Region 5 NPDES Program and Permit Quality Review

Minnesota

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Executive Summary

This report presents results of a Program and Permit Quality Review (PQR) of the Minnesota Pollution Control Agency (MPCA) National Pollutant Discharge Elimination System (NPDES) in Region 5. The PQR was conducted in March 2021 by the U.S. Environmental Protection Agency (EPA) under the authority of the Clean Water Act (CWA) to provide oversight of the state NPDES program. Helping states ensure that their NPDES permits are consistent with Federal requirements is a fundamental priority for EPA.

The review examined MPCA's NPDES administrative record for selected permits, gathered information from the State about their NPDES program structure and organization, and involved conference calls and virtual meetings where EPA's review team spoke with MPCA permitting staff and shared preliminary findings with the State. The review followed EPA's national NPDES PQR Standard Operating Procedure (SOP), examining permit and program core elements, and permit requirements associated with national topic areas for the current PQR cycle. Core elements include permit administration, effluent limits, monitoring requirements, standard conditions, and special conditions. National topic areas for the fiscal year (FY) 2018 – 2022 PQR cycle are Permit Controls for Nutrients in impaired waters before approval of a Total Maximum Daily Load (TMDL), Effectiveness of NPDES Permits for Publicly-owned Treatment Works (POTWs) with Food Processor Contributions, and Small Municipal Separate Storm Sewer System (MS4) Permit Requirements. EPA Region 5 did not choose any regional topic areas for the Minnesota PQR.

As of January 2021, MPCA administers 1,585 individual and 11 general NPDES permits. From this universe, the PQR selected permits issued between fiscal years 2019 and 2020 that had not undergone EPA real-time review. The selection methodology met the minimum number of permit types and facility sizes prescribed in the SOP. Ten individual permits (eight municipal, two non-municipal) and the small MS4 general permit (GP) were reviewed.

Major Findings

MPCA upholds the mission of the CWA through its dedication to improving program administration. This includes development and implementation of guidance and internal training for permitting staff, enactment of process efficiencies, and consistent communication across the agency as well as with the regulated community and interested stakeholders. MPCA has developed well-defined roles, SOPs, and a central foundational repository containing comprehensive guidance materials for their permitting staff, allowing for efficient and consistent program administration. MPCA demonstrates success with ensuring permitting program staff obtain and preserve a solid foundation in permitting processes, policies, and regulations. Further, MPCA takes initiative to engage with their customers and special interest groups to address environmental justice concerns, nutrient pollution control, and implement flexible permitting approaches.

Based on the PQR, NPDES permit conditions appear to generally conform with federal regulations. However, some permit records lacked documentation of WET test results

submitted with the permit application. In addition to requirements in 40 CFR Part 136, permits should, for clarity, specify use of sufficiently sensitive analytical methods (40 CFR 122.44(i)(1)(iv)). As part of the basis for how limits are derived, fact sheets should include reference to appropriate permit-development documents such as those supporting reasonable potential (RP) and water quality-based effluent limitations (WQBELs) calculations.

Action Items

The PQR identifies two essential and 22 recommended action items. Following review of the draft report, MPCA has addressed the essential action items to meet federal NPDES regulations and no further action will be required through agreed-upon milestones or due dates as part of a workplan. Essential action items identified from this PQR are listed in Table 9 at the end of this document.

MPCA should consider addressing recommended action items to implement EPA guidance/policy more fully or otherwise improve program effectiveness. Recommended action items from this PQR are listed in Table 10 at the end of this document.

On March 5, 2021, at the close of the virtual site visit, EPA and MPCA managers went over a preliminary list of essential action items as part of a discussion of PQR findings. Going forward, EPA is available to assist MPCA with addressing all remaining action items in this report. The status of all action items will be reported during the next MPCA PQR cycle.

I. PQR BACKGROUND

NPDES PQRs evaluate a select set of NPDES permits to determine whether permits are developed in a manner consistent with applicable requirements established in the CWA and NPDES regulations. Through this review mechanism, EPA promotes national consistency and identifies successes in implementation of the NPDES program as well as opportunities for improvement in the development of NPDES permits.

This PQR report identifies action items from a PQR of the MPCA NPDES permits program in 2021. The action items are identified within Sections III and IV of this report and are divided into two categories to identify the priority that should be placed on each item.

- **Essential Actions -** Proposed "Essential" action items address noncompliance with respect to a federal regulation. EPA has provided the citation for each Essential action item. The permitting authority must address these action items in order to comply with federal regulations.
- **Recommended Actions -** Proposed "Recommended" action items are recommendations to increase the effectiveness of the state's or Region's NPDES permit program.

The Essential actions will be used to augment the existing list of "follow up actions" currently tracked by EPA Headquarters on an annual basis and are reviewed during subsequent PQRs.

EPA's review team, consisting of seven Region 5 staff and one EPA contractor, conducted a review of the Minnesota NPDES permitting program. The PQR was conducted remotely as MPCA was able to provide all permit information to EPA electronically and interviews and discussions could be conducted via online meetings. An opening interview was held on March 1, 2021, a discussion with MPCA staff regarding specific permit questions took place on March 3, 2021, and a closing meeting was held on March 5, 2021.

Core Review

The core permit review involved the evaluation of selected permits and supporting materials using basic NPDES program criteria. Reviewers completed the core review by examining selected permits and supporting documentation, assessing these materials using standard PQR tools, and communicating with permit writers regarding the permit development process. Core reviews evaluate similar issues or types of permits in all states to focus permit quality on the *Central Tenets of the NPDES Permitting Program*[1].

Topic Area Reviews

National topic areas reviewed in this PQR are: Permit Controls for Nutrients in impaired waters before approval of a TMDL, Small MS4 Permit Requirements, and Effectiveness of POTW NPDES Permits with Food Processor Contributions.

