

**MPCA Amendments to Water Quality Rules for
Class 1 waters (domestic consumption)
Minn. R. chs. 7050 and 7060
Potential changes to Minn. R. chs. 7052 and 7053
Rule Concepts/Narrative**

Introduction: This document is part of the rule development process to amend water quality rules. It provides an overview of what the Minnesota Pollution Control Agency (MPCA) is considering for this rulemaking. The MPCA is at the initial stage of the rule process, and is sharing proposed concepts for amending the rules. This document will help readers understand the changes being considered and the reason for the changes so that interested persons may provide comments on any part of these rule concepts. Topics where stakeholder input is specifically requested are highlighted. Instructions on how to submit comments are provided in the notice of Request for Comments (RFC) located at: <https://www.pca.state.mn.us/public-notices>.

Purpose of rulemaking: The main purpose of this rulemaking is to improve protection of Minnesota waters used for domestic consumption, which are all groundwater and Class 1 surface waters that are specifically identified in rule. Domestic consumption includes all waters of the state that are or may be used as a source of supply for drinking, culinary or food processing use, or other domestic purposes and for which quality control is or may be necessary to protect the public health, safety, or welfare. The rules that apply to Class 1 waters have not been significantly revised since first adopted in the 1960s through the 1970s; updates are needed to incorporate current science and to better align Minn. R. ch. 7050 with Minn. R. ch. 7060, which address the protection of Class 1 waters and waters used for domestic consumption, including groundwater. The amendments being considered are expected to significantly update and clarify protections for Class 1 waters.

The MPCA’s specific goals in this rulemaking are to:

- Clarify and revise where the Class 1 water quality standards (WQS) apply. MPCA is considering how to ensure the rule language clearly conveys that the standards apply to all groundwater. MPCA is also considering whether and how to expand the Class 1 designation to surface waters that: 1) are strongly connected to and impacting the quality of underlying/nearby groundwater, and 2) flow into and impact the quality of a designated Class 1 surface water. These additions are being considered to better protect sources of drinking water. Other additions may also be considered.
- Revise the numeric and narrative WQS. This includes updating existing values to be more health protective and adding WQS for some emerging pollutants of concern, including per-and polyfluoroalkyl substances (PFAS), and potentially pesticides, pharmaceuticals, algal toxins, disinfection by-products, and/or additional industrial chemicals.
- Consider whether to add the concept of Groundwater Contaminant Management Zones (GWCMZs) – a mechanism to identify contaminated groundwater and inform decision makers and the public of contamination.

Rulemaking concept narrative: The concepts described in this document are preliminary and may or may not proceed to the final rulemaking, or may take a different form, based on additional consideration and the comments received from this RFC. These concepts are not final. The MPCA plans to publish an additional RFC as these concepts are refined and numeric WQS are developed, prior to formally proposing the rules.

Change being considered	Summary of reasons for change
<p>1) Improve and clarify Class 1 beneficial use Includes potential revisions to Minn. R. chs. 7050 and 7060, to clarify the rule language therein and also better align it with the directives in Minn. Stat. ch. 103H (the 1989 Ground Water Protection Act).</p>	<p>The existing language regarding the designation of groundwater as Class 1 is inconsistent and needs clarification. Also, the Class 1 subclasses (1A, 1B and 1C) included in Minn. R. 7050.0221 are poorly defined and their usefulness is unclear, such that MPCA is considering</p>

