January – March 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 January through March 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

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 their leadership.

MDH is continuing to work with each county individually to develop strategies and contracts to complete the well inventory that meet each county's 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, Dodge, Fillmore, and Houston County partners have developed workplans, and Dodge County has an approved contract and can start work (Figure 1).

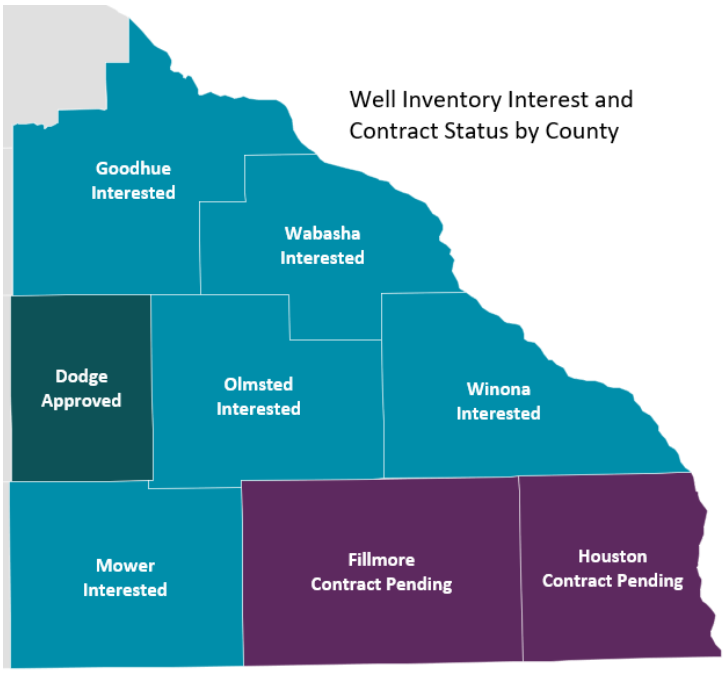

Figure 1: Well Inventory Interest and Contract Status by County.

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

On December 20, 2024, MDH notified partners that free private well testing was available for all households that rely on a private well for their drinking water. Currently MDH is informing partners and interested parties that these services are available and is letting partners promote the free testing through their networks. MDH is still on track for a slow advertising approach as to not overwhelm the laboratory.

The local partners are already helping well owners connect to information about their wells, well testing, and mitigation opportunities.

- Mower County shared information on their social media and submitted a press release to the media on January 17, 2025. The press release was picked up by two television stations and two newspapers.
- Olmsted County submitted a press release to the media and shared information via social media on March 6, 2025. The press release was picked up by three television stations.

Each of these media campaigns by our local partners resulted in significant increases in tests requested the week following the media campaign (Figure 2).