[1] https://www.epa.gov/npdes/central-tenets-npdes-permitting-program

The PQR reviewed ten individual permits issued within two years prior to the start of the PQR. As shown in Table 1, eight of the permits are individual municipal (POTW) permits and two are individual non-municipal (non-POTW) permits. In addition, the small MS4 GP was reviewed. Of the ten individual permits, all were reviewed for core permitting areas and five were reviewed for one or more national topic areas. In addition, the selection considered the location of permittees across the State to ensure that they are not all clustered in one watershed.

Table 1. Permits Selected for the PQR

Permit No	FY Issued	Small MS4	Nutrients	Food Processor IU	Minor	Major	POTW	Non-POTW
MN0063584	2020				X			X
MN0000418	2020		X			X		X
MN0024147	2020				X		X	
MN0068195	2020		X	X		X	X	
MN0030121	2020			X		X	X	
MN0020362	2020					X	X	
MN0022250	2020					X	X	
MN0022683	2019			X		X	X	
MN0022217	2019		X	X		X	X	
MN0020664	2019					X	X	
MNR040000	2020	X						
Total 11		**1**	**3**	**4**	**2**	**8**	**8**	**2**

II. STATE PROGRAM BACKGROUND

A. Program Structure

MPCA's general authority to enforce environmental laws and administer a permit program is set forth in the Minnesota Environmental Protection Act, Laws 1973, Chapter 412 (the Act) at Section 116D.01. The State's Water Pollution Control Act is contained in Minn. Stat. Chapter 115. MPCA implements its regulatory program for point source discharges through the NPDES and water quality standards (WQS) programs.

MPCA establishes NPDES permitting requirements for various classes of sources necessary to adopt substantive effluent limits under Chapter 7001 (Permits and Certifications) and Chapter 7050 (Water Quality Standards), respectively, of the Minnesota Administrative Rules (Minn. R. sections 7001 and 7050). The Act directs the MPCA Board to adopt requirements, standards, and procedures which will enable the state to participate in and implement the NPDES program. The Water Pollution Control Act provides that *"the agency shall have the authority to*

perform any and all acts minimally necessary including, but not limited to, the establishment of … permit conditions, consistent with and, therefore, not less stringent than, the provisions of the Federal Water Pollution Control Act, as amended…" (Minn. Stat. section 115.03, Subd. 5).

Regulations adopted by the MPCA Board prohibit the discharge of pollutants to waters of the state without an NPDES permit and require compliance by permittees with effluent limitations and standards as established in permits (Minn. R. sections 7001 and 7050).

MPCA develops, issues, and administers NPDES permits in Minnesota. The MPCA is organized into seven divisions: Remediation, Watershed, Environmental Analysis and Outcomes, Resource Management and Assistance, Industrial, Municipal, and Operations. The NPDES program is administered through the Industrial and Municipal Divisions out of the main office located in St. Paul, and six regional offices.

Each of MPCA's offices, including the main office, are responsible for permit development and issuance, as well as permit-related reviews such as engineering, technical, compliance and enforcement, hydrology, and effluent limits. Program supervisors are located in both MPCA's main and regional offices, whereas the MPCA's Commissioner's office and legal staff are located in the main office. MPCA's Municipal Division permitting team employs nine full-time equivalent (FTE) staff, while the Industrial Division permitting team employs seven FTE staff. MPCA's stormwater permitting group employs three and one-half FTE (one FTE each for MS4 and construction stormwater permitting, and one and one-half FTE to support industrial stormwater permitting). MPCA reported during the PQR that on average between 2018 and 2020, staff drafted 49 municipal individual permits and 23 industrial individual permits. In addition, MPCA issues two individual MS4 permits every five years.

A strength of MPCA's permitting program is the internal investment in training permitting staff. MPCA provides internal mentoring to new staff, assigning a primary, and sometimes a secondary, mentor to work alongside the new permit writer providing on-the-job training. In addition to mentoring, MPCA permitting supervisors strive to maintain strong and consistent communication via routine staff meetings among permitting staff and other program staff. MPCA developed an *"NPDES/State Disposal System (SDS) Permit Procedural Checklist (long version)"* (Procedural Checklist) which is used as a primary internal training tool. The Procedural Checklist (which contains embedded links to additional reference documents) guides the permit writer through the permit development process, from initial receipt of the permit application through file management post-issuance. MPCA updates the Procedural Checklist routinely throughout the year when staff identify needs for improvements or revisions. MPCA permit writers attend a variety of training including EPA's NPDES Permit Writers' Course, internal CGI Advantage® Regulatory Management (Tempo) training, and other internal training provided by expert staff from other NPDES program areas addressing specific permitting topics such as antidegradation, effluent limit development, and pollutant-specific (e.g., chloride) considerations. MPCA also provides a variety of useful informational documents to the public on their website. In particular, MPCA's *Wastewater Permit User's Manual* acknowledges that understanding the entire NPDES permit is critical to compliance with the permit conditions. The *Wastewater Permit User's Manual* is intended to complement the NPDES permit because it

contains information to help answer questions a permittee may have, from the application process to required sampling, and definitions of terms used in permits.

Since October 2015, MPCA has been using the Tempo database to write, generate, and issue draft and final NPDES/SDS permits, which contains all NPDES related data. In addition, MPCA uses a centralized Oracle database to store ambient monitoring, assessment, and permitting data. Users access data with a combination of custom, proprietary, and commercial applications.

MPCA uses a variety of templates during the permit development and issuance process. For instance, when initiating permit reviews, permit writers will use one of three effluent limits summary (ELS) request templates to request an internal review of the proposed effluent limitations:

- *ELS form for Industrial and Other Facilities* (updated 7/14/2020),
- *ELS form for Domestic/Sewage Facilities* (updated 7/14/2020), and
- *ELS form for Municipal Water Treatment Plants* (updated 7/14/2020).