Change being considered	Summary of reasons for change
	removal of the subclass designations. Other clarifications are also under consideration.
<p>2) Improve and clarify Class 1 designations Review and consider updates and additions to surface waters that have the Class 1 designation.</p>	<p>The Class 1 designation applies to surface waters specifically identified as such in Minn. R. 7050.0470. MPCA and the Minnesota Department of Health (MDH) are aware of additional surface waters that should be considered for Class 1 designation, including those with pollutants that are impacting the quality of groundwater used for domestic consumption (via what is often referred to as surface water – groundwater interaction), and surface waters that flow into Class 1 waters and are impacting the quality of a drinking water source. Other additions and clarifications are also being considered.</p>
<p>3) Update numeric and narrative Class 1 WQS Revise the basis for numeric WQS to be more appropriate for source water protection use; update existing WQS; and add new WQS for newer pollutants of concern.</p> <p>Consider updating the narrative standard to incorporate additional concerns and/or guidance for implementation.</p> <p>Consider whether updates to Minn. R. ch. 7053 are needed to support implementation through permit limits.</p>	<p>Minnesota rules protecting sources of drinking water have always referenced federal drinking water guidelines, going back to the original rules adopted in the 1960s and 1970s. Minn. R. 7050.0221 identifies the federal Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLs) as the current Class 1 WQS.</p> <p>However, federal drinking water standards such as MCLs were never intended for use in protecting surface water sources of drinking waters (e.g., Class 1 waters); as such MCLs incorporate issues that are important for treatment and distribution of drinking water that are not relevant to the protection of source water (i.e., water used as a source of drinking water). Under the federal Clean Water Act (CWA), WQS for the protection of domestic consumption should be solely based on human health considerations.</p> <p>MPCA believes updating the Class 1 WQS to incorporate Minnesota-specific risk scenarios and toxicological values, consistent with the goals of the federal CWA, will result in significantly improved and expanded protection for Class 1 waters.</p>
<p>4) Consider adding the concept of Groundwater Contaminant Management Zones (GWCMZs) to Minn. R. 7060.</p>	<p>A GWCMZ is conceived as a geographic area that extends to the subsurface (i.e., below ground), within which the groundwater is known to be contaminated. Identifying and sharing the locations of GWCMZs informs the public about known areas of degraded groundwater, and also provides a means to track the rehabilitation of degraded groundwater over time, consistent with language in Minn. R. 7060.0400.</p> <p>The concept of GWCMZs was developed as a means to enhance transparency regarding the occurrence of degraded groundwater, as well as the various rules and statutes that may apply to the rehabilitation of degraded groundwater in Minnesota. The GWCMZ concept also</p>

Change being considered	Summary of reasons for change
	<p>responds to various statements and policies included in Minn. R. chs. 7050 and 7060 and Minn. Stat. ch. 103H, especially the policy of nondegradation of groundwater (Minn. R. 7060.0200), and the “abating” of pollution and “rehabilitating” of degraded waters for their priority use (Minn. R. 7060.0400).</p> <p>MPCA is looking for input from the public concerning the need for GWCMZs and whether and how this concept of GWCMZs could be advanced.</p>

1) Improve and clarify Class 1 beneficial use.

Minn. R. chs. 7050 and 7060 consolidate the policies and language from historical water pollution control rules that included protections for water used for domestic consumption. Minn. R. chs. 7050 and 7060 also reflect the requirements of Minn. Stat. ch. 115, which provides important authorities, definitions and concepts for protecting waters of the state for their assigned beneficial uses. This history has led to the use of varying terms and inconsistencies in Minn. R. chs. 7050 and 7060, and also with Minn. Stat. ch. 115. Examples include the way the beneficial use is referenced (i.e., domestic consumption versus potable water use), the way protections are articulated (i.e., nondegradation versus prevention of pollution), and how the protections are stated, specifically with regard to whether they apply to surface water, groundwater (also called underground water), or both. Accordingly, MPCA is looking at improving the language in Minn. R. chs. 7050 and 7060 to add consistency and clarity, thereby ensuring the protections they provide are not subject to misinterpretation.

Another area where clarification is needed regards the connection in Minn. R. ch. 7050 between protection of Class 1 water and the need for treatment of that water to make it suitable for domestic consumption (i.e. safe for drinking). Minn. R. 7050.0140, subp. 2 describes Class 1 waters, domestic consumption, as follows: “Domestic consumption includes all waters of the state that are or may be used as a source of supply for drinking, culinary or food processing use, or other domestic purposes and for which quality control is or may be necessary to protect the public health, safety, or welfare.” MPCA’s authorities are focused on protecting waters of the state for their designated beneficial uses – in this case as the *source of supply* for domestic consumption. MPCA does not have authority or responsibility for determining the safety of water that is withdrawn from Class 1 waters for domestic consumption. Thus, MPCA seeks to clarify that this authority does not reside with MPCA, and to specify that MDH is the state agency authorized to administer the federal SDWA.

