDH continues to work with the Environmental Public Health Tracking team to develop maps of nitrate in private wells for southeast Minnesota and a dashboard on the MN Public Health Data Access Portal (https://data.web.health.state.mn.us/web/mndata/home). Maps with aggregated nitrate testing data have been added to the Private Wells in Southeast Minnesota (https://data.web.health.state.mn.us/private-wells-in-southeast-mn) page that show the percent of private wells with nitrate levels at or above 10 mg/L by county and by census tract.

At this time, the maps are limited to using data from Southeast Minnesota Water Analysis Laboratory (SEMWAL) 2016 - 2024. MDH will continue to add data points to the visualizations as it is available. Note that SEMWAL is only one of the laboratories private well users may use therefore the data visualization is not inclusive of all private well testing for nitrate completed in SE MN.

Additional data visualizations are planned and will be added to the site as capacity to develop and display data visualizations increases.

Goal 6: Engage stakeholders and develop and maintain partnerships

TAP-IN

MDH has met with TAP-IN leadership as needed and regularly consults with TAP-IN to ensure we are meeting their needs. MDH is in the process of setting up a SharePoint Site to have a central location for updates and documents. MDH and MDA meet monthly with leadership from Olmsted County to discuss work and make decisions.

Southeast Minnesota Water Analysis Lab

MDH has been meeting with SEMWAL in addition to TAP-IN leadership to discuss contracting and arrangements for water quality testing.

Petitioners/NGOs

MDH met with the Minnesota Well Owners Organization and the Minnesota Ground Water Association to discuss private wells, including efforts in southeast Minnesota. When developments in the work plan or the legislature have arisen, MDH connected with Minnesota Center for Environmental Advocacy and Freshwater to discuss the updates.

Other interested parties

Dan Wilson: MDH met with Dan, who is a farmer and advocate in Southeast Minnesota working with Project REACH (https://ctsi.umn.edu/training/project-reach) through the University of Minnesota. We discussed possible legislative proposal to help fund community health workers to preform water quality tests and provide education.
Rachel Stoll: MDH met with Rachel who is a part of the MN Community Health Workers Alliance. We discussed how community health workers may be a good option for helping folks test their water and provide education.

Phase III Work

MPCA and MDA completed the following Phase III work from July through September 2024.

Task Force to Address Nitrate in SE Minnesota (MPCA/MDA)

MPCA and MDA have developed a community stakeholder work group to:

- Build a shared understanding of the challenges and opportunities of addressing nitrate pollution in southeastern Minnesota.

- Deliberate and build consensus on ways to strengthen the long-term nitrate reduction strategies.
- Develop recommendations for improving, prioritizing, and implementing strategies. These strategies include strengthening communication and engagement activities, policy and funding proposals, and collaborative strategies to accelerate prevention and mitigation activities.

The Addressing nitrate in southeastern Minnesota (https://www.pca.state.mn.us/air-water-land-climate/addressing-nitrate-in-southeastern-minnesota) web page is regularly updated with the word groups progress.

The work group's initial meeting was on July 11th. The workgroup also met on August 14th and September 11th and will continue to meet monthly. During this quarter, the main goal was to build relationships and develop a shared understanding of the nitrate issue.

Updating Minnesota's Nutrient Reduction Strategy (NRS)

An NRS outreach webinar was held on August 12th and covered nutrient loads in the Red and Mississippi Rivers. Representatives from the Metropolitan Council, the U.S. Geological Survey, and MPCA discussed their agencies' monitoring programs, explained how those data support the statewide NRS revisions, and answered audience members' questions. Over 250 people attended the event.

Working Groups

This summer and early fall have been devoted to data analysis and writing. While much work has been accomplished, few products have been completed at the time of this report. The majority of the working groups are conducting reviews or second or third versions of NRS chapters.

