DEPARTMENT OF HEALTH
MINNESOTA DRINKING WATER PROTECTION

Minnesota Drinking Water Annual Report for 2024

STATUS OF PUBLIC DRINKING WATER SYSTEMS AND STRATEGIC INITIATIVES

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Executive Summary

Maintaining an adequate supply of safe drinking water requires attention, investment, and responses to new and ongoing challenges. Sustainable water resources are critical to personal and public health as well as our economy. Protecting water sources, treating water, and testing water after it is treated are part of the multi-barrier approach to assuring an adequate supply of water that is safe to drink.

Communication is also a critical component in this process. Each year since 1995, the Minnesota Department of Health (MDH) has provided citizens and the United States Environmental Protection Agency (EPA) with a report on the status of public drinking water in Minnesota. This report provides an assessment of how well public water systems are doing at meeting the standards set in the federal Safe Drinking Water Act, insights about current challenges faced by public water suppliers, and actions being taken to address these challenges. In addition to this statewide report, community water systems issue local water quality reports (called Consumer Confidence Reports) to their customers each year.

The 2024 monitoring results summarized in this report demonstrate the success of Minnesota's efforts to protect its drinking water. All federal health-based standards were met by over 97% of systems throughout the year.

MDH also supports private well users on topics including water quality and testing, well construction and sealing, and laws and regulations. While not addressed in the scope of this report, more information on private wells can be found on the MDH webpage, Wells and Borings.

Supporting public water systems in many ways is also a key part of MDH's responsibilities. The activities include water operators training and certification, inspections of drinking water facilities, and technical assistance. The latter involves the development of emergency preparedness plans, security (both physical and cyber) of all aspects of water operations, and replacement of all lead components in water distribution systems.

As part of a long-term "Get the Lead Out" initiative, public water systems are replacing service lines, which connect water mains to household plumbing. The first step has been completing inventories of all services lines to determine how many are made of lead. Minnesota was recognized nationally for having the highest percentage of lead service line inventories completed on time among the states.

Minnesota's very high compliance rate is a testament to the dedication of public water systems in the state as well as the efforts of partners such as the Minnesota Rural Water Association. Protecting and supplying safe water depends on many organizations and individuals. While MDH administers and enforces the provisions of the federal Safe Drinking Water Act on behalf of the EPA, it relies on its partners, including the state's 6,585 public water systems, as well as others in areas ranging from government to industry to non-profit organizations who take an active role and contribute to the mission of providing safe drinking water.

These partners (noted at the end of the report) include individual Minnesotans. Everyone plays a part in ensuring safe water. As always, the goal of this report is to provide Minnesotans with a clearer picture of what is done to protect the quality of their drinking water and the success of the efforts to do so.

Celebrating 50 Years of the Safe Drinking Water Act

A year-long celebration in 2024 was dedicated to the golden anniversary of the federal Safe Drinking Water Act (SDWA), which established a national program of regulations and standards to include all public water supplies in the United States.

Even before the passage of this landmark legislation, Minnesota had strong regulations in place to protect drinking water, including rules requiring submission and approval of plans for public water supplies, a state plumbing code and prohibitions of cross connections between potable and non-potable water supplies, training and licensing of water operators, and annual inspections of public water supplies in the state. The federal SDWA extended these safeguards and more across the country.

While Minnesota was in good shape regarding safe water, regulations varied from state to state. “Water is abundant in Minnesota, but even here in the Land of 10,000 Lakes, we cannot afford to take our water supplies for granted,” says Dr. Brooke Cunningham, Commissioner of MDH. “Working together, I’m confident, that a future which everyone everywhere in Minnesota has equitable access to safe and sufficient drinking water isn’t just a pipe dream.”

MDH held activities throughout 2024 to highlight the significance of SDWA, including a governor’s proclamation and outreach events. The culmination came on December 16, the actual anniversary of the Act’s passage, with a press conference at St. Paul Regional Water Services. The event also looked to the future by highlighting the Minnesota Drinking Water Action Plan (PDF), the state’s 10-year plan to address drinking water issues that affect all Minnesotans.

MDH Commissioner Dr. Brooke Cunningham addresses the media on the 50th anniversary of the federal Safe Drinking Water Act.

A Current Profile of Minnesota's Drinking Water Protection Program

MDH began as the Minnesota State Board of Health in 1872, largely because of waterborne and foodborne diseases. Typhoid fever, a waterborne disease, was taking a significant toll on lives at this time.

Advances in protecting water were rapid; the results were dramatic. By the early 1900s, treatment and disinfection of drinking water resulted in the virtual elimination of waterborne diseases such as cholera, typhoid, dysentery, and hepatitis A.

More than a century later the importance of safe and sufficient water remains as strong as ever, and the challenges toward achieving this goal emerge in new and different manners.

The passage of the federal Safe Drinking Water Act in 1974 established a national program of regulations and standards covering all public water systems in the United States.

Since 1974, the EPA has been responsible for regulating the nation's public water supply systems, under the federal Safe Drinking Water Act. However, almost all states, including Minnesota, have assumed responsibility for enforcing the act within their own borders. Minnesota became one of the first states to achieve primacy, and to begin regulating public water supply systems at the state level, in 1976.