	Change being considered	Reason for change
1.a.	Clarify inclusion of groundwater as a Class 1 water in Minn. R. ch. 7050.	In Minn. R. ch. 7050, “domestic consumption” is identified as a beneficial use under Class 1. This use classification applies to all “underground water” (i.e., groundwater) and some surface waters. Minn. R. ch. 7060 only applies to underground water; however, both rules set the foundation for protection of waters of the state that are or may be used as a source of supply for domestic consumption. This is also referred to as potable water protection.
1.b.	Add rule language specifying that MDH is the state agency that oversees drinking water treatment under the federal SDWA.	Currently, only Minn. R. ch. 7060 specifically cites the role of MDH in setting treatment and other requirements to ensure, “the potability of

	Change being considered	Reason for change
		underground water.” MPCA is considering adding similar language into Minn. R. ch. 7050.
1.c.	Improve or remove Class 1 subclasses.	<p>The Use Class 1 subclasses in Minn. R. 7050.0221 (1A, 1B, and 1C) are distinguished according to the perceived need for treatment and the sensitivity of the groundwater and surface water to potential contamination, and have not to date been implemented in groundwater or offered any meaningful or additional protection to surface water.</p> <p>In addition, the existing language about the subclasses lacks clarity in conveying that Class 1 WQS apply to these waters in their untreated state, regardless of subclass.</p>
1.d.	Address additional inconsistencies and ambiguities in Minn. R. chs. 7050 and 7060 and Minn. Stat. ch. 103H.	<p>The purpose and approach to protection of waters of the state for domestic consumption should be, to a reasonable degree, consistent and clear.</p> <p>Other areas of inconsistency or ambiguity may be identified, and a proposed revision may be advanced as part of this rulemaking.</p>
<p>Stakeholder input needed:</p> <ul style="list-style-type: none"> • <i>Are there improvements or clarifications needed to more easily understand protections to waters used for domestic consumption?</i> • <i>Are there specific goals missing in Minnesota’s regulations that protect groundwater or surface water for domestic consumption?</i> 		

2) Improve and clarify Class 1 designations.

MPCA is reviewing the scope of surface waters currently designated as Class 1 and assessing whether the current list is appropriate and complete. One consideration for this review is that the rationale for the existing list of Class 1 waters is poorly documented. In general, listed Class 1 waters include surface waters known to be used as a source of drinking water in Minnesota and in Minnesota’s border communities, and where designated as Class 2A cold waters.

MPCA and MDH, through their environmental and drinking water protection work, are aware of several examples where a surface water flowing into a Class 1 surface water is impacting the quality of that Class 1 surface water; similarly, MPCA and MDH are aware of surface waters that have been demonstrated to be impacting the quality of the underlying/nearby groundwater (all of which is protected as Class 1 for domestic consumption). These situations warrant review and a determination of whether the Class 1 designation should be extended to better protect waters of the state that are used to supply water for the domestic consumption use.

MPCA is also evaluating potential approaches for determining when surface waters should be designated Class 1 to protect the underlying groundwater.

	Change being considered	Reason for change
2.a.	Review and update surface waters that have Class 1 designations.	The designation of Class 1 waters began in the first water quality rule in 1963 and continued into the 1970s, with the rationale for these designations

