July - September 2025 Update

Addressing Nitrate in Southeast Minnesota

This document provides updates from the 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 2025. The updates are categorized by how work is listed in the Work Plan: Addressing Nitrate in Southeast Minnesota (PDF).

Text in the shaded blue boxes is an explanation of the goal as defined in the Work Plan (PDF).

Contents

Phase II: Public Health Intervention

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

Note: Phase I work was completed in October 2024. Many of the efforts that began during Phase I continue or have been expanded to a broader audience in Phase II.

Goal 1: Identify impacted residences (MDH)

Identify each residence that obtains drinking water from a private well. The identification process will combine existing information with a project to add missing information.

Well Inventory Workplans and Contracts

MDH continues to work with each of the eight counties to develop well inventory programs. MDH is working with partners from each county to develop strategies to address well inventory minimum requirements, increase knowledge about where private wells are located, funding availability, and capacity to do well inventory work. These partners include local public health departments, delegated well programs, environmental services, and soil and water conservation districts (SWCDs) who work with private wells and local government leadership.

MDH is working with each county individually to develop strategies and contracts to complete a well inventory that meets each county's unique needs. This work is being done strategically in a phased approach to address differing funding and capacity at each county. All eight counties expressed interest in a grant to increase the number of wells in the well inventory.

The Dodge, Fillmore, Goodhue, Houston, and Wabasha County contracts have been executed, and work has begun. (Figure 1).

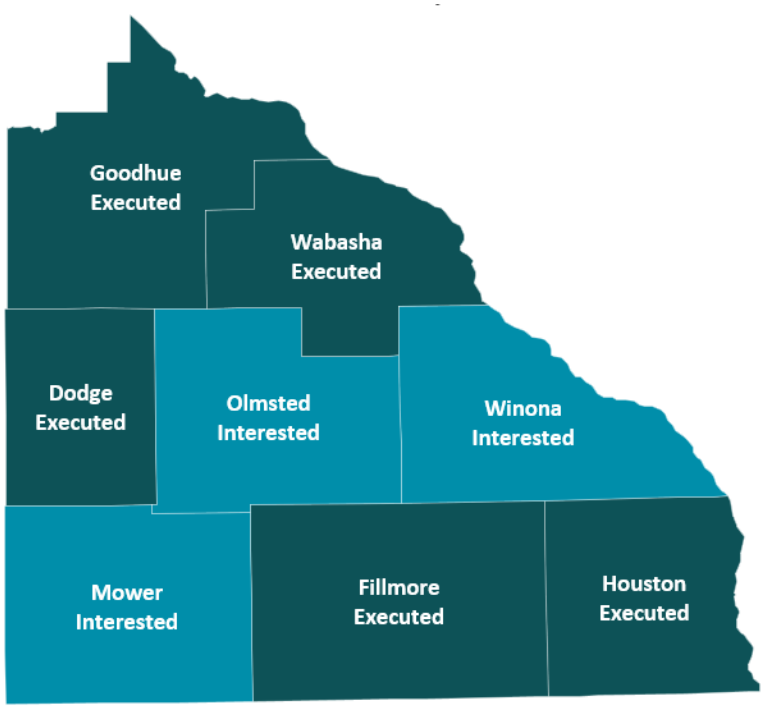

Figure 1: Well Inventory Interest and contract status by county.

Well Inventory Progress

Minnesota Geologic Survey

The Minnesota Geologic Survey (MGS) is the agency responsible for the County Well Index. MGS has trained each agency on best practices for the well inventory. This includes how to gather information, cross-check against wells already in the inventory, and implement data quality control and quality assurance. MGS will also serve as a resource for the grantees when they have questions.

Dodge County

Dodge County has identified 87 wells this quarter for a total of 254 private wells not previously included in the County Well Index. Dodge County has also identified and updated 8 wells that needed updated location information.

Fillmore County

Fillmore County hired temporary staff and oriented them to the well inventory project and process. They secured well documentation and set up applications and computer equipment for the project. Staff have modified or put new B-series numbers on 101 wells across 39 sections. They have covered 219 total wells and verified their location and well numbers using existing data.

Houston County (Root River SWCD)

Root River SWCD has begun planning and training staff for their well inventory. They are developing a list of wells that are unverified or not listed in the well index.