The definition of "public water system" in the Safe Drinking Water Act is broad. To be considered "public," a water supply system must have its own water source and provide water to 25 or more people or have 15 or more service connections.

Minnesota currently has 6,585 public water systems. Of those systems, 965 are community systems, which provide water to people in their homes or places of residence. Most of these community systems use groundwater from underground sources, tapped by wells, as their source of water. However, 42 of these systems, including the municipal systems that serve the state's largest cities, use surface water drawn from lakes or rivers.

Of the state's 965 community water systems, 731 are municipal systems, serving towns or cities. The rest of the community systems provide water to people in various residential locations, including manufactured home parks, apartment buildings, housing subdivisions, and correctional facilities.

The rest of the state's 5,620 public water systems are noncommunity systems. Some of these noncommunity systems provide water to an ever-changing "transient" population at places such as restaurants, resorts, and highway rest stops. Other noncommunity systems may provide water to relatively stable population groups in nonresidential locations such as schools, places of employment, and day-care facilities. These facilities are considered nontransient noncommunity public water systems.

The Major Elements of Drinking Water Protection

Three basic strategies are used to safeguard the quality of our drinking water: prevention, treatment, and monitoring.

Prevention

Preventing contamination of the source water used by public water supply systems – lakes, rivers, and water wells – is an important component of drinking water protection. This aspect of

drinking water protection includes managing land use, regulating the construction of water treatment facilities, and controlling potential sources of pollution.

Engineers review plans for all aspects of public water supply – wells and intakes, treatment and storage facilities, and distribution systems – to ensure compliance. All water operators in Minnesota must be licensed, and MDH is heavily involved in training water operators to allow them to keep their certification.

Source Water Protection

The Source Water Protection (SWP) Program has long been engaged in planning for public water systems. SWP plans identify the land area that supplies water, assess the vulnerability of that area to contamination, and identify actions to reduce the risk of threats. MDH requires SWP planning for all community and noncommunity water systems that use groundwater.

MDH is expanding the SWP program to provide more support to systems that use surface water. Planning for systems that use surface water is voluntary. MDH and community water systems (CWSs) have completed several Source Water Assessments and Surface Water Intake Protection plans. Progress is accelerating, as several communities are currently preparing these plans with MDH and outside contractors.

Assessing Vulnerability to Contamination

SWP activities and monitoring requirements for individual public water systems depend partly on how vulnerable the system is to contamination. MDH does vulnerability assessments of water supply systems, considering a number of factors. For groundwater systems, these include well construction, geologic setting, water quality, and well use. High vulnerability conditions lead to more aggressive sampling, monitoring, inspection, and other actions than low vulnerability conditions require.

In general, groundwater systems tend to be less vulnerable to certain types of contamination than surface water systems. Water tends to be naturally filtered as it moves downward through the earth, making its way from the surface to the underground aquifers tapped by water wells. That process can remove certain surface contaminants, including bacteria and parasites such as *Cryptosporidium.* For that reason, many groundwater systems do not routinely include disinfection as part of their normal water treatment procedures.

Treatment

Most community water systems use some form of treatment so the water will be palatable and safe to drink. Many systems require routine disinfection to safeguard against potential problems with bacteriological contamination. Groundwater systems are less likely to require disinfection, because properly constructed wells located in a non-vulnerable aquifer are less susceptible to surface contamination. Surface water systems must provide more extensive treatment, including filtration and disinfection, as surface water supplies can be more susceptible to contamination.

MDH reviews plans for proposed treatment systems to help ensure that they function as intended. MDH staff also provide field and technical assistance – as well as training

opportunities – to public water system operators which aids in the ongoing operation and maintenance of treatment and other water system components.

Monitoring

Monitoring is a critical element of compliance activities under the SDWA. Under provisions of the Act, public water systems are required to sample treated water regularly and submit the samples for analysis to the MDH Public Health lab or other MDH-accredited labs. The samples are tested for a broad range of potential contaminants. If unacceptable levels of contaminants are found, the water supply owner or operator is legally responsible for informing the people who use the water and for taking steps to eliminate potential health hazards.

Under the provisions of the SDWA, the individual public water system is responsible for taking water samples and submitting them to certified laboratories for analysis. To provide for comprehensive surveillance, lessen the burden on water supply operators, promote compliance, and help ensure consistent approaches, most of the required samples in Minnesota are collected by field staff from MDH. As a result, Minnesota's public water systems have one of the best records in the nation regarding compliance with these sampling and testing requirements.

The next sections of this report provide detail on what is monitored at public water systems in Minnesota and the results of this statewide monitoring in 2024.

Monitoring: What We Test For – and Why

Minnesota's public water systems are tested for different types of contaminants. The reasons for testing – and how often the testing is done – depend on contaminant type and other factors. The type of contaminant also determines what actions will be taken if unacceptable levels are found in the water.