	Change being considered	Reason for change
	<p>Better define why and how MPCA considers and designates Class 1 surface waters across the state.</p> <p>Maintain all current Class 1 designations.</p>	<p>not well documented. MPCA is considering how to better define when a Class 1 designation is appropriate and to review and update the list of existing Class 1 waters, based on potential new and clearly stated existing rationale.</p>
<p>2.b.</p>	<p>Specify application to surface waters that are impacting the quality of Class 1 surface waters.</p> <p>Expand Class 1 protections to include surface waters directly impacting Class 1 surface waters.</p>	<p>MPCA is aware of certain upstream surface waters (not designated Class 1) that are impacting the water quality and attainment of Class 1 WQS. This could be due to natural poor water quality, nonpoint source runoff, or an upstream source or sources of pollution.</p> <p>The MPCA is considering where expanded Class 1 designations may be needed to ensure that drinking water is protected.</p> <p><i>Example: Fairmont, MN and Budd Lake</i> In 2016, high concentrations of nitrate were detected in the city’s drinking water resulting in an advisory. The data on nitrate were limited in Budd Lake, which is a Class 1 surface water, but were very robust on tributaries entering Budd and Hall Lakes. However, because these tributaries are not Class 1, they were not subject to Class 1 WQS or managed to protect the downstream domestic consumption use.</p>
<p>2.c.</p>	<p>Specify application of Class 1 to surface waters that are impacting the quality of groundwater.</p> <p>Currently, MPCA is considering two options to designate surface waters that have the potential to negatively influence the quality of the underlying groundwater:</p> <ol style="list-style-type: none"> 1) Use accepted criteria associated with sensitive areas (defined in Minn. Stat. ch. 103H as... “<i>natural features where there is a significant risk of groundwater degradation from activities conducted at or near the land surface</i>”) to identify surface water and groundwater connections that are necessary to protect. This option focuses on known geology and landscape features in addition to employing limited water quality datasets to identify groundwater influenced by surface waters. 2) Use water quality data to demonstrate a connection between surface waters and the impacted groundwater. Examples of acceptable monitoring data would include biologicals like algae and pathogens, or changes in pH, turbidity, temperature, etc. and would need to be sufficient 	<p>Currently, no defined criteria exist to designate surface waters as Class 1 when said waters are acting as a conveyance or source of contaminants to groundwater. To adequately protect this groundwater for domestic consumption, MPCA is considering two different approaches, described at left.</p> <p><i>Example: Mankato, MN and Blue Earth River</i> Through study by the City of Mankato and MDH, there are multiple water quality parameters that reflect that the quality of the groundwater wells used by the city for public water supply that are influenced by the adjacent/overlying Blue Earth River. This dataset can be used to define known contamination of groundwater based on surface water pollution. This example fits the area sensitivity definition according to the DNR (option 1), but also uses more specific monitoring data beyond just the known geology/hydrogeology of the area (option 2).</p>

	Change being considered	Reason for change
	<p>to show the occurrence of these or other conditions in groundwater can be correlated with surface water conditions. More simply, this option would require monitoring data of both groundwater and surface water conditions to demonstrate the connection.</p> <p>Both of these approaches would help MPCA meet statutory authority to protect groundwater for domestic consumption, but have different pros and cons. The MPCA is seeking practicable ways to further prevent groundwater contamination.</p>	
2.d.	<p>Consider removal of designations where drinking water use is not occurring (e.g., Class 2A: cold-water, aquatic communities).</p> <p>MPCA is unlikely to pursue the disassociation of drinking water protections from Class 2A in this rulemaking.</p>	<p>All Class 2A designated cold waters are protected for domestic consumption (drinking water) (Minn. R. 7050.0222, subp. 2). However, Class 2A designations that align with DNR’s list of trout waters have restrictions against certain appropriations, including public drinking water intakes, per Minn. R. 6115.0670, subp. 3 (B)(3). Thus, Class 2A streams or rivers generally will not have drinking water intakes on them. (Note, there are Class 2A lakes that have public drinking water usage occurring.)</p> <p>While these restrictions constrain domestic consumption use on many Class 2A surface waters, there are Class 2A surface waters that are not trout streams. In addition, there is not enough information to demonstrate that the Class 1 designation should not apply, particularly when considering the need to protect the underlying groundwater, as described above in 2.c., in these areas where there is likely to be a strong surface water and groundwater connection.</p> <p>MPCA’s preliminary decision is not to move forward with a categorical disassociation of the Class 1 domestic consumption use and associated protections from Class 2A waters.</p>
<p>Stakeholder input needed:</p> <ul style="list-style-type: none"> • <i>Are there other surface waters that should be designated as Class 1? Please include your rationale.</i> • <i>MPCA is interested in your comments on these approaches for determining surface water connection to groundwater. Are these the right conditions?</i> • <i>Are there other circumstances of water connectivity that should be evaluated to better protect Class 1 water quality?</i> 		

3) Update numeric and narrative Class 1 WQS.

Class 1 WQS apply to all groundwater and specific, listed surface waters in Minnesota. The Class 1 WQS provide the regulatory means to protect surface waters used as sources of drinking water and food processing; for groundwater additional regulations apply. These include regulations that require the remediation of contaminated groundwater originating from contaminated industrial and other properties, as well as rule language in Minn. R. ch. 7060 (underground waters) and Minn. Stat. ch. 103H (the 1989 Ground Water Protection Act), the latter of which specifies that groundwater is to be protected for present and future generations through a policy of non-degradation.