Goodhue County

Goodhue County met with county GIS staff and compiled existing data. Data was cross referenced with already existing located and non-located well data. Developed GIS map to help assist in processing parcels with well data associated. In October staff started updating the database with known locations of wells and assigning billion series for unknown wells.

Goodhue County has identified 412 wells not previously included in the County Well Index. They have also identified and updated 49 wells that needed updated location information.

Wabasha County

Wabasha County has been planning and training staff for their well inventory. They have identified 22 wells this quarter that were not previously included in the County Well Index.

Water Testing & Well Inventory Outreach Collaboration

SEMWAL and the well inventory contracts have partnered to send out free water testing flyers along with well inventory mailers inviting well users to send in information about their wells. SEMWAL developed and distributed the fliers and the well contracts mailed the flyers.

Goal 2: Conduct education and outreach (MDH)

Provide notice to newly and previously impacted residents and continue to provide notice as long as contamination persists at or above the Maximum Contaminant Level (MCL) for nitrate.

Partners Promoted Free Private Well Testing

Between July and September, partners actively promoted private well testing through a variety of channels, including television, social media, and newsletters. A notable example of these outreach efforts was a campaign led by Tap-In, which partnered with the advertising agency Townsquare Media to produce and distribute promotional content. This campaign included advertisements on YouTube and Facebook, as well as television commercials. Another notable effort was partnering with a local electric co-op which ran an article about the program. Over 130 requesters mentioned the newsletter as the way they heard about the test kit opportunity.

Though newspaper and social media remain the most common ways people cited hearing about the testing opportunity, the television campaign and communication from local governments including soil and water conservation districts are also highly ranked. This shows that well owners requesting tests use a variety of methods to gather trusted information. We will continue to use a variety of communication methods. In future quarters, we plan to use additional communication methods including billboards and postcards.

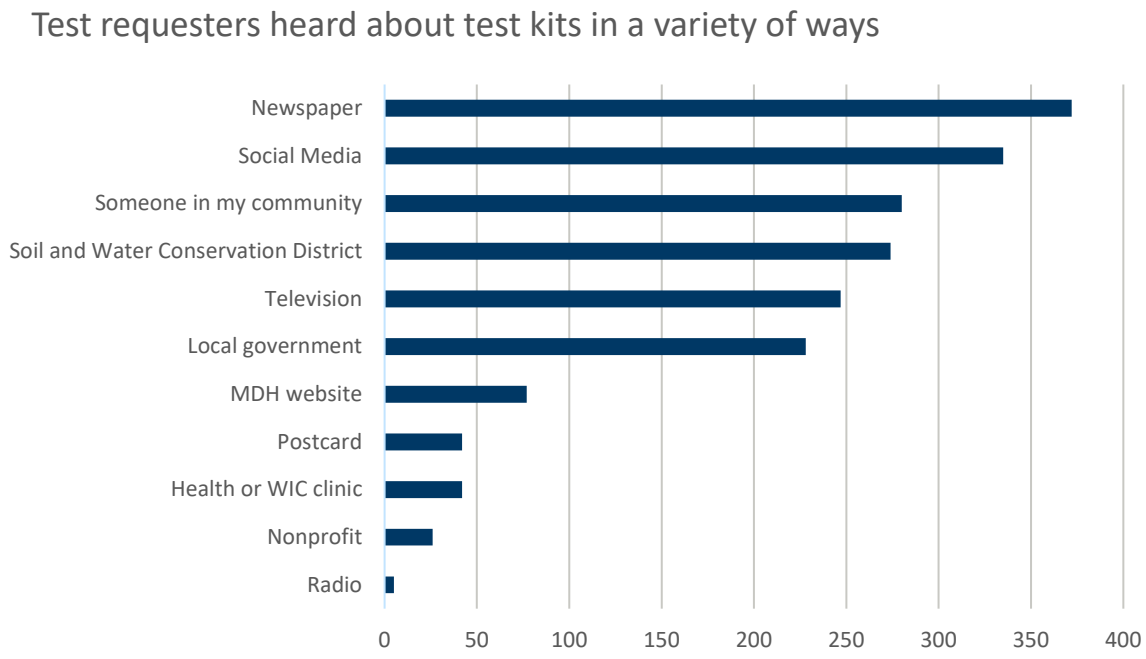

Figure 2: Test kit requesters cited many different sources when asked how they heard about the test kit opportunity.