The major types of contaminants we test for include:

Pesticides and Industrial Contaminants. Minnesota's water supply systems are routinely tested for more than 100 pesticides and industrial contaminants, including synthetic organic compounds (SOCs) and volatile organic compounds (VOCs). Systems may be tested anywhere from four times a year to once every six years, depending on the specific chemical and the system's vulnerability to contamination (see ***Assessing Vulnerability to Contamination*** above). Some systems may not need to do any testing for a particular contaminant. A formal use waiver is sometimes granted, specifically exempting a water supply system from testing for a particular contaminant, if that chemical or pesticide is not used in the immediate area.

The EPA has developed legal standards known as maximum contaminant levels (MCLs) for 60 of the more common pesticides and industrial contaminants found in drinking water. In addition, advisory standards have been developed for the other pesticides and industrial contaminants, and those are used in a similar way as the MCLs in assessing test results.

Any time a public water system exceeds the MCL for one of these contaminants, the water supply operator, with the assistance of MDH, must notify the people who use the water. Appropriate steps are then taken to reduce or eliminate the contamination.

In some cases, the MCL or advisory standard is calculated to prevent immediate or short-term health effects. However, these standards are often designed to reduce the long-term risk of developing cancer or other chronic health conditions. They are calculated very conservatively. If the concern is long-term health effects, the standards are calculated to keep the risk of illness at levels most people would regard as negligible – even if they drink the water every day, over an entire 70-year lifetime.

Bacterial Contamination. Public water systems serving more than 1,000 people are tested one or more times per month for coliform bacteria. Smaller systems are tested four times a year or annually under certain conditions. The coliform test is used as a general indicator of water quality in the system, regarding potential microbial contamination. If the coliform test is negative, it is an indication that the system is adequately protected against contamination from other types of disease-causing organisms. However, if coliform bacteria are found in the water, it is assumed that the system may be compromised, and steps are taken to protect the people who use the water.

Total coliform bacteria (without the detection of *E. coli)* are generally not harmful. If detected, the system will work to identify the source of the contamination and take actions to correct the problem. The public will be notified of a situation that results in *E. coli* or other pathogen contamination and a boil water notice would not be issued to the consumers by the public water supplier.

Nitrate/Nitrite. All public water systems in Minnesota are tested at least once a year for nitrate. This chemical may occur naturally in the environment but that can also enter the water from fertilizer run-off, decaying plant and animal wastes, and sewage. Nitrate is a health concern primarily for infants under the age of six months. This is because the infant's digestive

system can convert the nitrate to nitrite, which can interfere with the ability of the infant's blood to carry oxygen. The result is a rare but serious illness known as methemoglobinemia, or "blue baby syndrome." Methemoglobinemia can be fatal if nitrate levels in the water are high enough and the illness isn't treated properly.

The MCL for nitrate in drinking water is 10 parts per million (ppm). If a public water system exceeds the standard, the people who use the water are notified and advised not to use the water for mixing infant formula or other uses that might result in the consumption of the water by infants under six months of age. The advisory is kept in place until steps can be taken to reduce nitrate levels in the water. Possible remedial measures include treating the water to remove the nitrate or drilling a new water well.

Older children and adults are generally not at risk from drinking nitrate-contaminated water. In fact, the average adult consumes about 20-25 milligrams of nitrate per day in food, primarily from vegetables. Because of changes that occur after six months of age, the digestive tract no longer converts nitrate into nitrite. However, some adults – including people with low stomach acidity and people with certain blood disorders – may still be at risk for nitrate-induced methemoglobinemia.

Science has emerged recently describing possible health impacts of long-term exposure to nitrate in drinking water at concentrations below the current regulatory standard. MDH continues to follow the research and will provide updated guidance when adequate data are available.

Inorganic Chemicals. Community and nontransient noncommunity water systems in Minnesota are tested for 13 other inorganic chemicals in addition to nitrate. If past results don't indicate the presence of inorganic chemicals, testing is usually done once every nine years; otherwise, it may be done as often as four times a year. The list includes antimony, arsenic, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, sulfate, and thallium. In some cases, these chemicals may be naturally present in the groundwater. If a water supply system were to exceed the MCL for one of these chemicals, the people who use the water would be notified, and appropriate steps would be taken to reduce levels of these chemicals in the water.

Radioactive Elements. Community water systems in Minnesota are also usually tested once every three years – or as often as once a year or even quarterly in some cases – for a list of radioactive elements. These radioactive elements, or radiochemicals, are present in the water from natural sources. If a system were to exceed the federal MCL for one of these radioactive elements, the people who use the water would be notified and steps would be taken to correct the problem.

Disinfection By-products. Disinfection rids drinking water of microbiological organisms, such as bacteria, viruses, and protozoa, that can cause and spread diseases. The most common disinfection method is the addition of chlorine to drinking water supplies. Chlorine is effective against waterborne bacteria and viruses in the source water; it also provides residual protection to inhibit microbial growth after the treated water enters the distribution system. This means it continues working to keep the water safe as it travels from the treatment plant to the consumer's tap.