Wastewater engineers also use a template for their pre- and post-ELS technical reviews, titled *"Request for Water Permit Technical Review"* (updated 5/17/2019).

Standard templates are auto populated by the Tempo database; all permit language, limits, and monitoring requirements are written in the database and used to produce the permit and related documents. Tempo stores specific permit and permit issuance-related template documents, including:

- *Wastewater Permit Application Complete Letter* (updated 9/14/2020)
- *Wastewater Application Incomplete Letter*
- *Pre-Public Notice Cover Letter* (updated 9/28/2020)
- *Draft Permit Cover Letter*
- *Final Permit Cover Letter* (updated 10/31/2019)
- *Response to Comments Letter* (updated 1/7/2020)
- *Permit Document Template* (different copies are pulled for the draft and final versions of the permit) (updated 10/31/2020)
- *Notice of Intent Template*
- *Public Notice Template* (updated 8/16/2019)
- *Permit Termination Letter* (1/7/2020)
- *Fact Sheet* (older template, update in progress at the time of the PQR)
- *Statement of Basis* (updated 5/22/2019, update in progress at the time of the PQR)

Upon completing the draft permit in Tempo, the permit writer selects which templates are needed for the next step(s) and the database automatically generates the templates. MPCA's NPDES Permit Procedural Checklist provides detailed internal directions for application reviews, facility operations, requirements and limitations, sampling and monitoring, technical documents, or other forms of reports or any permit conditions. The Procedural Checklist also

includes documented approvals from other staff at each stage of the review process for new permits as well as permit renewals, modification, and transfers through to the issuance of the permit.

MPCA noted their statutes (Minn. Stat. section 115.542) establish a goal that municipal NPDES permits are issued within 210 days following submission of the permit application. MPCA strives to have non-municipal permits issued within 250 days following submission of the permit application. In accordance with Minn. Stat. section 116.03, subdivision 2b.(d), MPCA must review permit requests and notify applicants whether their application is considered complete for processing, within 30 business days of receipt. If an application is considered incomplete, the MPCA will identify the deficiencies and advise applicants on how to fix them.

All MPCA NPDES permits are available internally to Agency staff via the Tempo and OnBase databases. All general wastewater permits are available externally via the website *"What's in my Neighborhood"* (https://webapp.pca.state.mn.us/wimn/search); however, individual wastewater NPDES permits are not currently available on an external agency website. MPCA is working toward making all wastewater NPDES permits available externally, but there is no known timeframe of when these efforts will be completed. In the interim, members of the public can request copies of permits by submitting an "Information Request" via MPCA's website.

MPCA is shifting from retaining permit records in paper format to storing in fully electronic format. Currently, permit development documentation is retained in electronic format, is uploaded to the Tempo database, and is automatically saved in OnBase. Permit correspondence received in paper format is scanned and saved electronically in Tempo, where it is locked and then automatically saved in OnBase. Permittees utilize the e-services website (https://www.pca.state.mn.us/data/e-services) to enter their limit and monitoring records (electronic discharge monitoring reports, or e-DMRS, sample value spreadsheets, and other additional attachments [e.g., pond observation reports]). The numerical data flows forward into Tempo and MPCA's internal Tableau servers. Compliance records are maintained in electronic format in Tempo; and once locked in Tempo, they are automatically saved in OnBase.

B. Universe and Permit Issuance

MPCA reported that as of January 2021, the MPCA NPDES program administers 1,585 individual permits and 11 GPs. Of the major individual permits, 24 are non-municipal and 75 are municipal. Most individual permits are minor permits, and a slight majority of the overall total covers municipal discharges. Table 2 identifies MPCA's 11 GPs with their issuance and expiration dates. The general permits cover a total 7,522 permittees, just over 75 percent of which regulate stormwater discharges.

According to Minnesota, significant industries in the state include iron ore mining, mining or quarrying crushed and broken granite, preparation of sand and gravel for construction, mining miscellaneous nonmetallic minerals, food processing (e.g., cheese processing, canned and frozen fruits and vegetables, beet sugar), paper and pulp mills, ethanol and petroleum refining and petroleum pipelines, electric services, and animal feeding operations.

Table 2. NPDES General Permits

NPDES Number	General Permit Name	Issuance Date	Expiration Date	Number of Permitted Facilities
MNG250000 / MNG255000	Un-treated Noncontact cooling water (MNG25): https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-24.pdf Treated Noncontact cooling water (MNG255): https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-23.pdf	2/1/2020 2/1/2020	1/31/2025 1/31/2025	38
MNG580000 / MNG585000	Stabilization Pond (MNG58): https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-10.pdf Wastewater pond (MNG585): https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-27.pdf	MNG58: 9/30/2010 MNG585: 12/1/2018 (modified 1/14/2020)	MNG58: 8/31/2015 MNG585: 11/30/2023	201
MNG6400000	Water treatment plant Surface water discharge: https://www.pca.state.mn.us/sites/default/files/gen-permit-mng640000.pdf	7/1/2018	6/30/2023	22
MNG7900000	Contaminated groundwater discharge permit: https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-25.pdf	10/1/2016 (modified 2/2/2017)	12/30/2021	16
MNG87A000, MNG87B000, MNG87C000, MNG87D000	Mosquito and Other Flying Insect Pest Control Pesticide: https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-00b.pdf; Forest Canopy Insect Pest Control Pesticide: https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-00c.pdf; Aquatic Nuisance Animal Pest Control Pesticide: https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-00d.pdf; Vegetative Pests and Algae Control Pesticide General Permit: https://www.pca.state.mn.us/sites/default/files/wq-wwprm9-00e.pdf	MNG87A000 11/16/2011 MNG87B000 11/16/2011 MNG87C000 4/11/2012 MNG87D000 4/11/2012	MNG87A000 10/31/2016 MNG87B000 10/31/2016 MNG87C000 10/31/2016 MNG87D000 10/31/2016	7
MNG490000	Non-metallic Mining and Associated Activities General Permit: https://www.pca.state.mn.us/sites/default/files/wq-wwprm7-33a.pdf	6/15/2017	5/31/2022	230
MNR050000	Multi-Sector ISW General permit: https://www.pca.state.mn.us/sites/default/files/wq-strm3-67i.pdf	4/1/2020	3/31/2025	1,027
MNR100001	Construction stormwater General Permit: https://www.pca.state.mn.us/sites/default/files/wq-strm2-80a.pdf	8/1/2018	7/31/2023	~4,500
MNR040000	MS4 General Permit: https://www.pca.state.mn.us/sites/default/files/wq-strm4-94.pdf	11/16/2020	11/15/2025	248
MNG440000	General Animal Feedlot NPDES Permit: https://www.pca.state.mn.us/sites/default/files/wq-f3-53.pdf	2/1/2016	1/31/2021	1,191
	Draft 2021 reissued General Animal Feedlot NPDES Permit: https://www.pca.state.mn.us/sites/default/files/Draft%20Permit%20-%20MNG440000.pdf	2/1/2021	1/31/2026	TBD
MNG420000	Minnesota River Basin General Phosphorus Permit: https://www.pca.state.mn.us/sites/default/files/wq-b3-38.pdf	12/1/2005 (modified 12/1/2009)	11/30/2010	42