Marketing Research

MDH established a contract with MP+G, a marketing firm in Minnesota, that will provide outreach plans and designs to help educate the public on private well testing and health impacts of nitrate. The firm completed message suggestions and gained feedback from MDH

and partners. MP+G has also identified four main audiences for messaging, including general private well users, renters using a private well, expecting and new parents, and agricultural producers. Steps have been taken to create educational videos for each of these audiences and branding concepts were drafted.

Goal 3: Test private well drinking water (MDH & SEMWAL)

Offer nitrate analysis of drinking water samples from any private well users in the Karst Region that request testing. The aim is to test at least 10 percent of the private wells during this first year.

During Phase I (2024), free private well tests were available to households with vulnerable populations (households with babies under one year old or pregnant people). At the end of 2024, the response transitioned to Phase II and free testing became available to all private well users in the eight-county area. MDH has a Joint Powers Agreement (JPA) with Olmsted County to conduct the free water testing through the Southeast Minnesota Water Analysis Laboratory (SEMWAL). Test kits for five contaminants (bacteria, nitrate, arsenic, lead, and manganese) are available to private well users in each of the eight counties. Private well users can apply for a free water test kit through an online request form that is maintained by MDH. Each week MDH provides a list of eligible requests to the lab. The lab mails test kits directly to the requestor's designated mailing address. The kit includes a return UPS label to return the test kit by mail for free.

Quarter 3 Data

From July 1 – September 30, 2025:

- 581 eligible households requested a well test kit.
- 376 households who received test kits returned them and received water test results.
- Approximately **4 percent** of wells tested this quarter had a nitrate concentration of 10 milligrams per liter (mg/L) or more (Table 1).

Table 1: Private Well water quality test results from July 1 through September 30, 2025.

County	Number of Kits	Bacteria Present	Nitrate (> 10 mg/L)	Arsenic (> 0.5 µg/L)	Lead (> 0.5 µg/L)	Manganese (> 100 µg/L)
Percent		19%	4%	20%	34%	9%
Total	376	70	15	77	126	33
Dodge	32	6	1	14	13	2
Fillmore	11	5	0	1	0	1
Goodhue	22	6	0	7	5	1
Houston	14	6	1	0	8	2
Mower	35	7	1	24	11	9
Olmsted	178	20	5	19	51	13
Wabasha	41	9	5	7	22	2
Winona	43	11	2	4	16	3

All Time Data

Since the beginning of the response through September 30, 2025:

- 2315 eligible households requested a test kit.
- 11% of households requesting a test report that they have a pregnant person or baby under 1 year old in the household that drinks well water.
- 1381 households who received test kits returned them and received water test results.
- 59% of test kits have been returned to the lab for testing.
- Approximately **seven percent** of wells tested had a nitrate concentration of 10 mg/L or more.
- **Olmstead County has the highest number of test kits analyzed at 417** followed by Winona, Wabasha, Mower, Goodhue, Dodge, Fillmore, and Houston Counties. Houston County had the lowest number of kits analyzed as of September 30th with 65 kits (Table 2). Winona is the closest to reaching its second-year target with 11% of wells tested. Fillmore and Houston Counties are furthest from meeting their second-year target with only 3% of wells tested.