The preservation of Minnesota’s water resources for drinking water consumption is often considered its highest and best use; for groundwater, this is explicit policy (Minn. R. 7060.0200). Accordingly, the Class 1 WQS that protect this use should: 1) be appropriate for this purpose, 2) reflect current science, and 3) incorporate standards for pollutants of concern, including those that have more recently been recognized as real or potential concerns to human health, such as the per- and polyfluoroalkyl substances, commonly known as PFAS, and potentially pharmaceuticals, chemicals in personal care products, pesticides, a variety of industrial chemicals, and cyanotoxins associated with harmful algal blooms. MPCA is thereby considering updating the Class 1 numeric WQS in line with these considerations.

Narrative WQS are statements that describe the conditions that the water must meet to attain the beneficial use. The narrative WQS for Class 1 waters in Minn. R. 7050.0221, subp. 6, reads as follows:

In addition to the standards in subparts 2 to 5, no sewage, industrial waste, or other wastes from point or nonpoint sources, treated or untreated, shall be discharged into or permitted by any person to gain access to any waters of the state classified for domestic consumption so as to cause any material undesirable increase in the taste, hardness, temperature, chronic toxicity, corrosiveness, or nutrient content, or in any other manner to impair the natural quality or value of the waters for use as a source of drinking water.

Narrative WQS may be implemented by development of a site-specific water quality criteria for toxic pollutants to address a concern at a specific location or group of locations; or, by development of a narrative translator that results in an implementable numeric permit limit.

Considerable new scientific data are now available to improve the Class 1 narrative WQS, including the science related to microbiological pathogens, and precursors to disinfection-by-product (DBP) formation (a large class of carcinogenic chemicals). MPCA seeks to improve the Class 1 narrative WQS, as feasible given the timeline for the Use Class 1 rulemaking.

The MPCA also seeks comment as to whether changes need to be made to Minn. R. ch. 7053 to support implementation of these WQS in permits.

	Change being considered	Reason for change
3.a.	<p>Revise numeric standards (update and add pollutants)</p> <p>Adopt new method to derive numeric Class 1 WQS for toxic pollutants (Minn. Stat. § 115.01, subd. 20) that reflects Minnesota-specific risk assessment scenarios.</p> <p>Update existing Class 1 WQS using new method and pollutant toxicological values developed by the MDH since 2009.</p> <p>Add new Class 1 WQS for pollutants that do not have an existing standard for which there is a current MDH toxicological value.</p>	<p>The federal CWA is clear that WQS must protect the use for which a water body is intended, and that WQS to protect drinking water should be fully human health-based, without any consideration of economics or treatment technology (note: the CWA and Minnesota Rules include other mechanisms to deal with economics that are outside application of the WQS).</p> <p>In 2015 MPCA addressed this concern by updating the human-health methods that are used in connection with Class 2 waters, which protect people who are recreating in and eating fish caught in those</p>