However, even though chlorine has been a lifesaver regarding drinking water, it also has the potential to form by-products that are known to produce harmful health effects. For example, chlorine can combine with organic materials in the raw water to create contaminants called

trihalomethanes (THMs) and haloacetic acids (HAAs). Repeated exposure to elevated levels of these contaminants over a long period could increase a person's risk of cancer.

The formation of disinfection by-products is a greater concern for water systems that contain organics or use surface water, such as rivers, lakes, and streams, as their source. Surface water sources are more likely to contain the organic materials that combine with chlorine to form THMs and HAAs.

All community and nontransient noncommunity water systems that add a disinfectant to the water must regularly test their treated water to determine if THMs and HAAs are present. If the THMs or HAAs exceed the limits set by the EPA, the water system must take action to correct the problem and must notify all residents served by the water system.

Lead and Copper. All community and nontransient public water systems are tested for lead and copper. In community water systems, the water is tested in a number of homes within each system to determine if it exceeded the federal "action level" of 15 parts per billion (ppb) for lead or 1,300 ppb for copper. If a system exceeds the action level for lead or copper in more than 10 percent of the locations tested, it is required to take corrective action and do further testing. Testing requirements – the number of samples taken and the testing frequency – are based on population, historical results, and if any changes in the source of the water or treatment have occurred.

Lead in drinking water is not an environmental contamination problem in the conventional sense. Water is almost never contaminated with lead at the source or when it first enters the distribution system. However, water can absorb lead from plumbing components used in individual homes. Possible sources of lead contamination include lead pipe, lead plumbing solder, and brass fixtures. Lead exposure is a potentially serious health concern, especially for young children. However, the water must usually be in contact with lead plumbing components for an extended period, usually by standing in the system overnight before it can absorb potentially hazardous levels of lead.

While most people are subject to lead exposure from a number of possible sources – and drinking water typically accounts for a relatively small proportion of a person's total lead exposure – it is still a source of lead exposure to control and eliminate. Some Minnesota water supply systems address the issue by treating their water before it reaches a person's home, making it less likely to absorb lead from plumbing. Removing lead sources, such as lead service lines, is also a meaningful way to reduce lead exposure. Accelerating efforts to remove lead service lines is discussed later in this report.

Monitoring Results for Calendar Year 2024

This section provides a summary of results of monitoring performed in 2024. In the case of a violation, a water system must take corrective actions. These actions include public notification to inform affected residents of the situation and if there are any special precautions they should take. In all cases noted here, residents were advised directly by the water system at the time the violation occurred. All community water systems also communicate any violations in annual water quality reports (also called Consumer Confidence Reports) each year.

2024 Monitoring Results for Community Public Water Systems (CPWS) and Noncommunity Public Water Systems (NPWS)

Contaminants	Number of CPWS subject to monitoring	Number of CPWS with violations or ALE[1]s	Population served by CPWS with violations or ALEs	Percent of CPWS meeting EPA standards	Number of NPWS monitored[2]	Number of NPWS with violations or ALEs	Population served by NPWS with violations or ALEs	Percent of NPWS meeting EPA standards
Pesticides and Industrial Contaminants	965	0	0	100.0%	466	0	0	100.0%
Bacteriological	965	0	0	100.0%	5,620	14	1095	99.8%
Nitrate/Nitrite	965	2	1462	99.8%	5,620	10	875	99.8%
Arsenic	965	6	711	99.4%	466	3	219	99.4%
Radionuclides	965	14	71,664	98.5%	N/A	N/A	N/A	N/A
Other Inorganic Chemicals	965	0	0	100.0%	466	0	0	100.0%
Disinfection byproducts[3]	731	2	3,738	99.7%	47	0	0	100.0%
Lead	965	10	369,996	99.0%	466	4	635	99.1%
Copper	965	28	80,957	97.1%	466	9	2810	98.1%

Pesticides and Industrial Contaminants

In 2024, MDH conducted 25,281 tests for pesticides and industrial contaminants at its 965 community water systems. No systems violated drinking water maximum contaminant level (MCL) standards for these contaminants.

MDH conducted 11,520 tests for pesticides and industrial contaminants in the 466 nontransient noncommunity water systems in the state. No systems violated drinking water MCL for these contaminants.

[1] Action Level Exceedance (ALE)

[2] Some contaminants are tested at all 5,620 noncommunity water systems; others are tested only at the 466 nontransient noncommunity water systems.

[3] Disinfection byproducts are monitored only at systems that disinfect their water or purchase disinfected water.

Bacteriological Contamination

No community water system exceeded the MCL for bacteriological contamination in 2024. All noncommunity water systems – transient and nontransient – are monitored for bacteriological contamination. There were 14 violations among the 5,620 noncommunity systems. All systems with violations worked with MDH staff to identify and make any corrections needed, disinfect their systems, and retest the water.

Nitrate/Nitrite

Two community systems exceeded the MCL for nitrate in 2024. Ten noncommunity systems (transient and nontransient) exceeded the MCL for nitrate in 2024. These systems notified the people who used the water, offering bottled water to those with infants, while working with MDH staff to remedy the problems through steps such as installing treatment or using a new water source. No systems exceeded the MCL for nitrite in 2024.