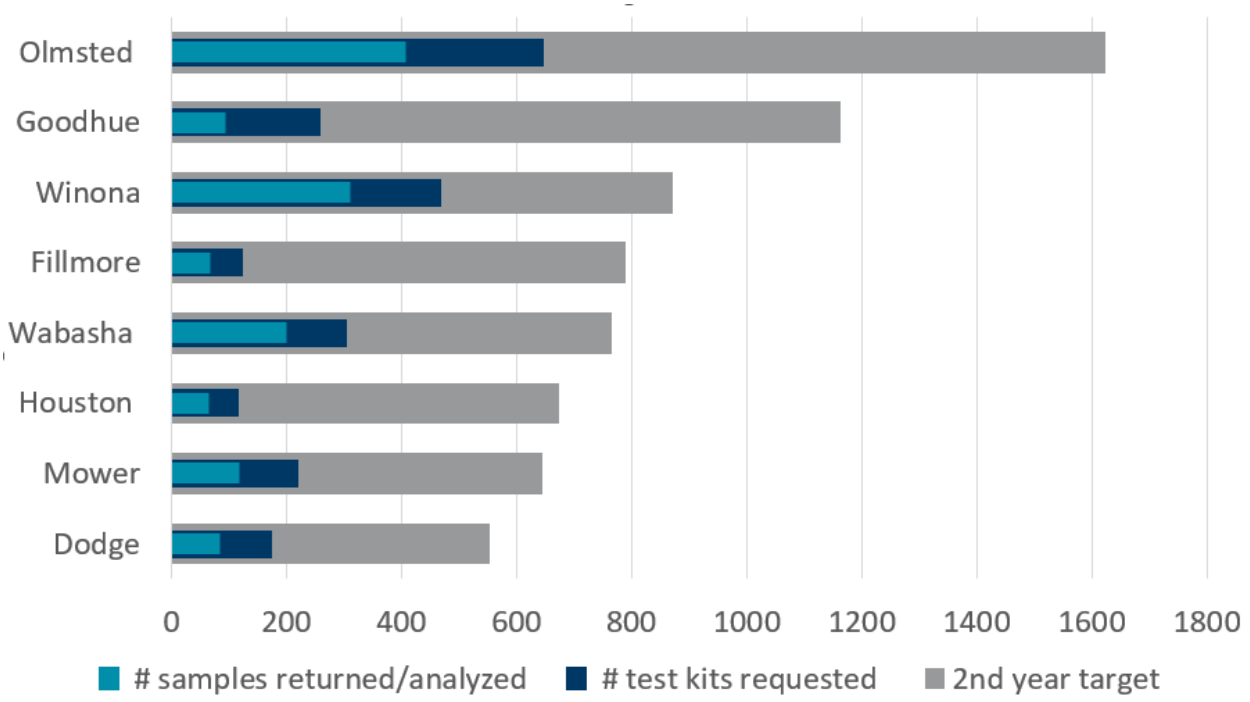

Figure 3: MDH set a goal of 20% of anticipated private well households requesting and testing a sample in the first two years. We are currently one quarter into year two.

Table 2: Private Well water quality test results - all time

County	Number of Kits	Bacteria Present	Nitrate (> 10 mg/L)	Arsenic (> 0.5 µg/L)	Lead (> 0.5 µg/L)	Manganese (> 100 µg/L)
Percent		13%	7%	19%	40%	8%
Total	**1381**	**174**	**102**	**261**	**555**	**109**
Dodge	86	8	3	38	36	10
Fillmore	68	17	14	3	30	2
Goodhue	96	12	4	16	35	6
Houston	65	16	12	5	31	3
Mower	122	13	5	79	41	34
Olmsted	417	43	15	46	128	29
Wabasha	206	30	19	34	104	14
Winona	318	35	30	40	150	12

Mitigation Navigator

SEMWAL has a Mitigation Navigator on staff funded by the JPA with MDH. The mitigation navigator is responsible for reaching out to private well users with unsafe levels of nitrate and other contaminants shown in the water tests. They discuss treatment options with well users and answer any questions well users may have.

Test Kit Follow-up

In order to improve the return rate for the test kits, Olmsted County developed a postcard reminder for well users who had not yet sent back their test kit. The postcard was sent to over 500 households who have not yet sent their test kits in to be tested.

Goal 4: Provide alternate water (MDA & Olmsted SWCD)

Drinking water will be offered as soon as practical to each residence where water tests show an exceedance of the MCL for nitrate in the private well. When funding is identified, most of the funding will be passed through to the TAP-IN Collaborative.