- **Agriculture Best Management Practice (BMP) Science**— the University of Minnesota (UMN) research team has completed a partial literature review and analysis for rates of nitrogen reduction from BMPs. The draft review was shared with BMP experts at the end of the summer for internal review. Plans are being developed for a BMP expert group to apply the nitrogen rates to water quality models this fall. A new researcher joined the UMN team to develop phosphorus BMP reduction rates this fall through early spring of 2025.
- **Scaling-up Agriculture BMP Adoption**— A list of existing and potential new BMP adoption scale-up programs in Minnesota has been created with input from multiple working group members as well as the interagency Steering Team. Means to scale-up these programs across the state or identify commonalities that could be scaled-up up are being researched and will be incorporated into a new work plan for the next round of Gulf Hypoxia Program funding.
- **River Loads (updating nutrient loads, goals, sources, and priority areas)**— River nutrient load changes over time have been assessed and are showing significant reductions for phosphorus and some indications of progress with reducing nitrogen. Priority watersheds for in-state nutrient reduction needs have been mapped and are in

draft. Additionally, watershed outlet nutrient reduction planning goals to meet state line goals have been identified through modeling for each HUC8 watershed in the state.

- **Urban Nutrients**— The working group is implementing edits to the first draft of its chapters and intends to send out a second draft for review during the remainder of this summer. One of the findings included in these drafts is that stormwater nutrient reduction efforts in Minnesota have been successful and future efforts should build on this progress. A contracted assessment of denitrification successes in wastewater treatment plants in cold climates has begun and will be inform the revised NRS as support for this chapter.
- **Watershed-scale Integration, Tools, and Resources**— This working group has integrated review comments into the third draft of Chapter 6. MPCA and BWSR have interviewed local watershed planners to hear their ideas for how to increase large-scale nutrient reduction, to evaluate watershed planning tools, and identify needed training and support for those tools. A few final interviews were conducted over the summer, and summary of those reviews and the findings of an on-line survey sent out earlier in the spring will be completed this fall.
- **Progress Tracking**— This group has created a preliminary dashboard design that would allow more frequent and flexible updating on progress and was presented to the interagency Steering Team in June. MPCA has also drafted a new interactive application to evaluate the effects of past conservation practice implementation and adoption of new practices. This application will help visualize the status of major watersheds on meeting nitrogen and phosphorus reduction targets needed to meet NRS nutrient goals. The NRS dashboard concept has generated a lot of interest both among agency leadership and the public and will likely be a topic for the outreach webinar series.

Feedlot Permits (MPCA)

The General National Pollutant Discharge Elimination System (NPDES) and State Disposal System (SDS) permits for confined animal feedlots expire in 2025 (SDS) and 2026 (NPDES). MPCA hosted several stakeholder meetings in the development of the proposed draft permits. The focus for the proposed draft permits is to continue reducing nitrate in our ground and surface waters to protect human health and the environment. The proposed draft permits include new nitrogen application requirements to limit nitrate leaching potential:

- Beginning in 2028, manure applied in October through November in vulnerable areas must implement one of the following nitrogen BMPs:
    - Apply to actively growing crop.
    - Apply to actively growing cover crop or plant a cover crop within 14 days of harvest.
    - Rotation includes a perennial crop for at least 2 of next 5 years.
- Prohibition on application of manure to frozen or snow-covered soil in March.

The draft permits were placed on public notice on June 24, 2024. The comment period ended September 4, 2024. Three stakeholder outreach meetings were held during this comment

period. Details on these meetings and a summary of the comments received are included below.

Stakeholder outreach conducted

- July 15: Face-to-face meeting in Paynesville, MN
- July 22: Face-to-face meeting in Fairmont, MN
- July 24: Face-to-face meeting in Chatfield, MN

These meetings were geographically spread out across central and southern Minnesota. The total attendance was approximately 135 people, consisting of agricultural producers and environmental groups. The goal was to inform interested parties of the new requirements within the draft permit, offer an opportunity for questions, and inform them of the importance of effective public comments how they can make those comments on record. The general public perception of meeting with MPCA staff was positive. We are looking forward to continuing to build these relationships.

Comments

- 177 unique commenters *(189 submissions – multiple submissions from some commenters).*
- Only one from a legislator.
- No Contested Case Hearing Requests.
- Mix of those in support of the changes and those not in favor of the changes.

