DEPARTMENT: POLLUTION CONTROL AGENCY

STATE OF MINNESOTA
Office Memorandum

DATE: April 10, 2018

TO: MPCA Advisory Committee Members

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MEETING DATE: April 17, 2018

SUBJECT: Triennial Standards Review and Water Quality Standards Workplan Development
Water Quality Standards Review and Planning

I. Status

The federal Clean Water Act (CWA) requires that states review their water quality standards (WQS) every three years and solicit public input on the need for revising or adding to state standards. This requirement is typically referred to as the Triennial Standards Review or TSR. The review helps the MPCA set priorities for WQS development and rulemaking. Starting with this TSR, the MPCA is documenting these priorities in a WQS workplan for the upcoming three years.

The public comment period for the TSR ended February 9, 2018. The MPCA has been working to complete the TSR and finalize the MPCA's WQS Workplan for 2018 – 2020.

II. Background

Water Quality Standards and the Triennial Standards Review

The federal Clean Water Act requires states to designate beneficial uses for all water bodies (i.e. "waters") and develop WQS to protect each use. WQS include the following components:

- Beneficial uses — identification of how people, aquatic communities, and wildlife use our Minnesota waters.
- Numeric or narrative standards — typically the allowable concentrations of specific chemicals in a water body, or statements of unacceptable conditions in and on the water, established to protect beneficial uses. Numeric standards can also include measures of biological health.
- Antidegradation protections — extra protection for high-quality or unique waters and existing uses.

Minnesota rules governing WQS are found in Chapters 7050 and 7052. Chapter 7050 includes provisions to protect Minnesota's waters from pollution, and includes:

- A classification system of designated beneficial uses for both surface water and groundwater (e.g., drinking water, aquatic life and recreation, etc.);
- A listing of specifically classified water bodies;
- Numeric and narrative WQS that protect those beneficial uses;
- Antidegradation provisions;
- Provisions for the protection of wetlands;
- Methods for the determination of site-specific criteria for toxic pollutants; and

- Other provisions related to the protection of surface water and groundwater from point and nonpoint source pollution.

Chapter 7052 includes standards specific to surface waters in the Lake Superior Basin. Chapter 7052 establishes aquatic life, human health, and wildlife WQS and criteria based on the EPA's Great Lakes Initiative, antidegradation standards, and procedures for deriving effluent limits from these standards and criteria.

For the TSR, all subjects in Minn. R. chapters 7050 and 7052 are open for public comment on whether changes are needed. In addition, the CWA specifically directs states to solicit public comment on other items related to WQS implementation, namely:

- EPA's recently promulgated ambient water quality criteria (numeric standards) to determine if adoption into state water quality rules is needed;
- The state's list of water bodies that are deemed unable to meet the "fishable, swimmable" CWA goals (called limited resource value waters), to determine if new information shows the goals are now attainable; and
- Active variances to WQS to determine if new information shows that the variance should be revised.

WQS, in general, engender controversy. This has been particularly true in recent years, as science increasingly demonstrates that low levels of pollutants in water can impact human health and the environment – particularly aquatic life. Facility discharge permits are a key part of ensuring that WQS are met in Minnesota's waters, and there are growing concerns about the expense of implementing effluent limits to meet more stringent WQS. This has resulted in more requests for public hearings when water quality rules are revised, more involved and identifiable scientific peer review, and challenges following promulgation of WQS and their implementation into permits.

The TSR gives the public a chance to weigh in on which WQS the MPCA should develop. The MPCA's capacity to make changes is impacted by the increased controversy surrounding WQS.

<u>Development of MPCA's Proposed WQS Workplan for 2018 to 2020</u>

The TSR is an every three years' opportunity to connect with staff in MPCA programs that use or refer to WQS in their work. This includes programs that work to identify impaired waters; develop restoration and protection plans for the impaired waters; set effluent limits for industrial facilities and municipal wastewater treatment plants; managing stormwater; and issue permits for a variety of activities, including subsurface sewage treatment systems (SSTS) and land disposal. Over time, new issues can arise within these programs and often lead to a need to revise (update) an existing WQS or develop a new one. In other cases, new science becomes available that renders an existing WQS outdated and in need of revision. The MPCA uses an electronic survey to gather information from MPCA programs about their WQS needs.