Seventy-two community systems participated in an ongoing nitrate source water monitoring program in 2024. Their source water is sampled prior to any treatment and before the water is distributed to customers. Of these 72 systems, eight had raw, untreated water above the MCL for nitrate. The information collected in the program is used to help systems reduce nitrate levels in their source water.

Arsenic

Six community water systems and three noncommunity water systems exceeded the MCL for arsenic by the end of 2024.

Although residents were notified of the situation, no restrictions were placed on water consumption. Residents were told that this was not an emergency and were advised to consult with their doctors if they had any special concerns. Each of these systems has begun the process to reduce the amount of arsenic to below the MCL, including evaluating treatment options and finding other water sources. Examples of actions systems may take include researching, starting, or completing approved infrastructure or operational changes.

Other Inorganic Chemicals

No community or noncommunity water systems exceeded the MCL for other inorganic chemicals in 2024.

Radioactive Elements

Radiation occurs naturally in the ground, and some radioactive elements may work their way into drinking water. Thirteen community water systems exceeded the MCL for radium 226 & 228 and/or gross alpha emitters by the end of 2024.

Residents were notified of the situation. Some systems had restrictions placed on water consumption. Residents were told that this was not an emergency situation and were advised to consult with their doctors if they had any special concerns. These systems have either started or completed infrastructure changes or are studying alternatives to reduce these contaminants to below the MCL. In a number of cases, previously installed treatment is now reaching the end of its useful life and must be replaced to maintain reduction of radioactive elements.

Noncommunity water systems are not regulated for radioactive elements.

Disinfection By-products

Two community water system and no noncommunity water systems exceeded the MCL for disinfection by-products in 2024. The affected systems are working to reduce the concentrations of disinfection by-products to below the MCL.

Lead and Copper

As a result of the Lead and Copper Rule, implemented by the EPA in 1991, community water systems began sampling for lead and copper in 1992. Monitoring for lead and copper is done in individual homes and on a case-by-case basis. Samples are taken under worst-case conditions, including taking them after the water has been idle in the pipes, which could result in higher levels. If more than 10 percent of the homes sampled in a community are above the action level (15 parts per billion for lead and 1,300 ppb for copper), the water system will be in exceedance and must take corrective actions and begin an ongoing public education program. The actions include corrosion control measures, such as adjusting water chemistry to make it less corrosive or less likely to absorb lead and/or copper from the plumbing. Replacement of lead service lines – which connect water mains to household plumbing – is another means of reducing levels.

In 2024, two community systems exceeded the lead action level, and 26 community systems exceeded the copper action level, one system exceeded both the lead and copper action level. For noncommunity systems, three systems exceeded the lead action level, eight systems exceeded the copper action level, and one system exceeded both the lead and copper action level. These systems are exploring options for getting back into compliance and conducting a public education program. The Minnesota Department of Health continues to work with these systems and has been doing its own education campaign since the early 1990s with information about lead and copper and simple precautions, such as flushing faucets when the water hasn't been used for several hours, people can follow to reduce their exposure. All community water systems also issue an annual water quality report (Consumer Confidence Report), which has the results of testing done in the previous calendar year.

Strategic Initiatives

MDH is not only addressing current challenges within the state's public water systems but also planning for future needs. The following strategic initiatives for 2024 and beyond are designed to help ensure a safe, abundant, and equitable drinking water supply for Minnesota in the years ahead. Central to these efforts is a commitment to addressing emerging and newly regulated contaminants, advancing health equity, safeguarding public health from emerging contaminants, and reducing the risks associated with lead and copper. These initiatives take a comprehensive approach to improving water system safety and ensuring all Minnesotans have equitable access to clean drinking water.

Advancing Health Equity in Drinking Water

The MDH Drinking Water Protection (DWP) Section recognizes that equitable access to safe drinking water is essential for public health. In its commitment to health equity, DWP focused on reducing disparities in water access, particularly for marginalized communities such as low-income populations. The department's strategic initiatives prioritize infrastructure improvements, targeted funding, and the implementation of innovative practices to ensure that all Minnesotans receive the same high-quality water access, addressing and correcting existing inequities across the state.

Access to clean, affordable water is a fundamental human right and a critical social determinant of health. When this right is unmet, it can deepen environmental and economic disparities and contribute to health conditions. To combat these issues, DWP is dedicated to ensuring that all communities, regardless of their socio-economic status, have access to safe and reliable drinking water.

The DWP Health Equity Workgroup: Creating Sustainable Change

DWP's commitment to health equity is evolving through a comprehensive approach that was formalized with the launch of the DWP Health Equity Workgroup in 2022. Since its inception, the workgroup has focused on addressing challenges within the drinking water sector, with a priority on creating lasting, sustainable solutions that ensure equitable access to safe drinking water for all communities, particularly marginalized ones. The workgroup's activities have been broad, including the development of a health equity toolkit, the creation of a template for collecting health equity stories, lead service line replacement planning tools, staff education programs, and enhanced community engagement. These efforts are setting the stage for weaving health equity into the core of DWP's operations.