Some major themes from the comments

- There is a large difference in land application requirements between permitted sites and non-permitted sites and we should consider all manure application equally – this came from both those in favor and opposed to the changes
- Concern that the permit requirements would be applied to smaller farms as part of upcoming feedlot rulemaking
- Suggestions for us to require water monitoring of the land application fields and manure storage areas
- Concerns that cover crops aren't reliable each year, are expensive, can't be used after a corn for grain crop (too late to plant), and will increase greenhouse gas emissions from increased equipment use
- Spring application is not a realistic option for manure in most situations due to the limited window for application and subsequent crop planting and concerns about soil compaction
- Suggestion to add nitrification inhibitors along with cool soils as options to allow fall application in vulnerable areas
- It will be difficult for feedlots to still find willing recipients for manure if recipients are held to the permit requirements (i.e. cover crops and other nitrogen BMPs)
- Feedlot owners should not be responsible for getting records back from manure recipients about their land application practices nor reporting that to the MPCA
- A few legal arguments were presented:
    - MPCA lacks legal authority to require manure recipients to follow the permit requirements of the feedlots

    - Permit doesn't comply with recent case law out of Idaho that requires more water monitoring of manure storage structures and land application sites
- As of mid-October, MPCA is in the process of reviewing comments and responding to them

Feedlot Rules (MPCA)

The MPCA hosted three meetings in late June and early July with stakeholder groups to discuss engagement during the feedlot rule revision process.

- June 17: Face-to-face meeting in St. Paul with environmental groups to discuss the rulemaking process (6 attendees)
- June 18: Virtual meeting with County Feedlot Officers to discuss the rulemaking process (significant number of county attendees)
- July 9: Face-to face meeting in Eagan with ag groups to discuss rulemaking process

We are committed to finishing up the general permit process before moving forward with any rule revision, because the same team that is working on the permits will also be assigned to the feedlot rule revision. At this time, we are unable to provide a reliable estimate when an initial scoping public comment period would begin. We will be providing more details and outreach in the 1st quarter of 2025 regarding the feedlot rule revision process.

Wastewater Nitrogen Reduction and Karst Strategies

The final Wastewater Nitrate Reduction Strategy was shared with the stakeholders in January 2024 and launched publicly in April 2024. Implementation of Phase 1 in wastewater NPDES permits has begun which makes progress toward achieving nitrogen reduction goals by evaluating options and implementing actions to reduce nitrogen in wastewater discharges by using non-regulatory methods like source reduction and wastewater treatment facility optimization.

Nitrogen Fertilizer Management Plan implementation (MDA)

During the 2024 legislative session, MDA received supplemental Clean Water funding to accelerate implementation of the nitrogen fertilizer management plan (NFMP) in southeast Minnesota. This includes working voluntarily with farmers to increase adoption of practices on a township scale. Funding became available July 1, 2024. A workplan is being developed and initial outreach with partners has begun. Key tasks for the multi-year workplan include:

- selecting the township(s)
- compiling township information
- critical source area and GIS review
- on-farm walkovers
- communication and outreach
- working with farmer leaders

- survey of cropland management in a township
- computer modeling
- demonstration projects based on result from BMP survey
- promoting and increased adoption of cover crops, forage crops, small grains and perennials (including a focus on the Forever Green Initiative)
- obtaining funding for implementing selected BMPs and other groundwater protective practices
- program coordination
- tracking outcomes
- new partnership strategies with ag retailers, MAWQCP, and SWCDs

MDA provided funding to hire a new shared position at Fillmore, Wabasha, and Winona SWCDs. This position has been hired and an initial meeting was held on October 8 in Preston, MN. This Nutrient Management Technician position was developed to provide nutrient management technical assistance, with a focus on nitrogen, to livestock producers working in Level 2 DWSMAs and high nitrate townships in southeast Minnesota.

The Minnesota Ag Water Quality Certification (MAWQCP) program hired an additional certifier to support the southeast region (June 2024). This hiring fills a vacancy and will help address a backlog of interested producers in southeast Minnesota.

MDA continues to meet with the Forever Green Initiative and partners to explore opportunities for new acres of winter annual oilseeds and perennial grains in southeast Minnesota. This includes crop implementation and supporting the development of supply chains and markets.

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