MDA, in collaboration with Olmsted County, is continuing to provide water filtration systems for eligible well owners in southeast Minnesota. In October 2024, the first reverse osmosis systems were installed, at no cost, for households that have elevated nitrate or cyanazine in their drinking water well. **As of September 30, 2025, a total of 226 reverse osmosis (RO) systems have been installed throughout the eight-county area.** The majority of RO systems were installed for nitrate mitigation. There were 19 ROs installed at sites with cyanazine exceedances, however, 14 of those also had a nitrate exceedance. Winona County (57) has the most RO installations to date, followed by Fillmore (37), and Goodhue (34) Counties (Table 3). More water filtration systems will be installed in the coming months as this effort continues.

Table 3. Reverse Osmosis Installations, by County

County	Dodge	Fillmore	Goodhue	Houston	Mower	Olmsted	Wabasha	Winona	**Total**
ROs Installed	10	37	34	33	12	12	31	57	226

The mitigation program prioritizes households with a vulnerable population (pregnant persons or infants), and low-income households (below 300% of the federal poverty level). Approximately eight percent of the households that received the RO mitigation systems were in a vulnerable population, 33% were low-income households, and four percent met both criteria (Figure 4).

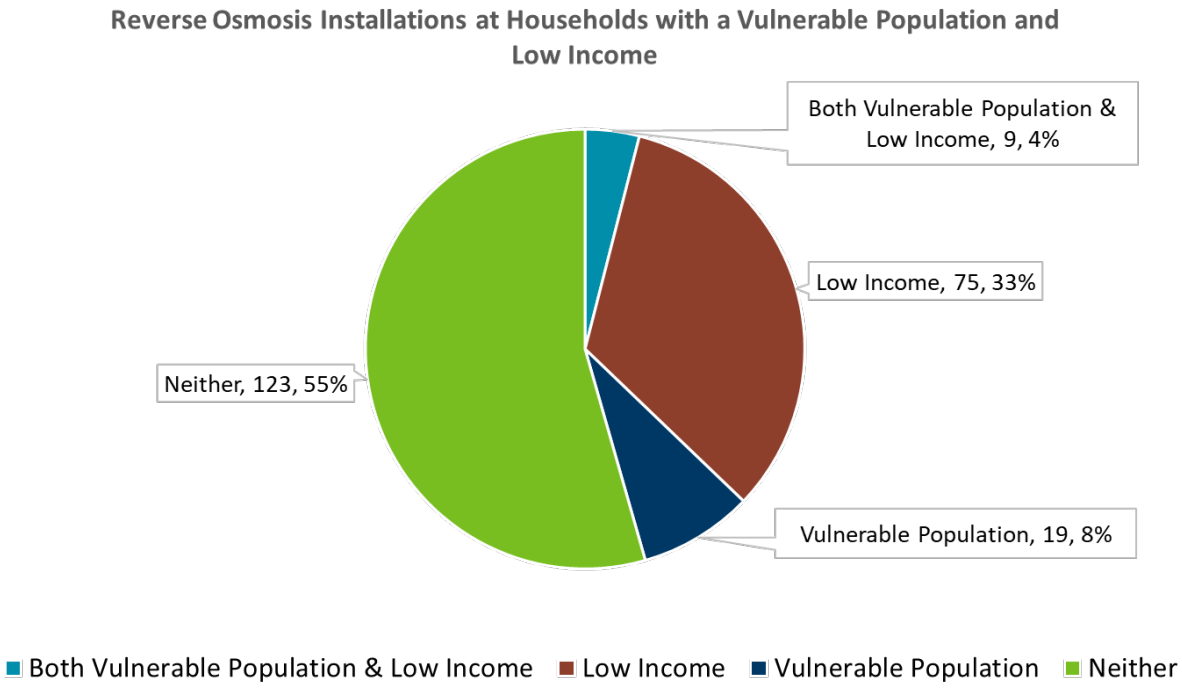

Figure 4: Reverse Osmosis Installations at Households with a Vulnerable Population or Low Income.

After RO installations are completed water test kits are sent to the homeowners to test the effectiveness of the system for nitrate removal. As of September 30, 2025, all post-treatment nitrate samples have been below 10 mg/L.

Expanding Mitigation Options

MDA and MDH worked together to develop an interagency agreement that passes mitigation funds from MDA to MDH. The funding allows MDH to stand up their own mitigation program that would allow additional options for nitrate mitigation. This project will kick-off during the next quarter.