Addressing Infrastructure Needs

Drinking Water Revolving Fund (DWRF)

The Drinking Water Revolving Fund (DWRF) provides financial support to public water systems using low-interest loans and principal-forgiveness grants. Many communities lack the financial resources needed to complete necessary infrastructure projects. Projects are prioritized for funding based on public-health protection and financial need. Additionally, DWRF provides funding for technical assistance to water systems. This combination of funding and technical assistance helps ensure that all communities across Minnesota are able to provide safe and reliable drinking water to all Minnesotans.

Infrastructure Investment & Jobs Act (IIJA)

The Infrastructure Investment & Jobs Act (IIJA) expands the funding for the original DWRF program and adds additional funding to address emerging contaminants and replace lead service lines. IIJA provides additional funding to the DWRF program for a period of five years. The chart below represents the first year of IIJA funding. Future annual funding amounts are anticipated to be similar for the remaining years of IIJA.

Funding of Lead Service Line Replacement

MDH estimates that there are more than 100,000 lead service lines in the state. Minnesota has a goal to replace all lead service lines by 2033 and the state has thus allocated $240 million to support lead service line removal and replacement. Further, as noted above, IIJA provides five years of infrastructure funding dedicated to lead service line replacement.

Projects to replace lead service lines follow the DWRF program requirements. The intent of the program (dependent on funding availability) is to allow for lead service line replacement to be done at no cost to the property owner.

Applicants to the DWRF program are required to prioritize lead service line replacements according to specific criteria, including targeting areas with children with elevated blood lead levels, areas with children under the age of five, and areas with lower-income residents and other disadvantaged communities. MDH has developed an online mapping tool to assist project proposers with this prioritization. The Minnesota Service Line Replacement Priority map can be found at Minnesota Service Line Replacement Priority.

More information about lead service lines and replacement is online at Lead Service Line Replacement Program Facts.

Source Water Protection Grants

Another key funding initiative is the Source Water Protection Grants program, which helps small public water systems protect their drinking water supply. These grants are awarded for activities that help protect and secure their drinking water sources, and their impact is significant. In 2024, 124 grants were awarded, with 89 of those grants benefiting communities operating at or below the median household income level, earning them a health equity point for their commitment to serving underserved populations.

Addressing Contaminants of Emerging Concern

One way that MDH ensures the safety of drinking water is by addressing risks from contaminants of emerging concern (CECs). CECs are contaminants that have been newly discovered in the environment or are generating increased interest because of new scientific information about health or environmental effects. CECs can be naturally occurring, or human made.

Per- and Polyfluoroalkyl Substances (PFAS)

On April 9, 2024, the Environmental Protection Agency released final primary drinking water regulations for PFAS, including an enforceable limit for PFOS, PFOA, PFHxS, GenX, and PFNA as well as a Hazard Index to evaluate mixtures of PFAS. MDH is working with public water systems to meet their initial sampling requirements and the PFAS MCLs will become enforceable in 2029.

MDH welcomes the EPA action and sees the establishment of maximum contaminant levels as an important step in protecting public health. By working on this issue for many years, Minnesota is in a better position than most states.

The majority of Minnesota community water systems have results below the MCLs. MDH staff are working with systems that have results reported above the MCLs on ways to reduce PFAS exposures through drinking water. MDH staff have also participated in community meetings to share information about PFAS regulations, testing, and results for drinking water.

CWS customers can look up PFAS levels in their drinking water in the Interactive Dashboard for PFAS Testing in Drinking Water. Additional resources may be found on the home page for the MDH Drinking Water Protection Section.

Drinking Water Ambient Monitoring Program

The Drinking Water Ambient Monitoring Program (DWAMP) provides ongoing, permanent monitoring capacity for CECs and other priority contaminants in drinking water sources across the state. The goals of this program are to address concerns about public health exposure to CECs and support data-driven water resource management decisions by characterizing water quality conditions in drinking water sources.

The primary components of this program include proactive, investigative monitoring of systems for emerging contaminants, follow-up monitoring for systems with past low-level CEC detections, watershed-scale characterization to identify vulnerable aquifers, and seasonal surface water investigations. The first round of annual sampling for DWAMP began in spring 2024, and preliminary results will be available late spring 2025. The primary contaminants sampled for in 2024 include PFAS, nitrate, arsenic, manganese, lead, bacteria, 1,4-dioxane, and cyanotoxins.

DWAMP is supported by the Minnesota Clean Water Fund, which was established by the 2008 Clean Water, Land and Legacy Amendment.

Addressing Risks from Lead and Copper

Lead in drinking water infrastructure may adversely affect vulnerable populations such as the very young, the elderly, and other groups who are more susceptible to risk. MDH is helping systems and facilities address risks from lead through several different programs and approaches.

Lead and Copper

Since the publication of the EPA's Lead and Copper Rule Revisions (LCRR) in 2021, MDH has been preparing for the new rule requirements and working with systems on new practices to meet the requirements and deadlines. In 2024, EPA finalized the Lead and Copper Rule Improvements (LCRI) to provide additional enhancements to the Lead and Copper Rule. The focus of the LCRI includes replacement of all lead service lines, faster response to action level exceedances, and more equitable protection of public health by prioritizing communities historically underserved communities.