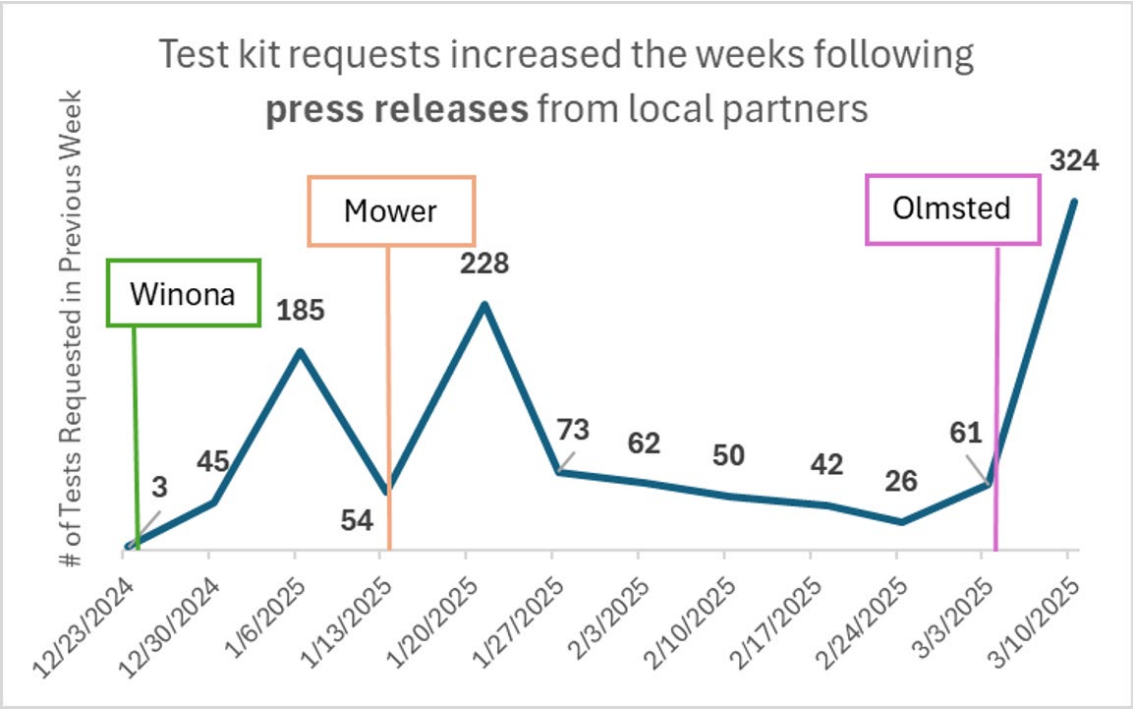

Figure 2: Media campaigns by local partners resulted in increases in test kits requested.

Educational Materials Requests

MDH has several brochures available for order for free online, including the *Owner's Guide to Wells*, *Well Water and Your Baby*, and *Buying and Selling a Home with a Private Well*.

During this quarter in the eight-county area there were:

- 3 requests for brochures
- 420 brochures mailed to partners

Minnesota Private Well Education and Steward Network

The University of Minnesota Water Extension is defining the initial focus and approach for developing a peer-to-peer learning network for private well owners, starting in southeast Minnesota. This person is currently working on a needs assessment for the program design and vision with hopes to launch a pilot in late summer 2025.

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 began interviews with local partners in the eight-county area towards the end of March 2025. These interviews will finish in Spring of 2025 and include focus groups or one on one conversations with private well users to better understand their well testing practices, barriers, and concerns to inform outreach messaging and platforms. Many of the deliverables, including billboards, radio spots, and social media, will not be complete until fall of 2025.

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 & manganese) are available to private well users in each of the effected 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 1 Data

From January 1 – March 31, 2025:

- 1,248 eligible households requested a well test kit.
- 500 households who received test kits returned them and received water test results.
- 40 percent of participants returned their test kits. *(This number is not representative of all test kits ordered in Quarter 1 since it may take up to five weeks for a test kit to be shipped and another two weeks for analysis.)*
- Approximately **10 percent** of wells tested had a nitrate concentration of 10 milligrams per liter (mg/L) or more (Table 1). Other contaminants showed expected results apart from lead, which was detected in 42 percent of samples.

Table 1: Private Well water quality test results from January 1 through March 31st, 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		10%	11%	18%	42%	8%
Total	500	49	55	90	210	39
Dodge	15	0	1	8	5	1
Fillmore	22	2	6	1	8	0
Goodhue	29	3	2	3	13	3
Houston	23	3	6	1	13	0
Mower	43	3	5	28	14	15
Olmsted	77	8	6	9	25	7
Wabasha	84	14	11	16	39	6
Winona	207	16	18	24	93	6

All Time Data

Since the beginning of the response - March 31, 2025:

- 1,425 eligible households requested a test kit.
- 523 households who received test kits returned them and received water test results.

- Approximately **11 percent** of wells tested had a nitrate concentration of 10 mg/L or more.
- **Winona County has the highest number of test kits analyzed at 211** followed by Wabasha, Olmsted, Mower, Goodhue, Fillmore, Houston, and Dodge Counties. Dodge County had the lowest number of kits analyzed as of March 31st with 17 kits (Table 2).