C. State-Specific Challenges

One of Minnesota's challenges is developing and implementing new permitting initiatives to address pollutants such as per- and polyfluoroalkyl substances (PFAS) and nitrogen. MPCA has proposed revisions to WQS for the protection of industrial and agricultural uses (Class 3 and 4 uses) that rely on narrative WQS. Further, MPCA strives to address complexities related to the implementation WQS for chloride, Class 3 and 4 uses, Class 4A wild rice sulfate, river eutrophication, and mercury. MPCA aims to be responsive to a broad range of external stakeholders. MPCA reported that the backlog of administratively extended or expired permits is an additional challenge for the program.

D. Current State Initiatives

Minnesota has a variety of initiatives underway to implement efficiency and improve the effectiveness of the NPDES permitting program in addition to the WQS revisions and stakeholder engagement activities described above. MPCA has implemented flexible permitting approaches incorporating water quality trading, adaptive management, and watershed-based permitting. Further, MPCA has committed to implementing environmental justice principles into its permitting process. MPCA has established an environmental justice framework that includes the MPCA Environmental Justice Policy, notice of nondiscrimination, and specific procedures. MPCA has demonstrated their commitment to maintaining solid engagement with the customer, special interest groups, and the public. MPCA has also implemented positive practices within its MS4 permitting program, including an effective stakeholder engagement process during permit reissuance, development of written education, outreach, and technical assistance products available for use by stakeholders (e.g., stormwater manual, MS4 mapping tool, digital document library, and TMDL load estimation calculators), and incorporation of municipal stormwater approaches to address climate resiliency (e.g., green infrastructure and funding).

III. CORE REVIEW FINDINGS

A. Basic Facility Information and Permit Application

1. Facility Information

Background

Basic facility information is necessary to properly establish permit conditions. For example, information regarding facility type, location, processes, and other factors is required by NPDES permit application regulations (40 CFR 122.21). This information is essential for developing technically sound, complete, clear, and enforceable permits. Similarly, fact sheets must include a description of the type of facility or activity subject to a draft permit.

Program Strengths

MPCA's NPDES permits and fact sheets reviewed include permit issuance, effective, and expiration dates, authorized signatures, and specific authorization-to-discharge information.

Permits and fact sheets clearly identify the facility location, receiving waterbody, outfall locations, and facility operations and treatment processes. MPCA's permit fact sheets discuss the receiving stream's designated uses and impairment status.

Areas for Improvement

MPCA permit applications provide space for identifying the facility location and discharge locations using both the Public Land Survey system and latitude longitude coordinates. Some applications, while they had Public Land Survey information, did not identify the latitude longitude. The Public Land Survey system is less suitable than latitude and longitude coordinates with modern geographic information systems (GIS).

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•To facilitate use of digital mapping tools such as GIS or Google Maps, ensure that the facility and discharge locations are expressed as latitude and longitude in permit applications.

2. Permit Application

Background and Process

Federal regulations at 40 CFR 122.21 and 122.22 specify application requirements for persons seeking NPDES permits. Although federal forms are available, authorized states are also permitted to use their own forms provided they include all information required by the federal regulations. This portion of the review assesses whether appropriate, complete, and timely application information was received by the state and used in permit development.

MPCA uses various state application forms that the permittee is required to submit but also requires the permittees of major municipal and industrial facilities to submit the federal NPDES application Forms 1, 2A, and 2C, when appropriate based on facility and discharge type. MPCA's external (i.e., public facing) permitting webpage is located at the following site: https://www.pca.state.mn.us/water/wastewater-permit-forms. MPCA's application website includes direct links to EPA's NPDES permit application Forms 1, 2A, and 2C, which enables applicants to complete the current federal application forms, which were updated in March 2019. MPCA's application forms website offers useful guidance for applicants, including submittal of requests for a pre-application meeting with MPCA, preliminary effluent limitations, variance, antidegradation assessment and review, environmental assessment or environmental impact statement, or multiple MPCA permits. For example, requests for preliminary effluent limitations are submitted before a permit application for domestic sewage and industrial wastewater discharges to surface water in the following scenarios: new facilities, existing facilities where the design flow, outfall location, or effluent quality is changing, or existing

facilities where changes to the treatment process would impact the effluent quality. Further, MPCA provides various checklists for applicants to complete during the application process and requires the applicant submit the completed application checklist as the cover page to the application package. MPCA's application website is well organized and offers straightforward guidance to applicants.