MPCA WQS staff consider the needs of MPCA programs, the availability of new science, current issues of concern within Minnesota, and the existence of EPA criteria when considering what WQS topics should be addressed in the upcoming three years. MPCA WQS staff also consider whether a new or revised WQS is the best tool to handle the relevant environmental issue – namely the extent of the issue that can be addressed by the WQS, and the degree of protection afforded by the development/revision of a standard, so that WQS projects with the highest benefit to human health and the environment are identified. WQS staff also consider the capacity of staff in the WQS unit and in implementing programs when developing the WQS Workplan.

Capacity was a significant consideration in developing the MPCA's proposed WQS Workplan for 2018 to 2020. While several important and far-reaching WQS projects were completed during the past three years, other WQS projects identified as priorities in the 2013 TSR made little if any progress. These priorities therefore remain on the workplan and few new projects are included in the proposed workplan.

The MPCA's proposed WQS Workplan for 2018 to 2020 is available here: https://www.pca.state.mn.us/water/mpca%E2%80%99s-proposed-water-quality-standards-work-plan-2018-2020

This use of a workplan format for the WQS is new this year. MPCA previously provided a list of multiple priorities grouped into general priority tiers. The new format aims to provide a clearer focus on the work that MPCA is actively moving forward and can reasonably expect to accomplish prior to the next TSR; it also provides the status and expected progress of the WQS projects. This change was made in order to provide added transparency about MPCA's planned WQS work to stakeholders, particularly in cases where additional data is needed to develop WQS, and on expected timeframes.

Triennial Standard Review Process

Recent TSRs conducted by the MPCA have followed this process:

Minnesota's TSR process begins with an internal review to identify WQS needs within MPCA programs, resulting in development of a proposed WQS workplan. Then, the MPCA provides notice to the public about the TSR, publishes the content that is open for review as part of the TSR, including the agency's proposed WQS workplan, and holds a public meeting. The public comment period runs from 60 to 90 days, and the public meeting is webcast to facilitate participation by those unable to attend in person. Following the MPCA's review of the public's comments, the MPCA finalizes its proposed WQS workplan and submits documentation of the TSR to the EPA. This completes the TSR review.

This TSR officially began on November 27, 2017 with a notice in the State Register and an emailed announcement to parties who had registered an interest via GovDelivery. Preliminary notice of the upcoming TSR was provided through many avenues to parties likely to have an interest in the TSR, via regularly scheduled conference calls and meetings, and through MPCA's emailed newsletters, which are developed for specific audiences with relevant, water-related interests.

The State Register notice opened the TSR public comment period and provided a 60 day notice of the TSR public meeting, which was held on January 10, 2018. The TSR public meeting was followed by an additional 30 days during which comments could be submitted to the MPCA. The TSR public comment period officially ended at 4:30 pm on Friday, February 9, 2018.

A written summary of the public meeting, all submitted comments, and a video of the public meeting are available on the MPCA's website: https://www.pca.state.mn.us/water/2017-triennial-standards-review-comment-letters

After the Advisory Committee meeting and discussion with Advisory Committee members, the MPCA will finalize the WQS Workplan for 2018 to 2020, and submit documentation of the TSR to the EPA.

Highlights of the Public Review and Points of Known Controversy

The level of public participation in this TSR was good. Twenty-eight written comment letters were received before the close of the comment period on February 9, 2018. This compares to 32 written comment letters received for the 2013 TSR.