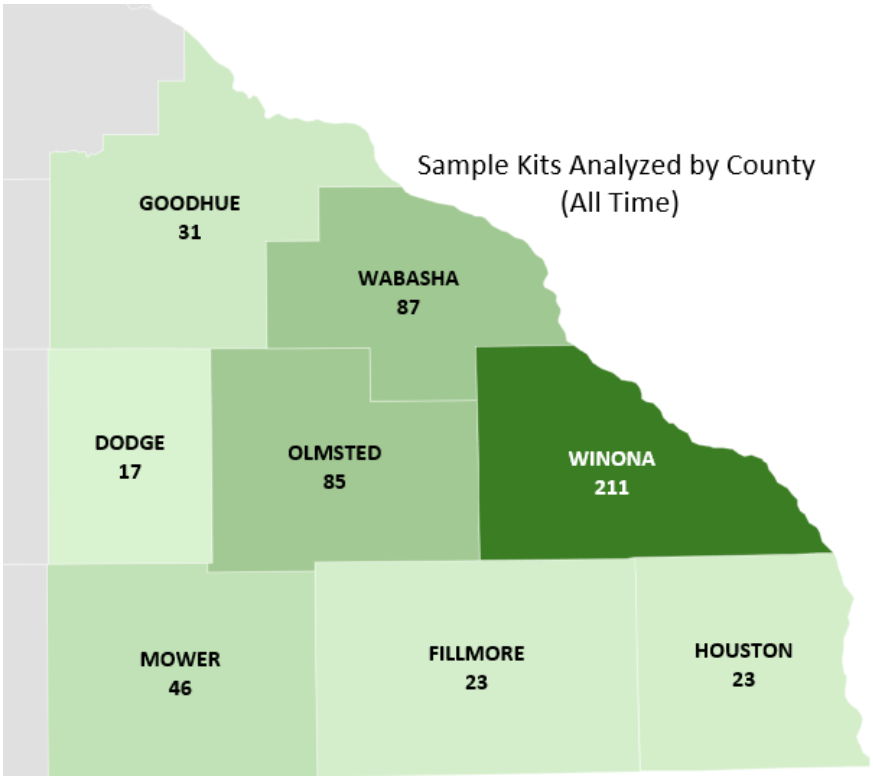

Table 2: Sample kits analyzed by county (all time).

County	Dodge	Fillmore	Goodhue	Houston	Mower	Olmsted	Wabasha	Winona	Grand Total
Kits Tested	17	23	31	23	46	85	87	211	**523**

Mitigation Navigator

During this quarter SEMWAL hired a Mitigation Navigator to their staff with funds from 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.

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 March 31st, 2025, a total of 164 reverse osmosis (RO) systems have been installed throughout the eight-county area.*** More water filtration systems will be installed in the coming months as this effort continues.
This program initially reached out to more than 1,200 well owners who participated in an MDA well testing program and have elevated nitrate or cyanazine in their well water. MDA sent out reminder letters in March to increase participation and an additional 48 well owners responded to MDA with interest

The second phase of this project involved reaching out beyond the initial list of MDA private well testing participants with known high nitrate concentrations. At the end of December 2024, the water treatment system application was updated to allow for any eligible well owner in the 8-county area to apply if they have a valid nitrate-nitrogen test result from a certified laboratory above the MCL of 10 mg/L. As of March 31, 2025, 16 of the 164 ROs that were installed were enrolled through the second phase of the mitigation program. Some of the second phase participants recently had their well water tested through MDH's free well testing program. If the nitrate from the well water tested above 10 mg/L the homeowners were directed to MDA's mitigation program for a free RO system.

Expanding Mitigation Options

MDA and MDH are working together to develop a JPA that would pass mitigation funds from MDA to MDH and allow additional options for nitrate mitigation.

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

During this quarter, the Water Policy Center (WPC) at MDH has begun working on hiring 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. This is projected to be completed during the next quarter 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 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.

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

A JPA has been executed with Olmsted County to help with staffing needs to support the additional private well water analysis, mitigation guidance, and other resources to do the work outlined in the workplan at the local level. The positions include:

- Environmental Laboratory Data Support
- Drinking Water Quality Mitigation Navigator
- Regional Safe Drinking Water Program Coordinator
- Safe Drinking Water Intern

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.

MDH met with several state representatives to discuss differing bill proposals related to private well programs and how these would affect MDH programs. One of these conversations has included the idea of training Community Health Workers to teach people in their community about private well testing.

Phase III: Long-Term Nitrate Goals and Strategies

MPCA and MDA completed the following Phase III work from January through March 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 met once in January and February, and twice in March.

In January, the group heard from Minnesota Department of Agriculture on their programs addressing nitrate in groundwater. In February, the group began drafting recommendations for the final report. The two meetings in March continued to make progress on that draft report, with the goal being to have a final report by July 1st.

The Addressing nitrate in southeastern Minnesota web page is regularly updated with the work group's progress.

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.

- MPCA submitted revisions to its $2.5 million application originally submitted in November 2024 for Hypoxia Task Force funding from the U.S. EPA in March. The proposal focuses on implementation of the 2025 NRS and includes the NRS Dashboard,

new tools, best management practices (BMP) science outreach, and other nutrient-related outreach and research activities.