MPCA sends a permit expiration notification letter to permittees approximately two to three months prior to the permit reissuance application due date; applications are due 180 days prior to permit expiration. Additionally, automatically included within every final issued permit is a permit requirement to submit an application for reissuance at least 180-days prior to permit expiration. If applications are not received timely, MPCA permit writers and compliance enforcement staff will conduct outreach to the permittee to determine the status of the permit application. In the rare case that the permittee is unresponsive, compliance and enforcement staff will become more directly involved in the process.

MPCA supervisors assign municipal permits based on geography; assignments are by county except for the Metropolitan Council permits which are all developed by the same permit writer. Supervisors also consider staff resources in determining permit assignments. Industrial permit writers work on a variety of industrial sectors, but each permit writer specializes in certain sectors and assists other permit writers working on permits in their sector and area of expertise.

Program Strengths

Permit applications were readily available in MPCA's administrative record during this PQR. Applications reviewed are submitted on the correct forms, submitted timely, and include appropriate signatories. MPCA's application website is well organized and offers straightforward guidance to applicants, including direct links to EPA's NPDES application Forms 1, 2A, and 2C, which MPCA requires, in addition to specific state application forms, for major permit application submittals. Further, the Procedural Checklist for permit writers provides useful directions for permit writers to evaluate permit application packages.

Areas for Improvement

Two major municipal facilities (Fairbault and Two Harbors) did not identify on the permit application form or as an attachment to the permit application at least four WET tests conducted within four and one-half years prior to the permit application. The permit record indicated that the permittees conducted at least four WET tests within four and one-half years prior to the permit application, however, results or test summaries for the WET tests were not included in permit documentation.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•Ensure that WET test results submitted by the permittee, as required by the permit application, are appropriately documented in the permit record.

B. Developing Effluent Limitations

1. Technology-based Effluent Limitations

NPDES regulations at 40 CFR 122.44 and 125.3(a) require that permitting authorities develop technology-based requirements where applicable. Permits, fact sheets, and other supporting documentation for POTWs and non-POTWs were reviewed to assess whether technology based effluent limitations (TBELs) represent the minimum level of control that must be imposed in a permit.

TBELs for POTWs

Background and Process

POTWs must meet secondary or equivalent to secondary standards (including limits for biochemical oxygen demand (BOD), total suspended solids (TSS), pH, and percent pollutant removal), and must contain numeric limits for all these parameters (or authorized alternatives) in accordance with the secondary treatment regulations at 40 CFR Part 133. A total of eight POTW permits were reviewed as part of the PQR.

Minn. Adm. R. 7053.0215, Subpart 1 (*"Requirements for Point Source Discharges of Sewage"*) contains minimum secondary treatment standards for municipal point source and other point source dischargers of sewage. The minimum secondary treatment standards establish an average monthly effluent limitation for BOD of 25 mg/L and for TSS of 30 mg/L, as well as an average weekly effluent limitation for BOD of 40 mg/L and for TSS of 45 mg/L. In addition, Minn. R. 7053.0215, Subpart 1 establishes minimum secondary treatment standards for pH, fecal coliform, oil, and toxic or corrosive pollutants. The effluent standards for oil and toxic pollutants are narrative. Minn. R. 7053.0215, Subpart 2 provides for exceptions for trickling filter facilities, and establishes an average monthly effluent limitation for carbonaceous biochemical oxygen demand (CBOD) of 40 mg/L and for TSS of 45 mg/L, as well as average weekly effluent limitations for CBOD of 60 mg/L and for TSS of 65 mg/L. Subpart 3 provides additional exceptions for TSS for pond facilities—an average monthly effluent limitation for TSS of 45 mg/L as well as an average weekly effluent limitation for TSS of 65 mg/L. MPCA's permits for municipal facilities establish minimum percent removal requirements for BOD and TSS. MPCA's fact sheets cite 40 CFR 133.102 and Minn. R. 7053.0215 as the basis for the TBELs in

municipal permits. MPCA's permits and fact sheets provide a useful description of the wastewater treatment process.

Program Strengths

The eight municipal permits reviewed contained TBELs at least as stringent as federal requirements, and in some cases, more stringent than federal secondary treatment standards. In addition, permits establish effluent limitations in appropriate units and forms. Permit fact sheets for POTWs include appropriate descriptions of the facility and treatment processes as well as the regulatory basis for TBELs.

Areas for Improvement

The review team did not identify any areas for improvement in this core area.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•The PQR did not identify any recommended action items for this section

TBELs for Non-POTW Dischargers

Background and Process

Permits issued to non-POTWs must require compliance with a level of treatment performance equivalent to Best Available Technology Economically Achievable (BAT) or Best Conventional Pollutant Control Technology (BCT) for existing sources, and consistent with New Source Performance Standards (NSPS) for new sources. Where federal effluent limitations guidelines (ELGs) have been developed for a category of dischargers, the TBELs in a permit must be based on the application of these guidelines. If ELGs are not available, a permit must include requirements at least as stringent as BAT/BCT developed on a case-by-case using best professional judgment (BPJ) in accordance with the criteria outlined at 40 CFR 125.3(d).

MPCA permit writers calculate TBELs for industrial facilities through evaluation of the applicability of federal ELGs and consideration of BPJ on a case-by case basis when national guidelines and standards do not exist. MPCA indicated during the PQR that permit writers rarely apply BPJ in establishing TBELs. MPCA's fact sheets for non-municipal permits include descriptions of the facility operations and categorization relative to the applicability of ELGs. In addition, fact sheets include the regulatory basis for TBELs for discharges from non-municipal facilities. One non-municipal permit reviewed during the PQR is subject to an ELG (Petroleum Refining).

Program Strengths

The non-municipal permits reviewed during the PQR appropriately implement federal ELGs that are applicable to the discharge. Fact sheets for non-municipal facilities provide a clear description of the facility and wastewater treatment processes and include adequate discussions of the applicability of federal ELGs.