Many of the comments received were about a WQS project already in rulemaking (the Use Class 3/Class 4 rule revisions) and a WQS topic that is of interest in connection with that WQS project (specific conductance). The Use Class 3/Class 4 revisions are a long-term need and a priority for the MPCA to complete. Once in the rulemaking process WQS have prescribed comment periods under Minnesota's Administrative Procedures Act and have not ordinarily been a topic of interest in a triennial review. However, the use of the workplan format that included existing WQS revisions already underway provided an extra opportunity for the public to provide input on what is anticipated to be a controversial rulemaking. The comments were divided on the need to move forward with this rulemaking.

Of note, also, is that few comments were received on WQS that have been of great interest in previous TSRs. This includes the WQS for nitrate and chloride, both of which were commented upon extensively in 2013. This is likely due to the new format the MPCA is using to convey its intentions regarding WQS development, which shows that the WQS for nitrate and chloride (and also sulfate) are awaiting outstanding technical information. The MPCA is not likely to begin working on these WQS projects for at least a year (i.e. until the outstanding information is available), with rulemaking to begin at least two years after that. Each of these WQS projects is expected to be controversial.

The largest number of comment letters received (15) requested the MPCA develop a WQS for trash, because of an on-going and complex problem with trash in and around Lake Hiawatha in the City of Minneapolis. While the CWA addresses pollution such as trash through its negative impact on the aesthetics and quality of water bodies, and a WQS for trash could be developed, there are a number of practicalities that argue against it and the MPCA is not planning to develop such a standard.

III. Issues

The Commissioner seeks advice on the proposed Water Quality Standards Workplan for 2018 to 2020. In particular, after reviewing the Workplan and the public comments:

A. Does the Advisory Committee agree that the proposed WQS Workplan is appropriate or are changes recommended?
B. Does the Advisory Committee think that the WQS Workplan is a useful framework that clearly communicates the MPCA's planned WQS work? Are there ways to make it more clear?
C. Did the MPCA adequately respond to the comments submitted or is more information needed?

Attachments (see link for electronic access)

- MPCA's WQS webpage: https://www.pca.state.mn.us/water/water-quality-standards
- 2017 Triennial Review webpage: https://www.pca.state.mn.us/water/2017-triennial-standards-review
- *Draft* Public comments received during the 2017 Triennial Standards Review and MPCA's general response
- *Draft* New or Updated Clean Water Act Section 304(a) Criteria Recommendations Published by U.S. Environmental Protection Agency (EPA) since May 30, 2000, and MPCA's response regarding state adoption

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D R A F T
April 10, 2018

Public comments received during the 2017 Triennial Standards Review and MPCA's general response:

Overview

Twenty-eight written comment letters were received before the 4:30 pm close of the Triennial Standards Review (TSR) comment period on February 9, 2018. The issue of trash at Lake Hiawatha in Minneapolis was the most commented upon issue, the subject of 15 comment letters. All of these letters request that the MPCA develop a trash-specific water quality standard. The letters state that a trash-specific standard is needed to provide a regulatory mechanism to incentivize state and other governmental agencies to properly enforce their ordinances or address trash via other mechanisms.

The thirteen other letters address many different topics. They include six comments on the Class 3/Class 4 rule revisions, which are currently in rulemaking, and five comments on a related issue, development of a water quality standard for specific conductance. Four letters comment on the issue of variances to water quality standards. Most other issues were mentioned by a single commenter, with the exception of the sulfate and nitrate water quality standards to protect aquatic life, each of were commented upon twice.

All comment letters received during the TSR comment period, as well as a summary of the January 10, 2018, TSR public meeting and comments made at the public meeting, are available here: https://www.pca.state.mn.us/water/2017-triennial-standards-review-comment-letters.

The MPCA has reviewed and considered the comments received, and provides the following general response to the issues brought forward.

Trash-specific water quality standard

The 15 comment letters received on this topic testify to the concerns about trash in and around Lake Hiawatha. Some of the letters include photos that show a significant accumulation of trash along the lake shoreline, collections of syringes and other garbage retrieved from the lake, ducklings eating garbage, etc.