	Change being considered	Reason for change
	<p>Maintain existing Class 1 WQS for pollutants that have an existing standard but for which there is no current MDH toxicological value.</p>	<p>waters. MPCA is considering using this method as the basis for deriving Class 1 WQS, either by reference (Minn. R. 7050.0218 through 7050.0219) or by adopting it directly into the Class 1 rules (Minn. R. 7050.0221). The risk equation for Class 1 waters would only address exposure via the drinking water pathway.</p> <p>MPCA is also considering using pollutant toxicological values developed by MDH since 2009 to derive Class 1 WQS. This would facilitate: 1) updating the existing Class 1 WQS, using the new method and MDH's toxicological value for the pollutant, and 2) the addition of new Class 1 WQS for pollutants that do not currently have a Class 1 WQS for which MDH has developed a toxicological value, such as for certain PFAS chemicals.</p> <p>There are approximately 15 pollutants with SDWA MCLs that MDH has not developed toxicological values for; the existing Class 1 WQS for these pollutants will be retained, as will the SDWA secondary standards, which apply to Class 1 surface water and groundwater as specified in Minn. R. 7050.0221, subp. 1.B.</p>
<p>3.b.</p>	<p>Update and revise narrative standards</p> <p>Specify the inclusion of microbiological pathogens and DBP potential to the list of characteristics included in the narrative standards in Minn. R. 7050.0221.</p>	<p>Under existing rules, there are no WQS for microbiological pathogens such as <i>E. coli/ Giardia lamblia/Cryptosporidium</i> in Class 1 surface water. The MPCA anticipates that microbiological pathogens will become a larger and more compelling concern as climate change continues to impact Minnesota's environment. Also, the intensified rainfall and runoff that is a signature of climate change can lead to greater concentrations of total organic carbon in surface water, which, when used for drinking water supply, makes treatment more challenging and can result in higher DBP levels in the treated drinking water.</p>
<p>Stakeholder input needed:</p> <ul style="list-style-type: none"> • <i>Are there specific pollutants that MPCA should consider adding as a Class 1 WQS?</i> • <i>Are there specific pollutants that MPCA should not consider adding as a Class 1 WQS?</i> • <i>Other comments, concerns or suggestions you have regarding revising Minnesota's numeric or narrative Class 1 WQS, including implementation?</i> 		

4) Consider adding Groundwater Contaminant Management Zones (GWCMZs) to Minn. R. ch. 7060

The addition of GWCMZs to Minn. R. ch. 7060 is an improvement MPCA has been considering to address rule language that applies to groundwater in Minn. R. chs. 7050 and 7060, and also in Minn. Stat. ch. 103H. This language includes the, "...preventing of any new pollution and abating existing pollution," statement in Minn. R. 7060.0100 and the intent described in Minn. R. 7060.0400 to, "...maximize the possibility of rehabilitating degraded groundwater," to be usable for domestic consumption.

For the purposes of this RFC, a GWCMZ is a geographic area that extends into the subsurface (i.e., below ground), within which the groundwater is known to be contaminated. Important functions of GWCMZs are to identify and inform the public about known areas of degraded groundwater in which the domestic consumption use is not being met; to enable tracking of the rehabilitation of degraded groundwater over time, consistent with language in Minn. R. 7060.0400; and potentially to enable the implementation of appropriate goals when groundwater is being remediated.

The concept of GWCMZs also provides improved transparency regarding the management and remediation of contaminated groundwater, which is governed by differing rules and statutes. For example, MPCA and the Minnesota Department of Agriculture (MDA) have authorities for the investigation and cleanup of contaminated groundwater under Minn. Stats. chs. 115B and 115C, as well as Minn. Stats. chs. 18B, 18C, and 18D, but these statutes have different goals to address environmental contamination.

MPCA recently launched its [Groundwater Contamination Atlas](#), which provides information that closely resembles what is envisioned for GWCMZs: a map-based, three-dimensional portrayal of groundwater contaminant plumes that are being remediated in connection with MPCA programs. Since the Atlas provides much of the information and functionality that GWCMZs are intended to provide, MPCA is unlikely to proceed with development of the GWCMZ concept.

Still, MPCA is interested in any comments the public may have regarding the GWCMZ concept, particularly how defining such zones in rule may help support implementation of other authorities, such as MPCA’s role in groundwater contamination cleanup.

	Change being considered	Reason for change
4.a.	<p>Add the concept of GWCMZ to Minn. R. ch. 7060</p> <p>MPCA has chosen not to pursue the addition of GWCMZs in this rulemaking.</p>	<p>A GWCMZ is a geographic area that extends into the subsurface (i.e., below ground), within which the groundwater is known to be contaminated.</p> <p>Identifying and sharing the locations of GWCMZs informs the public about known locations of degraded groundwater; provides a means consistent with language in Minn. R. 7060.0400 to track the rehabilitation of the degraded groundwater over time; and could support implementation of other authorities.</p> <p>MPCA’s new Groundwater Contamination Atlas provides much of the information and function that GWCMZs are intended to provide, and for this reason, MPCA is choosing not to pursue the addition of GWCMZs in this rulemaking.</p>

Stakeholder input needed:

- ***Is there a need or benefit to adding a concept like GWCMZs to Minn. R. ch. 7060? Please provide your rationale.***