Areas for Improvement

The review team did not identify any areas for improvement in this core area.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•The PQR did not identify any recommended action items for this section

2. Reasonable Potential and Water Quality-Based Effluent Limitations

Background

The NPDES regulations at 40 CFR 122.44(d)(1) require permits to include any requirements in addition to or more stringent than technology-based requirements where necessary to achieve state WQS, including narrative criteria for water quality. To establish such WQBELs, the permitting authority must evaluate whether any pollutants or pollutant parameters cause, have the reasonable potential to cause, or contribute to an excursion above any State WQS.

The PQR for Minnesota assessed the processes employed to implement these requirements. Specifically, the PQR reviewed permits, fact sheets, and other documents in the administrative record to evaluate how permit writers and water quality modelers:

- determined the appropriate WQS applicable to receiving waters,
- evaluated and characterized the effluent and receiving water including identifying pollutants of concern,
- determined critical conditions,
- added information on ambient pollutant concentrations,
- assessed any dilution considerations,
- determined whether limits were necessary for pollutants of concern and, where necessary, and
- calculated such limits or other permit conditions.

For impaired waters, the PQR also assessed whether and how permit writers consulted and developed limits consistent with the assumptions of applicable EPA-approved TMDLs.

Process for Assessing Reasonable Potential

Staff of the Water Assessment Section, Effluent Limits Unit conduct reasonable potential (RP) analyses, complete effluent limits reviews, and then provide documentation to permit writers who confirm accuracy and integrate the information into permit decisions. Industrial permit writers may also do some RP analyses.

Minnesota NPDES implementation rules (Minn. R. 7053.0215) provide basic requirements for point sources; therefore, the pollutants explicitly identified in the rule also constitute pollutants of concern. MPCA notes in their *Antidegradation Guidance* (December 2019), specific to an antidegradation review, *"Pollutants of concern are:*

- *Pollutants that, if increased, may contribute to a biologically relevant change in water quality;*
- *Pollutants reasonably expected in a discharge or as a result of a proposed activity;*
- *Anticipated to cause degradation (i.e., measurable change to existing water quality made or induced by human activity resulting in diminished conditions of surface waters); and*
- *Any pollutant that already has an effluent limitation in a previous wastewater permit."*

The *Antidegradation Guidance* acknowledges that pollutants of concern for municipal dischargers are generally more clear, due to consistency in the discharge across municipalities; except for POTWs that treat waste from industrial users. In addition, nitrogen, mercury, salinity and salts such as chlorides and sulfates are specific pollutants of concern in Minnesota and are discussed in other pollutant-specific monitoring guidance documents such as the *Minnesota NPDES Wastewater Permit Nitrogen Monitoring Implementation Plan*, *Permitting Strategy for Addressing Mercury in Municipal and Industrial Wastewater Permits*, and *"Salty Discharge" Monitoring at NPDES/SDS Permitted Facilities*.

MPCA indicated during the PQR that the wastewater program's Impaired Waters Review process identifies impaired waterbodies downstream of each discharge as part of the permit issuance and reissuance process. The process also identifies any available TMDL wasteload allocations (WLAs) or draft WLAs assigned to the facility. If the facility's discharge(s) cause, have reasonable potential to cause, or contribute to downstream impairments, permit writers work with impaired waters staff (Municipal and Industrial Divisions), effluent limits unit staff (Environmental Analysis and Outcomes Division), and TMDL staff (Watershed Division) to develop permit conditions and WQBELs that are consistent with TMDL assumptions and requirements.

Minnesota's WQS are provided in Minn. R. 7050 (*Waters of the State*) and 7052 (*Lake Superior Basin Water Standards*). Minn. R. 7053 (*State Waters Discharge Restrictions*) and parts of Minn. R. 7052 include details of how WQS are implemented in point-source discharge permitting.

Further, Minnesota's WQS incorporate EPA's *Technical Support Document for Water Quality-based Toxics Control* (TSD)[2] by reference in Minn. R. 7052.0015, item E.

Minn. R. 7052.0220 contains procedures for evaluating RP on a chemical-specific basis for Lake Superior Basin WQS. Minn. R. 7052.0220, subpart 1 states, *"When facility-specific effluent monitoring data are available, the agency must make the reasonable potential determination by developing preliminary effluent limitations (PELs) and comparing them to the projected effluent quality (PEQ) as described in this part."*

MPCA permit writers use three variations of one template RP spreadsheet (*"2014 MASTER RP TEMPLATE"*) to conduct an RP analysis for toxic pollutants. One version is used for evaluating RP for the majority of aquatic life standards as listed in Minn. R. 7050 WQS. The template RP spreadsheet includes the specific calculations that MPCA uses for evaluating RP for most pollutants, namely toxic parameters, or those with the most pronounced impact at the immediate receiving water. The RP spreadsheet applies procedures that are consistent with analysis protocols in the TSD. Another variation of the RP spreadsheet is for salty parameters (Minn. R. 7050) and the third variation is specifically used for dischargers within Lake Superior Basin that are regulated by the Great Lakes Initiative (GLI) (see Minn. R. 7052).

MPCA's *Effluent Limit Review Checklist* includes numerous questions and permit writer prompts, amongst them a specific section regarding RP determination. The checklist includes the following narrative introductory text: *"A reasonable potential analysis was done consistent with MPCA guidance to determine whether the following pollutants identified in the permit application or documented to be present in the discharge, will or will not cause or contribute to an excursion beyond applicable water quality criteria.* (*40 CFR 122.44(d)(1)(i)*). *Discharges of Turbidity/TSS, pH, Fecal coliform/E. coli, temperature and dissolved oxygen at or below (not exceeding) applicable numeric water quality standard are assumed to have no reasonable potential."* The section also includes a footnote indicating the location of the RP guidance, and specifies CBOD, ammonia, phosphorus, and toxics, on MPCA's internal network.