MPCA looked into this issue. According to the U.S. Environmental Protection Agency's (EPA's) website, https://www.epa.gov/trash-free-waters/clean-water-act-and-trash-free-waters, seven states (Alaska, California, Connecticut, District of Columbia, Hawaii, Maryland, and New York) have listed individual stream reaches for trash, debris or floatables since 1996. These states all have coastal borders, which may be significant as there are federal authorities and funding to assess and mitigate marine debris, including trash. EPA has not established a water quality criteria for trash or methods for testing or evaluating trash, as is needed to address the issue of trash as a pollutant.

At this time, given what we know about this issue, MPCA's Water Quality Standards unit is not inclined to pursue development of a water quality standard for trash. Developing a water quality standard and then listing Lake Hiawatha for impairment by trash would require development of a Watershed

Restoration and Protection Plan/Total Maximum Daily Load (WRAP/TMDL). The WRAP/TMDL would then reference the National Pollution Discharge Elimination System (NPDES) stormwater permit as the vehicle to reduce trash. We believe it to be more efficient to directly engage with the City of Minneapolis on their permit on this issue, which the MPCA's Stormwater Program has been doing. In fact, the City has developed several 'best management practices' they intend to implement this permit cycle.

Unfortunately, the problem of trash flowing into Lake Hiawatha is a particularly difficult one, due to complex issues relating to stormwater and groundwater in the area, which make some of the more conventional (and less expensive) approaches for reducing trash in stormwater (such as placing screens at stormwater outflows) infeasible. It is unclear what actions will ultimately be needed to fully address the trash problem at Lake Hiawatha, but they likely will be expensive and drawn out. However, this would be the case whether a water quality standard for trash is developed or not.

Use Class 3 and Class 4 revisions

The revisions to the standards for Use Classes 3 and 4 are a long-term need the MPCA has been working on intermittently over several years. The revisions are a priority for the MPCA to complete and are currently in the rulemaking phase, which is conducted according to Minnesota's Administrative Procedures Act and includes several prescribed opportunities for the public to comment on the draft rule.

The additional comments received on the use Class 3 and 4 rulemaking as part of the TSR are appreciated; most reflect comments submitted previously. A majority of the comments encourage rapid completion of this rulemaking, and provide detailed information about how the rulemaking should proceed. One comment urges the MPCA to postpone this rulemaking until alternate measures are taken that will protect aquatic life when the rule revisions are complete.

As evidenced by the latter comment, the MPCA recognizes that while the standards were not specifically developed for this purpose, the Class 3 and Class 4 standards have been viewed as providing aquatic life protections – particularly in the form of a numeric value that backstops Minnesota's narrative aquatic life standard. The EPA has made a related comment concerning the need to ensure protection of aquatic life.[1] The MPCA is committed to ensuring aquatic life protection, and as part of the Class 3 and Class 4 standards rulemaking we will address how we plan to accomplish it. To stay current with developments on the Class 3 and 4 revisions, sign up for MPCA Gov Delivery notices and check on the rulemaking webpage for this project: https://www.pca.state.mn.us/water/amendments-water-quality-standards-%E2%80%94-use-classifications-3-and-4.

Specific Conductance

Specific conductance is a measure of water's ability to conduct electricity and is directly related to the concentrations of ions such as chloride, sulfate, calcium, sodium, and so forth, in water. Scientific studies show that ionic pollutants, which individually can be toxic to aquatic life, have an additional impact on toxicity in combination with other ions; this is the basis for EPA's recent development of

[1] EPA's comment letter on this point is available here: https://www.pca.state.mn.us/sites/default/files/wq-rule4-17b.pdf (look for the comment letter from *Pfeifer, David.*)

guidance for developing aquatic life criteria for specific conductivity: https://www.epa.gov/wqc/draft-field-based-methods-developing-aquatic-life-criteria-specific-conductivity-documents.

Specific conductance has relevance to the Class 3 and 4 revisions currently in development as well as the planned development of water quality standards for nitrate, ammonia, sulfate and chloride (see the MPCA's Water Quality Standard work plan for 2018-2020). Aquatic life toxicity from ionic pollution is a developing science, and specific conductance is just one possible approach to address ionic pollutants.