- A webinar was held on March 21, 2025, to demonstrate tracking and data visualization tools the MPCA uses to track nutrients and government-funded best management practices installed across the state. Over 220 people attended, and plans for the NRS Dashboard were laid out. A recording is available on the MPCA YouTube channel. Additional outreach activities during this time period include a presentation to over 50 people at the Southeast Minnesota Association of Conservation District Employees and a webinar presentation on The Current radio station website to over 200 regional audience members.
- Significant progress was made on developing the content for the 2025 NRS. Three chapters were shared for review by the interagency steering team in January, and three more chapters are undergoing final revisions and will be shared in early April. Two final chapters are under development and will be shared with the Steering Team as soon as they are complete.
- A report on the science, technology, and cost of denitrification in cold climates was submitted by Tetra Tech to MPCA at the end of February. The report provides technical information to support wastewater treatment facilities looking to reduce nitrogen as part of the MPCA Wastewater Nitrogen Reduction Strategy, but its findings are also incorporated into Chapter 4: Urban Nutrients in the NRS.

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.

Both permits have been updated with 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. The SDS permit goes into effect June 1, 2025. The NPDES permit goes into effect February 1, 2026. Feedlot owners with coverage under these permits must apply to renew their SDS and NPDES permit coverage starting in March 2025 and September 2025, respectively.

Feedlot Nutrient Management Tool (NMT) training events were held.

- 2/18 - Marshall - approximately 12 attendees
- 2/19 - Chatfield - approximately 10 attendees
- 2/20 - Fairmont - approximately 6 attendees, all were consultants
- 2/24 - Willmar – 24 attendees during day session, 3 attendees during evening session

Feedlot Rules (MPCA)

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

On March 24, 2025, MPCA started the Feedlot Rule revision process with the publication in the State Register of the Request for Comments (RFC). The RFC is MPCA's legal notice of its intent to begin rulemaking. 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. This is the first of several opportunities for public comment and input on this rulemaking. Additional information is available on the rulemaking webpage.

Nitrogen Fertilizer Management Plan implementation (MDA)

MDA has developed the Nitrogen Fertilizer Management Plan (NFMP) and Groundwater Protection Rule, which outline a process to prevent or minimize the impact of nitrogen fertilizer on groundwater. In combination they provide a comprehensive effort to address nitrate in groundwater through voluntary adoption of practices and regulation. The MDA believes this is the best long-term strategy for addressing nitrate in groundwater, that the work is moving in the right direction, and can accelerate and adapt current work in southeastern MN to make greater progress.

During the 2024 legislative session, MDA received supplemental Clean Water funding to accelerate implementation of the NFMP in southeast Minnesota. The NFMP outlines a multistep process that includes working voluntarily with farmers to increase adoption of practices on a township scale.

Below are tasks for the multi-year workplan. The field walkover process (technical assistance) creates an inventory of existing BMPs while prioritizing future projects. The goal of working with partners is the successful implementation of regionally appropriate BMPs for nitrogen, regardless of source, and conservation practices that minimize and reduce nitrate-nitrogen leaching.

- 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 the township(s)

- computer modeling
- demonstration projects based on results 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, the Minnesota Agriculture Water Quality Certification Program, and SWCDs

Two high nitrate townships (Preble Township in Fillmore County and Spring Grove Township in Houston County) are the focus of initial work, and partner meetings are underway. This includes presentations at SWCD board and township boards to describe MDA's township approach and meetings with individual landowners. MDA maintains a contract with St Mary's University in Winona to review geospatial data and conduct critical source analysis and GIS review for the selected townships. The deliverables from this contract will directly support on-farm walkovers. MDA executed a JPAs with Filmore and Houston County SWCDs and have started the very initial walkovers in spring 2025. Contracts with SWCD partners include funding for SWCD staff and subcontractors to support practice implementation. Additional work related to computer simulation modeling was completed and MDA staff have started building a regional model that will evaluate the nitrate reduction potential of various crop management scenarios.

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)

Animal feedlots | Minnesota Pollution Control Agency (https://www.pca.state.mn.us/get-engaged/animal-feedlots)

The Current Webinar Series - North Central Region Water Network (https://northcentralwater.org/the-current/)

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

Minnesota Department of Health
Water Policy Center
625 North Robert Street
PO Box 64975
St. Paul, MN 55164-0975
507-206-2735
health.privatewells@state.mn.us
www.health.state.mn.us

4/17/2025

To obtain this information in a different format, call: 507-206-2735.