The revisions required public water systems to identify and make public the locations of lead service lines by developing lead service line inventories by October 16, 2024. The state achieved this goal with a 100% compliance rate. MDH, together with the University of Minnesota, released the Minnesota Lead Inventory Tracking Tool. The tool shows the service line material for buildings connected to public water supplies. Residents and water systems can input an address and see the material used for related service lines.

MDH developed the Minnesota Service Line Replacement Priority Prioritization Tool with University of Minnesota, which can be used to prioritize service line replacements using information such as elevated blood lead levels in children under age 5 and income data.

Minnesota has a statewide goal to identify and replace all lead service lines by 2033. Each water system will have its own timing and plan to identify unknown service lines. MDH's Service Line Inventory Technical Assistance program offers financial support for systems to help achieve compliance with the EPA's LCRR and LCRI. Residents should contact their public water system for more information on timing of the ongoing inventory efforts.

Lead Testing in School and Child Care Settings

In 2017, state legislation was passed to require school districts and charter schools to test for lead in drinking water. The 2023 legislative session resulted in updates to the lead in drinking water statute, including:

- Adding child-care centers to the requirement for testing for lead in drinking water;
- Setting a trigger level of 5 parts per billion for remediation; and
- Creating a new process for facilities to report their lead in drinking water results to MDH on an annual basis;
- Posting results online for the public to access via Minnesota Lead in Drinking Water in Early Care and Education Facilities Map.
- Creating the Lead Remediation in Drinking Water in Schools and Child Care Settings Grant Program.

MDH is currently working with Minnesota's schools and child cares, in collaboration with the Minnesota Department of Education and Minnesota Department of Human Services, to help ensure these requirements are met.

MDH and the Minnesota Department of Education created a model plan that schools can use for testing for lead in their buildings. Families can find out how much lead, if any, has been detected in the drinking water at all public and charter schools and at licensed child care centers using a new, interactive map created by MDH. More information and a link to the map can be found on Results and Metrics for Early Care and Education Settings.

Additionally, MDH has a testing program for lead in drinking water to provide free sample kits and laboratory analysis to eligible schools and child-care providers. MDH provides education, outreach, and technical assistance to these facilities. Contractor services are available as an option to help schools and child cares with sample collection.

MDH launched By the Numbers: Program Dashboard, showing the metrics for Lead Testing for Drinking Water in Schools and Child Cares Using Water Infrastructure Improvements for the Nation (WIIN) Grant funds as well as metrics for the Lead Remediation In Drinking Water in Schools and Child Cares Grant program.

Resilient Water Systems

Climate Resiliency

Climate resiliency means being able to anticipate, prepare for, and respond to issues related to climate change. MDH has a climate workgroup to advance climate resiliency for Minnesota's drinking water. The group has completed an analysis of public wells within a floodplain to identify public water systems at high risk during flooding events. The group continues to provide technical assistance for public water systems on extreme weather events and drinking water impacts. Staff have partnered with the Minnesota Rural Water Association, the EPA, and others on training opportunities and continues to pursue opportunities to address the needs of public water systems and resource partners in making drinking water resilient to climate impacts.

Along with other state and local partners, MDH will help implement the state Climate Action Framework to ensure the health, well-being, and resiliency of communities in the face of climate change.

Emergency Preparedness

Ensuring the safety and resilience of Minnesota's drinking water systems is more critical than ever. Every water system in the state is recommended to have a comprehensive emergency preparedness plan in place to respond to unforeseen challenges, such as natural disasters and contamination threats. These plans are vital for protecting public health and ensuring a continuous clean water supply during emergencies. Whether it's a flood, power outage, or infrastructure failure, a well-prepared system can make the difference between a swift recovery and prolonged disruption. It's not just about having a plan—it's about being ready for anything.

MDH plays a crucial role in strengthening emergency preparedness for drinking water protection across the state. MDH requires many public water systems to develop detailed

emergency response plans that address various potential crises, from natural disasters to contamination events. These plans include strategies for rapid response, clear communication protocols, and coordination with local health departments and emergency services. Additionally, MDH provides guidance on maintaining safe drinking water supplies during emergencies, ensuring public health is safeguarded and that communities are prepared to recover quickly from any water-related disaster. See Drinking Water Safety in Emergencies for more information.

Cybersecurity

There are national examples of cybersecurity incidents for drinking water. The Federal Bureau of Investigation, National Security Agency, and Cybersecurity and Infrastructure Security Agency have issue numerous advisories about state-sponsored cyberoperations against critical infrastructure, including U. S. water and wastewater facilities and operations.