The MPCA received two comments urging the MPCA to prioritize establishment of specific conductivity standards to protect aquatic life, and three comments advising the MPCA not to pursue development of such standards.

The MPCA will develop its approach to ionic pollutants as part of the Class 3 and 4 revisions and its subsequent planned development of the aquatic life water quality standards outlined in the Work Plan.

Variances to Water Quality Standards

Re-evaluation of Variances

Revisions to 40 Code of Federal Regulations, part 131, Water Quality Standards, dated August 21, 2015, included new requirements for the triennial standards review, one of which is a requirement that variances be included in the scope of the review (40 CFR, part 131, Subpart C). The MPCA has directed the public to information about existing variances to water quality standards as part of our triennial standards review since 2013, and has solicited comments and information about these variances from the public.

Three letters included comments on variances to water quality standards. Of these, two requested that variances be re-evaluated: one is a request for re-evaluation of a specific variance, and the other a request that all active variances be re-evaluated as part of the triennial standards review. A third infers that MPCA's triennial process is deficient if it is not formally "reviewing" variances.

The issue of re-evaluation of variances is included in the August 21, 2015, Water Quality Standards Regulatory Revisions but not under the triennial standards review (i.e. they are found in 40 CFR, part 131, Subpart B). The EPA now requires that variances with terms greater than five years be re-evaluated no less frequently than once every five years. The MPCA reviews variances from water quality standards on an every five-year basis, routinely. Should new information concerning a specific variance be submitted as part of the triennial review, the MPCA would consider the submitted information together with other information relating to the variance in determining whether a re-evaluation should be conducted in response to the new information, as opposed to waiting for the five-year scheduled review.

Multi-discharger Variances

One comment letter urges the MPCA to adopt a multi-discharger variance for mercury, or alternatively, an expedited mercury variance application process for municipal wastewater facilities. A multi-discharger variance is a new concept for variances that the EPA has been considering. Some states have been using this approach to avoid developing numerous individual variances for different permittees for

the same pollutant, when there is a common issue that can be addressed more efficiently with a variance that applies to multiple dischargers.

The MPCA adopted amended rules for water quality variances on October 17, 2016, which were approved by the EPA on March 7, 2017. The amended rules conform MPCA's rules to the federal requirements. The MPCA is aware that permittees, particularly municipalities, are concerned about the time and effort it takes to apply for variances. The MPCA is working to provide a more streamlined process for issuing variances, which has been used recently to develop an approach for chloride that can be used by multiple permittees. The MPCA is aware that mercury is a concern for many Minnesota facilities discharging to the Lake Superior Basin. The MPCA will likely explore a similar concept (to chloride) for mercury before pursuing a multi-discharger variance; this will enable the MPCA and the permitted facilities to gain further experience with the approach outlined in Minnesota's amended variance rules and better evaluate the need for a multi-discharger approach going forward.

Review of Class 7 waters

The Clean Water Act requires that as part of the triennial standards review, "Any water body segment with water quality standards that do not include the uses specified in section 101(a)(2) of the (Clean Water) Act shall be re-examined every three years to determine if any new information has become available." This review includes all listed modified Class 2 and Class 7 limited resource value waters, about which MPCA solicited information from the public as part of the triennial review.

Deficient Triennial

A letter from the Minnesota Center for Environmental Advocacy (MCEA) calls MPCA's triennial review "deficient" because the MPCA has not reviewed all waters that do not meet the uses specified in section 101(a)(2) of the Clean Water Act.

With adoption of the Tiered Aquatic Life Use (TALU) framework in late 2017, waters not meeting section 101(a)(2) of the Clean Water Act in Minnesota now include Modified Use Classes 2Bdm and 2Bm. Given that the rule designating these waters was adopted less than six months ago, these designations are based on current data that does not need to be reviewed. No new data is available for these reaches.