During the PQR, MPCA did not specify the procedures for evaluating RP for WET. MPCA has developed a *WET Permit Writer Guidance* for their permitting staff, however, this document was unavailable for review during the PQR. Based on a review of the Toxics RP Memo (described below) for certain permits, WET monitoring is required based on the ratio of the receiving stream low flow to the facility's average dry weather design flow. The Toxics RP Memos state that because the ratio is less than 20:1, chronic WET monitoring is required. Further, one memo established a chronic monitoring threshold value (in TUc) based on the reciprocal of the maximum receiving water concentration (as a percentage), which is a ratio of the facility's average dry weather design flow to the sum of the facility's average dry weather design flow and the stream low flow (7Q10 value). In the section titled *Permit requirements – Chronic Toxicity Requirements*, permit clearly indicate WET monitoring requirements and the monitoring threshold value.

[2] U.S. EPA. (March 1991). *Technical Support Document for Water Quality-based Toxics Control* (EPA/505/2-90-001). https://www3.epa.gov/npdes/pubs/owm0264.pdf

Staff of the Environmental Analysis and Outcomes Division, Effluent Limits Unit prepare a memo that summarizes the RP analysis applicable to the discharger. The memo, sometimes called a Toxics RP Memo, provides background information that describes the facility in terms of design capacity, average effluent flows, and receiving stream low flow conditions. The document then proceeds to discuss the RP analysis for specific chemical pollutants and cites 40 CFR 122.44(d)(1) in the section title. MPCA's fact sheets also cite 40 CFR 122.44(d)(1)(i) in the discussion of the basis for WQBELs. The Toxics RP Memo states, *"Projected effluent quality (PEQ) derived from effluent monitoring data is compared to preliminary effluent limits (PELs) determined from mass balance inputs. Both determinations account for effluent variability. Where the PEQ exceeds the PEL, the discharge demonstrates reasonable potential to cause or contribute to a WQS excursion. When reasonable potential is indicated the permit must contain a WQBEL for that pollutant."* The memo indicates which toxic parameters were reported as below the level of detection, as well as the toxic parameters reported as detected in discharge monitoring results, typically the result of priority pollutant scans. Based on a review of the Toxics RP Memo, it appears that MPCA performs a full quantitative RP analysis for those pollutants reported as above the level of detection. Results of analyses below the level of detection do not indicate RP for the pollutant. The Toxics RP Memo discusses whether certain data are removed from the data set being evaluated; however, the discussion lacks details regarding whether the permit writer conducted a specific outlier analysis. The review team conveyed this finding to MPCA during the PQR and staff acknowledged they would strive to include a more complete data story consistently in the Toxics RP Memo documentation.

MPCA considers ambient water quality using background pollutant concentrations during the RP evaluation and WQBELs calculations and identifies the stream monitoring stations for which the data are representative, as well as the time frame associated with the ambient water quality data included in the calculations. However, the Toxics RP Memo does not specifically state the source of the ambient monitoring data, but it appears to be data collected by MPCA during surface water monitoring events. MPCA's website indicates that MPCA uses the *Environmental Quality Information System* (EQuIS) to store water quality data from more than 17,000 sampling locations from Minnesota streams and lakes.

MPCA developed specific methods for determining RP for total phosphorus (TP) in *"Procedures for Implementing River Eutrophication Standards in NPDES Wastewater Permits in Minnesota."* Minnesota's eutrophication standards include a single causal variable, TP, and multiple response variables which are indicators of excess algae growth. Phosphorus may not have a direct impact on the immediate receiving water (e.g., excess algae blooming directly at the outfall point); therefore, MPCA does not apply RP methods for toxics directly to TP. MPCA also noted that Minnesota Rules (Minn. R. 7053.0205 Subpart 7.C) allow for the consideration of reductions from other sources including both point and nonpoint sources when setting limits.

MPCA's Toxics RP Memos mention certain sample dates for which data were evaluated. However, a consistent statement indicating the overall timeframe of data evaluated appears to be absent from MPCA's Toxics RP Memos and is also not contained in the fact sheet. MPCA's permit writers evaluate RP using routine discharge monitoring data, priority pollutant scans, and application data.

Process for Developing WQBELs

MPCA's Effluent Limits Unit staff are primarily responsible for developing and recommending WQBELs for use by the permit writer in setting limits. A spreadsheet is used to evaluate RP. Minn. R. 7052.0200, Subpart 5 (items A through G) identifies procedures and equations for calculating WQBELs from WLAs and references using WLAs and cites methods in chapter 5 of EPA's TSD.

MPCA's mixing zone and dilution policy is codified in Minn. R. 7052.0200 Subpart 3 and Minn. R. 7052.0210 for dischargers in the Lake Superior Basin. In the Lake Superior Basin, a 10:1 dilution ratio is allowed for the chronic and maximum standards of effluent that flows to a lake. Mixing zones are not allowed for a parameter at or above the final acute value (FAV). When effluent flows to a river, a 7Q10 flow is allowed for aquatic life chronic standards, 25 percent of the 7Q10 is allowed for the aquatic life maximum standard, and zero percent dilution is allowed for a parameter at or above the FAV. When the effluent flows to a river, the harmonic mean flow is used for human health chronic standards and the 90Q10 for wildlife chronic standard.

Outside the Lake Superior basin, zero percent flow (no mixing zone) is allowed for discharges to lakes (chronic and maximum standards, and FAV). When the discharge is to a river or stream, the whole waterbody flow is allowed for dilution for the chronic and maximum standards (100 percent of the 7Q10), but no flow (no mixing zone) is allowed for parameters at or above the FAV. General mixing zone policy for waters of the state is discussed in Minn. R. 7050.0210 Subpart 5 and Minn. R. 7053.0205, Subpart 5. The FAV being applied at end-of-pipe is found in Minn. R. 7050.0210 Subpart 5.D and in Minn. R. 7053.0215 Subpart 1.