Goal 5: Provide public record of work (MDH)

This goal has three main components and separate strategies. The components and strategies are below:

- Maintain and regularly publish records
- Measure Minnesota's progress
- Effective way to communicate updates to the public

The Water Policy Center (WPC) at MDH is ready to hire an information strategy position. This position will assist with well and water quality information storage, analysis, and display. Current WPC staff are taking data visualization training to increase clarity and effectiveness of data visualizations that are shared with partners and the public.

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. Maps with aggregated nitrate testing data have been added to the Private Wells in Southeast Minnesota 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 southeast Minnesota.

A dashboard with data measuring the progress of the response is in development and will be added to the MDH website as soon as it is ready and will be updated quarterly as information is available to MDH.

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 (MDH)

We will continue engaging stakeholders and partners by elevating the work of the TAP-IN Collaborative and providing regular updates and opportunities to dialogue about public health approaches and nitrate in groundwater.

This phase may also include forming an advisory council consisting of petitioners, local government leaders, and other local partners to help guide the public health intervention work.

TAP-IN

MDH meets with TAP-IN leadership when needed and regularly consults with TAP-IN to ensure we are meeting their needs. MDH has developed a SharePoint Site to have a central location for updates and documents.

MDH shares quarterly email updates and hosts quarterly meetings for local leadership to learn and ask questions about progress. MDH, MDA, MPCA, and SEMWAL provide updates and information at these meetings.

Olmsted County & Southeast Minnesota Water Analysis Lab

MDH continues to meet weekly with SEMWAL to discuss contracting and arrangements for water quality testing. MDH and SEMWAL meet weekly to discuss challenges, successes, and other updates.

Prairie Island Indian Community

Members from the Prairie Island Indian Community (PIIC) live and use private wells within the petition area. During this quarter, MDH connected with staff at PIIC to discuss promoting water testing for private well users in the community. MDH and SEMWAL lab staff continue to work with PIIC staff to increase accessibility to private well water tests and information about private wells for PIIC members.

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 to discuss the updates. MDH also provides regular updates on progress to the Well and Boring Advisory Council at its quarterly meetings.

Clean Water Council

The Clean Water Council recommended to the Governor and to the Legislature that the Clean Water Fund support the work being done in Phase II, except for mitigation. MDH provides regular updates to the Council about the progress of the work.

Work completed beyond the scope of the workplan (MDH, MDA, & MPCA)

Water Policy Center staff have been sharing information about the work we are doing in southeast Minnesota by presenting at conferences. We have presented to a variety of audiences including groundwater and public health professionals. Presentation topics have included communication strategies, community engagement, developing and maintaining

partnerships, private well program strategies, and general updates about the work. WPC staff presented about the work at these conferences:

- National Environmental Health Association Annual Conference, Phoenix AZ, July 16th, 2025
- NEHA Region 4 Conference, La Crosse, WI, September 18, 2025 along with staff from Olmsted County/SEMWAL

Nitrate Screening Clinics

Olmsted County SWCD conducted nitrate screening clinics at several county fairs and a farmers market across the eight-county region. No other contaminants were screened. A sandwich board near the screening sites encouraged people to request a water test through the water testing program in the previous sections.

Table 4: Olmsted County SWCD nitrate screening clinics

Event	Date	Samples screened	Samples above 10 mg/L nitrate
Winona County Fair	7/11/2025	17	3
Olmsted County Fair	7/24-25/2025	26	0
Wabasha County Fair	8/1/2025	14	2
Goodhue County Fair	8/7/2025	7	0
Rochester Farmers Market	9/20/2025	7	0

Cost Benefit Analysis

MDH contracted with one of the State Master Contractors for Remediation to conduct an initial cost benefit analysis for private well mitigation approaches (including home water treatment, connection to public or rural water supplies, new well construction, and repairs) and to develop a decision tree tool to help local partners and households identify the best mitigation approach for their private well drinking water based on the contaminant(s), condition, and location of their private well. This effort is part of a larger statewide analysis of the social and actual costs and benefits of providing free well testing and mitigation. This project is funded through a separate appropriation but will be a tool that MDH and partners can use in southeast Minnesota. The tool is on track to be ready by the end of calendar year 2025.