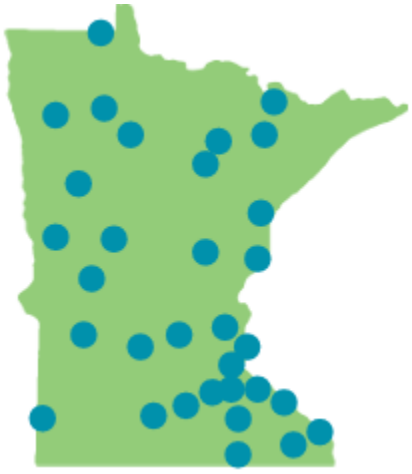
Cybersecurity is a key part of the 2018 America's Water Infrastructure Act, which requires community water systems serving a population of 3,300 or more to assess security, including cybersecurity threats as part of a risk and resilience assessment and incorporate strategies that address all security in emergency response plans.

All community water systems in Minnesota that use operational technology must perform a cybersecurity assessment every year. MDH will review the assessment findings as part of routine inspections and ensure issues are addressed. A In addition, these systems are to certify to MDH that an assessment is performed annually.

Public Health Education and Outreach

Minnesotans highly value their drinking water, and engaging with communities about drinking water questions is a core activity of the DWP program. One way that MDH engages with communities is through its support of We Are Water MN, a traveling water exhibit that is hosted in different communities across the state. We Are Water MN is rooted in community engagement and focuses on fostering partnerships across the state to engage with organizations and community members around their relationships to water. MDH staff participate in the planning committee, help interview host site applicants, and contribute local information about source water and drinking water issues for the host communities. We Are Water MN is made possible by the Clean Water Fund. We are Water MN began in 2016 and has been hosted in the following host cities:

Spicer	Northfield	Fergus Falls
St. Peter	Grand Rapids	Hastings
Lanesboro	Onamia	Becker
Detroit Lakes	Morris	Pine River
Red Wing	Mankato	Minneapolis
Sandstone	Rochester	Roseau
St. Paul	Pipestone	Stillwater
Bemidji	Chisholm	Holdingford
Crookston	Winona	North Branch
Duluth	Lake City	Cass Lake
Austin	Alexandria	Shakopee



For More Information

Detailed Violation Report Available: This annual report provides an overview of monitoring results and health-related water quality violations in Minnesota in 2024.

In addition, a report listing all violations of the Safe Drinking Water Act in Minnesota for calendar year 2024 is available from the Drinking Water Protection Section, Minnesota Department of Health, Box 64975, St. Paul, MN 55164-0975, 651-201-4700, health.drinkingwater@state.mn.us.

The detailed report includes information about violations of National Primary Drinking Water Regulations including the following:

- Maximum contaminant level (MCL) violations
- Maximum residual disinfectant level (MRDL) violations
- Treatment technique requirement (TT) violations
- Significant monitoring and reporting requirements (M/R) violations
- Significant monitoring requirement (M) violations
- Significant reporting requirement (R) violations
- Variances and exemption violations
- Recordkeeping violations
- Significant public notification requirement violations
- Significant consumer confidence report (CCR) notification requirement violations

Consumer Confidence Reports: Individual community water systems produce an annual report (called a Consumer Confidence Report) listing contaminants that were detected, even in trace amounts, during the previous calendar year. The reports are available from the individual water systems or on-line: Consumer Confidence Reports.

Lead service lines: The Minnesota Lead Inventory Tracking Tool shows the service line material for buildings connected to public water supplies.

Lead in drinking water in early care and education facilities: Find out how much lead, if any, has been detected in the drinking water at all public and charter schools and at licensed child care centers at Results and Metrics for Early Care and Education Settings.

Partners

We acknowledge the many citizens, professionals, organizations, and agencies that work to protect and restore our water resources and provide safe drinking water to Minnesota citizens. Some areas in Minnesota have aquifers so pristine that at this time they require no treatment to provide safe drinking water. However, our ground and surface waters can be contaminated both by natural processes and by our human activities, and demand for water keeps increasing across Minnesota. It is because of the work of these people as individuals and as members of businesses, organizations, and government agencies that anywhere in Minnesota, citizens can feel confident that the drinking water provided by public water supplies meets all federal drinking water standards.

Our thanks to:

Minnesota Rural Water Association
American Water Works Association and its Minnesota Section
Local government staff including counties, townships, and municipalities
Nonmunicipal public water system staff and operators
Landowners
Business and industry owners
Food, beverage, and lodging facilities owners and staff
Manufactured housing development operators
Schools and churches
Treatment and correctional facilities
Minnesota Board of Water and Soil Resources
Minnesota Pollution Control Agency
Minnesota Department of Natural Resources
Minnesota Department of Agriculture
Metropolitan Council
Environmental Quality Board
Minnesota Clean Water Council
In the Heart of the Beast Puppet and Mask Theatre
Public Art St. Paul
Public Facilities Authority
U. S. and Minnesota Geological Survey
Minnesota Ground Water Association
Minnesota Water Well Association
University of Minnesota Water Research Fund
Minnesota Clean Water Land and Legacy Amendment
Suburban Utility Superintendents Association
Water Resource Programs at St. Cloud Technical and Community College, the University of Minnesota, and St. Paul College
Association of State Drinking Water Administrators
U. S. Environmental Protection Agency
. . . and many more!