The other group of waters in this category are Class 7 waters. In Minnesota, Class 7 waters are so designated because of limitations on aquatic life and recreational use caused primarily by low flow conditions. In other words, the lack of sustained flow in these reaches limits the attainability of Class 2 beneficial uses. Because flow limitations are not likely to change, Class 7 waters are not specifically targeted for monitoring by the MPCA as part of its Intensive Watershed Monitoring (IWM) approach.

That said, new information on Class 7 waters is collected occasionally. Currently, the MPCA is evaluating two Class 7 waters for potential designation as Class 2 waters as part of the Use Classes 2A/2B rule revision project (see Work Plan for 2018 to 2020). The MPCA typically complies with requests to review specific Class 7 waters, when new data is available or circumstances warrant the review.

Request for review of a Class 7 water

A letter from the Pomme de Terre River Association and Joint Powers Board requests that the MPCA review the Class 7 listing of Muddy Creek in the Pomme de Terre River watershed. The timing of the

request is good since monitoring of the Pomme de Terre watershed was conducted in 2017, and the watershed will be assessed in 2019. The MPCA reviews beneficial uses before assessment and will consider the designated beneficial use for Muddy Creek (07020002-511) at that time.

Other comments

Two letters were received urging the MPCA to prioritize development of the water quality standard for sulfate to protect aquatic life. This project is part of MPCA's Work Plan for 2018 -2020, although little effort has been put into it to date due to the wait for completion of additional aquatic life toxicity studies that were requested by the EPA. We anticipate that those studies will be published before the end of 2018, at which point, we hope to begin working on this project.

Two letters were received regarding a nitrate standard to protect aquatic life: one urging the MPCA to develop it as soon as possible, the other discouraging it. This project, like that for sulfate, is included in MPCA's Work Plan for 2018-2020, and has been the subject of a succession of additional studies requested by the EPA since at least 2014. Like sulfate, we anticipate that the last set of studies will be published in by the end of 2018, at which point, we hope to begin working on this project.

Another letter requests that the MPCA update its standard for selenium to protect aquatic life using EPA's recently updated criteria. Because selenium is rarely a pollutant of concern for facilities in Minnesota, the MPCA is not planning to update the existing water quality standard for selenium at this time. Instead, the MPCA is developing a site-specific standard for selenium based on current science to address the needs of one permittee (the author of the comment letter). Developing site-specific standards is a less intensive undertaking compared to updating and promulgating a revision of the current standard, and staff time can be used more effectively in developing or revising standards for pollutants that are more frequently discharged and have a greater environmental impact in Minnesota.

One letter commented on the Use Class 1 revisions (a project currently in pre-rulemaking development), requesting that Class 1B uses and associated water quality standards be removed from all designated trout streams. The MPCA is working with the Minnesota Department of Health and other state agency partners to determine the scope of the Class 1 revisions for this rulemaking; this comment has been referred to the Class 1 revision work group. More information about the scope of this rulemaking will be forthcoming as this project develops.

Finally, two letters submitted comment on recently completed water quality standards rulemakings: one on the river eutrophication rulemaking (adopted in 2014 and approved by the EPA in 2015) and one on the revised methods for deriving human health-based water quality standards (adopted in 2015 and approved by the EPA in 2015). These rules were reviewed and promulgated through Minnesota's Administrative Procedures Act and reflect up to date science; the MPCA does not plan to make revisions to these rules any time in the near future.

D R A F T
April 10, 2018

2017 Triennial Standards Review
New or Updated Clean Water Act Section 304(a) Criteria Recommendations Published by U.S. Environmental Protection Agency (EPA) since May 30, 2000, and MPCA's response regarding state adoption