Phase III: Long-Term Nitrate Goals and Strategies

MPCA and MDA completed the following Phase III work from July through September 2025.

Work Group to Address Nitrate in southeast Minnesota (MPCA & MDA)

MPCA and MDA developed and jointly lead a work group to address nitrate in southeast Minnesota. MDH and the Board of Water and Soil Resources will partner on this effort.

The goals of this work group include providing a forum for discussing concerns and answering questions; developing a shared understanding of nitrate in surface water and groundwater in southeast Minnesota; developing recommendations for reducing nitrate in southeast Minnesota; and providing input on ongoing nitrate work within MDA and MPCA.

The work group held an open house in July where agency leadership showed appreciation for the work group members, and two work group members spoke to their experience serving on the group. There were over 60 people in attendance. Members are dedicated to continuing to move their recommendations forward and agencies are discussing the same both within each agency and between agencies. Two members presented the report to the state Clean Water Council this summer.

The final report can be found at: Addressing nitrate in southeastern Minnesota.

Updating Minnesota's Nutrient Reduction Strategy (MPCA)

As noted in the December 1, 2023, letter to EPA, the State is in the process of updating the Nutrient Reduction Strategy (NRS), a critical guiding document that lays out water quality goals for nutrients in surface water and provides a road map to Minnesota's nutrient reduction work for both point source and nonpoint source areas.

All content for the draft 2025 NRS updates was completed and shared with the public for review from July 14 to September 10, 2025. The final document shared included eight chapters and an executive summary documenting the progress in nutrient reduction across Minnesota since 2014, evaluation of where more work is needed to meet nutrient reduction goals, and a prioritization of the best methods to implement to achieve water quality goals. Twenty support documents were also included. The 2025 NRS received comments from 62 commentors during the review period, including private citizens, environmental and agricultural organizations, local units of government, and universities. The comments are being processed by the organizations that developed the 2025 NRS. A response document will be finalized by the end of 2025. Edits will be made to the draft NRS in response to comments, and the final document is planned for release at the end of 2025 or early 2026.

Outreach from July to September included an introductory NRS webinar and a question-and-answer NRS webinar to support the beginning of public review at hosted by MPCA. Nearly 400 people attended both events. Additional presentations were given by invitation to Minnesota Crop Production Retailers, the Minnesota Agriculture Water Resources Center, the Greater Blue Earth River Basin Alliance (GBERBA) Joint Policy and Technical Meeting, and the BWSR Monthly

1W1P Update for field staff. NRS working group members will give the keynote address and panel discussion at the Minnesota Water Resources Conference on October 14.

The BMP Effect Estimator Tool (BEET) planner and tracker tools were released concurrently with the draft 2025 NRS public review. The planner tool is used to estimate nutrient reduction in rivers and streams from future best management practice adoption scenarios, while the tracker tool is used to estimate nutrient reduction in rivers and streams from existing best management practices and progress towards meeting reduction goals set by the Minnesota NRS. Training for these tools will be part of the BWSR Academy this fall, and MPCA staff are working to provide additional trainings for watershed professionals around the state.

Feedlot Permits (MPCA)

The General National Pollutant Discharge Elimination System (NPDES) and State Disposal System (SDS) permits that the MPCA administers to confined animal feedlots expire in 2025 (SDS) and 2026 (NPDES). Work to reissue these permits has begun. The MPCA is planning to concurrently public notice and issue the permits and intends to have consistent nutrient requirements in both permits, to the extent possible.

In 2025, the MPCA updated its general operating permits for Minnesota's largest animal feedlots. The general SDS permit went into effect June 1, 2025. The general NPDES permit goes into effect February 1, 2026. Both permits include new requirements to further minimize the risk of surface and groundwater contamination from livestock production areas and manure land application sites, with the most protective requirements applicable to regions of Minnesota where nitrate can move more easily through the soil and into groundwater. Feedlot owners are in the process of applying to renew their permit coverage under the updated general SDS and NPDES permits. Upon issuance of all the renewed permit coverages, approximately 1,200 animal feedlots will be subject to the new nitrogen requirements.

Feedlot Rules (MPCA)

Starting in 2024, MPCA plans to conduct a multi-year process to review state feedlot rules (Minnesota Rules, Chapter 7020).