Part 1. Aquatic Life Criteria*

EPA pollutant criteria & publication year	Has Minnesota adopted EPA's criteria recommendation?	Explanation
Acrolein 2009	No	Acrolein is a biocide that has a wide variety of applications, among them use for aquatic weed control in irrigation canals and in recirculating process water systems (EPA website accessed 3/6/18). In Minnesota, no pesticide products containing acrolein are registered for sale. For this reason, the Minnesota Department of Agriculture (MDA), which regulates the sale, use, and disposal of pesticides and also conducts a statewide pesticide monitoring program, does not monitor for acrolein in surface or groundwater (source: MDA, personal communication). MPCA does not plan to develop a water quality standard for acrolein.
Aluminum (pending update)	No	EPA has issued a draft update to the criteria for aluminum in freshwater that went out for public comment on July 28, 2017 and again on September 26, 2017; the criteria has not yet been finalized. Minnesota's draft 2018 impaired waters list includes four stream reaches in the Rainy River Basin that are impaired for aluminum; however, the impairments do not require Watershed Restoration and Protection Plans/Total Maximum Daily Loads (WRAP/TMDLs) because they are naturally occurring (e.g. natural background, designated as EPA CALM Category 4D). Given that aluminum has not presented a concern in Minnesota's surface and groundwater, the MPCA does not consider Minnesota's water quality standard for aluminum to be a priority for updating.
Ammonia 2013	Planned	The MPCA will update the existing water quality standard for ammonia concurrently with development of a water quality standard for aquatic life protection from nitrate. See MPCA's water quality standards work plan for 2018 to 2020 (Work Plan) for more information.
Carbaryl 2012	No	Carbaryl is a pesticide that is effective in controlling insects and also has effects on plant growth. It is commonly used to control insects,

		slugs and snails, and to thin fruit in orchards (EPA website accessed 3/6/18). Pesticide products containing carbaryl are registered for sale in Minnesota. The Minnesota Department of Agriculture (MDA) monitors for the presence of carbaryl in Minnesota surface and groundwater, where it has been detected occasionally between 1991 and 2016 (source: MDA, personal communication). Given that monitoring data does not show carbaryl to be a concern in Minnesota's surface or groundwater, MPCA does not consider developing a water quality standard for carbaryl to be a priority.
Cadmium 2016	Not at this time	Following the 2013 triennial review, MPCA planned to revise the existing standard for cadmium using EPA's (then) draft criteria. Subsequently, MPCA found it did not have capacity to pursue the revision. MPCA dropped cadmium from the Work Plan for the current triennial, in recognition that the priorities selected for 2018 to 2020 will leave little if any capacity to work on this revision. MPCA anticipates revising the water quality standard for cadmium in the next five to seven years.
Copper 2007	Not at this time	Following the 2013 triennial review, MPCA planned to revise the existing water quality standard for copper. Subsequently, MPCA found it did not have capacity to pursue the revision. MPCA dropped copper from the Work Plan for the current triennial, in recognition that the priorities selected for 2018 to 2020 will leave little if any capacity to work on this revision. MPCA anticipates revising the water quality standard for copper in the next five to seven years.
Diazinon 2005	No	Diazinon is an insecticide used against a variety of insects in non-agricultural and agricultural applications. Prior to December 31, 2004, it was also used in residential settings but this is now unlawful (EPA website accessed 3/6/18). Pesticide products containing diazinon are registered for sale in Minnesota. The Minnesota Department of Agriculture (MDA) monitors for the presence of diazinon in surface and groundwater, where it has been detected occasionally between 1991 and 2016 (source: MDA, personal communication). Given that monitoring data does not show diazinon to be a concern in Minnesota's surface or groundwater, MPCA does not consider developing a water quality standard for diazinon to be a priority.
Nonylphenol 2005	No	Nonylphenol is considered a contaminant of emerging concern (CEC) and has been identified frequently in Minnesota waters as part of state-led and other investigations of CECs in Minnesota's environment.