The Request for Comments (RFC) for this rulemaking was published March 24, 2025, and the comment period closed July 22, 2025. The agency received more than 1,000 comments and petition signatures and nearly 7,500 pages of comments and attachments in response to this RFC period. The comments received during the RFC will inform the scope of the rule and the agency's decisions moving forward as the existing feedlot rules are reviewed. Based on the large public interest in this rulemaking and the extensive comments and supporting documentation received, the agency provided a, "Summary of Comments Received in Response to the Animal Feedlots Rule Request for Comments". The MPCA will now move into the rule development stage of rulemaking. The MPCA will provide additional opportunities to engage in the rulemaking process over the next two years. More information is available on the rulemaking webpage.

The main purpose of this rulemaking is to amend existing feedlot rules to improve land application of manure practices to address nitrate, bacteria, and fish kills, establish additional technical standards to protect water quality and avoid fish kills, and updates to address changes in livestock and poultry operation/business practices, account for new agency data services, and modernize outdated rule language.

Nitrogen Fertilizer Management Plan implementation (MDA)

The initial outreach and field work in Spring Grove township began in April and was completed in June. Those efforts resulted in the development of over 20 conservation projects from grassed waterways to buffer strips, terraces, etc. Most of the projects are in the process of applying for federal EQIP dollars to assist with implementation. The MDA has a JPA with Root River SWCD to provide technical assistance to producers who are interested in developing conservation practices on their farm.

Through the Spring Grove Township work the MDA staff met with over 30 producers who operate and control over 70 percent of the cropland in the township to evaluate their nitrogen use. Those producers were given advice on how to adjust their fertilizer programs and fine tune their nitrogen use to match the University of Minnesota's (UMNs) nitrogen recommendations for corn in SE MN. It was found during the conversations that most producers were close to the university's recommendations. Many times, those producers who were above recommended rates were inadequately crediting other sources of nitrogen including manure, legumes, and other sources of nitrogen from commercial sources like DAP and AMS. Most producers who were under-crediting other nitrogen sources were willing to make adjustments to their fertilizer programs or were open to crediting the legumes in their crop rotations to meet UMN recommendations. Some producers utilizing manure in their cropping systems were having a more difficult time with proper crediting due to lack of manure storage infrastructure on individual farms. It was found that those who lacked proper crediting of manure were less likely to have adequate manure storage. In particular, a few dairies were on a daily/weekly haul system.

Taking lessons learned in Spring Grove Township, similar work is continuing in four other "high nitrate townships" (townships where 10% or more of the private wells tested were above 10 mg/L) in Houston County. A primary focus, early on, has been to prioritize meeting with feedlot operators to evaluate their nitrogen use and to ask about the adequacy of manure storage on their farms. Similar findings are surfacing in these townships as was found in Spring Grove Township. Those producers who are lacking manure storage are having a harder time managing the nitrogen and other nutrients from their manure. Through this initiative, producers are being asked how they might change their situation, if financial assistance was available. Many are pointing toward manure storage as a solution to their nitrogen crediting issues. At this point the MDA staff has met with around 25 producers in the other high nitrate townships with around 15 producers showing interest in financial assistance to build or improve the manure storage infrastructure on their farms.

The Fillmore County SWCD is also working with MDA and has hired a private company (Kanati) to develop similar (one-on-one, on-farm) work in Preble Township. All outreach and technical assistance efforts will be handled by the company with a focus on nitrogen management for

corn production along with upland conservation practices that are noted during farm walk overs. This work started in June and will be continuing throughout 2025.

Resources

Work Plan: Addressing Nitrate in Southeast Minnesota (PDF) (https://www.health.state.mn.us/communities/environment/water/docs/wells/waterquality/epaworkplan.pdf)

MP+G (https://www.mpgmarketingsolutions.com)

MN Public Health Data Access Home - MN Data (https://data.web.health.state.mn.us/web/mndata/home)

Private Wells in Southeast Minnesota (https://data.web.health.state.mn.us/private-wells-in-southeast-mn)

Addressing nitrate in southeastern Minnesota (https://www.pca.state.mn.us/air-water-land-climate/addressing-nitrate-in-southeastern-minnesota)

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