		Using EPA's criteria for nonylphenol, MPCA developed a draft technical support document dated October 14, 2010 for nonylphenol and ethoxylates: https://www.pca.state.mn.us/sites/default/files/wq-s6-16.pdf. MPCA did not pursue further development of water quality standards for nonylphenol and ethoxylates because: 1) environmental concentrations of nonylphenol and ethoxylates measured in Minnesota are below the indicated criteria; and 2) there are practical barriers to implementing a water quality standard for nonylphenol and ethoxylates, among them the absence of an EPA-approved laboratory analytical method to analyze samples and locally available laboratories to conduct the analyses. MPCA is not planning to develop water quality standards for nonylphenol and ethoxylates.
Nutrients 2003	Yes – Minnesota adopted state-specific eutrophication standards in 2008 and 2014.	Minnesota developed and adopted eutrophication standards for lakes and reservoirs in 2008, and for rivers in 2014. EPA has approved both standards, which focus on phosphorus as the primary driver of eutrophication. Nitrogen criteria were not proposed as part of Minnesota's nutrient standards because relationships between nitrogen and eutrophication were not identified in the data. Note that MPCA's Work Plan includes development of a water quality standard to protect aquatic life from the toxic effects of nitrate. MPCA has also developed a total nitrogen budget that incorporates evaluation of the downstream effects of nitrogen in Minnesota surface waters on the Mississippi River basin.
Selenium 2016	No	Few facilities in Minnesota are required to monitor for selenium and only one facility in Minnesota has a limit for selenium. However, MPCA has been engaged since 2014 in developing a site-specific standard for selenium using EPA's latest science and information to address the concerns of one industrial facility that requested it. MPCA feels developing a site-specific standard for selenium to address the facility's request is prudent and an efficient use of resources, in light of the significant effort needed to develop and promulgate a statewide water quality standard.
Tributyl Tin (TBT) 2004	No	TBT is an organotin compound used primarily as a biocide in antifouling paints. It is extremely toxic to aquatic life and is an endocrine-disrupting chemical that causes severe reproductive effects in aquatic organisms. TBT is extremely stable and resistant to natural degradation in water. Because of its chemical properties and widespread use as an antifouling agent, concerns have been raised over the risks it poses to both freshwater and saltwater organisms (EPA, accessed 3/12/18). In Minnesota, TBT has been a pollutant of interest primarily in sediments of the St. Louis River estuary and Duluth Harbor, which is an active port and has significant traffic that includes Great Lakes and ocean-going vessels. The Duluth Harbor/St. Louis River estuary area is

		a Great Lakes Area of Concern and cleanup of contaminated sites (including sediment) are in progress. Tin-based pesticides were registered for use in Minnesota in 2013, although the active ingredient was tributyltin oxide. No tributyltin oxide products are registered for use in Minnesota in 2018 (source: MDA, personal communication). Given the cleanup already underway in the St. Louis River estuary and Duluth Harbor and the lack of documented use of products containing this pollutant in Minnesota, MPCA is not planning to develop a water quality standard for tributyl tin.

*Note that in cases where MPCA is not planning to develop or revise water quality standards using EPA criteria, Minnesota's water quality standards rules allow MPCA to develop site-specific criteria that are based on EPA criteria. See Minnesota rules [(Minn. R. 7050.0217 to 7050.0218 (statewide) and 7052.0110 (Lake Superior Basin)] for more information.

Part 2. Human Health Criteria

In 2015, EPA published final updated criteria 304(a) Ambient Water Quality Criteria (criteria) for the protection of human health for 94 chemical pollutants. The new criteria reflect updated exposure factors (body weight, drinking water consumption rates, and fish consumption rates), bioaccumulation factors, and for a few chemicals, toxicity factors (reference dose and cancer slope factor).

Despite these improvements, MPCA is not planning to use EPA's updated criteria to amend its water quality standards to protect human health. Two compelling reasons are that: 1) EPA's updated criteria were derived using older methods compared to Minnesota's 2015 updated human health methods; and 2) many of the toxicological factors in EPA's updated criteria were adopted directly from the old criteria (as much as 30 years old) without review and consideration of current science (see underline, first paragraph). Consequently, MPCA will use its 2015 methods and review current toxicological literature in developing new and updated water quality standards to protect human health.

An exception is that MPCA is currently working on updating Minnesota's water quality standard for *E. Coli*/pathogens using EPA's 2012 recreational water quality criteria.