MPCA does not generally use models to calculate mixing zones for parameters. However, in certain circumstances, permittees have used models to determine the dimension of thermal plumes which MPCA then used to define a maximum effluent temperature. Permittees have also used models to determine the effluent mixing zone. MPCA has, in limited circumstances, used the mixing zone model Cornell Mixing Zone Expert System (CORMIX) to define the dimensions of a plume of pollutant, including the extent and impact of the pollutant on the receiving water.

The wastewater program's Impaired Waters Review process generates a memo for staff and identifies impaired waterbodies downstream of each discharge as well as any available TMDL WLAs or draft WLAs. The Impaired Waters Review memo includes direct links to applicable TMDLs, which enables efficient and accurate identification of the applicable TMDL. If draft or final WLAs are available, permit writers and Effluent Limits Unit staff will develop permit conditions and WQBELs that are consistent with their assumptions and requirements. If no WLAs are available, permit writers and Effluent Limits Unit staff will develop permit conditions and WQBELs that are derived from and comply with all applicable WQS.

In most situations, attainment of a WQS in the immediate receiving water ensures downstream attainment. However, for some select pollutants, such as TP, consideration of impacts on downstream waters is needed to ensure protection. MPCA's *"Procedures for Implementing River Eutrophication Standards in NPDES Wastewater Permits in Minnesota"* provides detailed

procedures for developing permit conditions in consideration of one or more downstream WQS. Protection of downstream uses are provided in Minn. R. 7050.0155 *("Protection of Downstream Uses"*), which states that *"All waters must maintain a level of water quality that provides for the attainment and maintenance of the water quality standards of downstream waters, including the waters of another state."*

Program Strengths

Reasonable Potential

MPCA has developed various guidance manuals, reference documents, and tools for permitting staff to employ during the permit development process. MPCA staff use a standard RP tool that ensures consistency in implementing RP procedures. MPCA technical staff work collaboratively to develop and document permit-specific RP analyses. In addition, multiple opportunities for review of RP results and proposed WQBELs exist in the program, to ensure appropriate analyses are conducted. RP documentation appears consistent across the permits reviewed. Among the permit, fact sheets, Toxics RP Memo, and Impaired Waters Review Memo, MPCA documented the pollutants of concern, receiving stream, designated uses, applicable WQS, receiving stream impairment status, applicable TMDLs, and summary of data evaluated in the RP analysis.

WQBEL Development

MPCA's NPDES regulations are clear in how mixing zones should be applied and WQBELs should be calculated, and fact sheets include general citations of Minnesota Administrative Rules to identify the regulatory basis for WQBELs. Supporting documentation consistently presents a summary of WQBELs established in the permit.

Areas for Improvement

Reasonable Potential

The review team observed that the Toxics RP Memo did not identify the ambient monitoring station location relative to the discharge point being evaluated for RP. Some sampling data was rejected as outliers without documenting the statistical basis. Also, when certain pollutants were detected but were below the level of quantification, a rationale for use (or non-use) of that data in the RP calculations was not provided.

WQBEL Development

The Toxics RP Memo and fact sheet provide summaries of WQBELs established in the permit. For greater transparency, MPCA should include example equations that illustrate how WQBELs are calculated.

The review team found that WQBEL calculations consistently apply a monitoring frequency of two sample events per month as a default value. The permit record should document the reason for using the default value if it differs from the monitoring frequency to be included in the permit.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•The permit record (e.g., fact sheet or Toxics RP Memo) should identify the ambient-water-quality sample location(s) and sample date(s) associated with data used for RP calculations. •The permit record (e.g. fact sheet or Toxics RP Memo) should document the decision-making process for data points involved in evaluating RP, including the technical basis for decisions regarding data outliers or data below the method quantification level. •The fact sheet or Toxics RP Memo should include sample equations to illustrate how WQBELs are calculated. •Ensure that the sampling frequency used for WQBEL calculations agrees with the sampling frequency to be required in the permit or provide justification for using a default value •Ensure documentation clearly describes how MPCA applied the mixing zone policy in the development of WQBELs.

3. Final Effluent Limitations and Documentation

Background and Process

Permits must reflect all applicable statutory and regulatory requirements, including technology and water quality standards, and must include effluent limitations that ensure that all applicable CWA standards are met. The permitting authority must identify the most stringent effluent limitations and establish them as the final effluent limitations in the permit. In addition, for reissued permits, if any of the limitations are less stringent than limitations on the same pollutant in the previous NPDES permit, the permit writer must conduct an anti-backsliding analysis, and if necessary, revise the limitations accordingly. In addition, for new or increased discharges, the permitting authority should conduct an antidegradation review, to ensure the permit is written to maintain existing high quality of surface waters, or if appropriate, allow for some degradation. The regulations at 40 CFR 131.12 outline the required elements of an antidegradation policy process.

In addition, permit records for POTWs and industrial facilities should contain any calculations or other necessary explanation documentation of the development of all effluent limitations. Technology-based effluent limits should include assessment of applicable standards, data used in developing effluent limitations, and actual calculations used to develop effluent limitations. The procedures implemented for determining the need for WQBELs as well as the procedures explaining the basis for establishing, or for not establishing, WQBELs should be clear and straight forward. The permit writer should adequately document changes from the previous

permit, ensure draft and final limitations match (unless the basis for a change is documented), and include all supporting documentation in the permit file. The permit writer should sufficiently document determinations regarding anti-backsliding and antidegradation requirements.

MPCA's fact sheets include descriptions of facility operations and wastewater treatment processes and provide relevance to applicable federal treatment standards. In addition, fact sheets clearly identify the regulatory basis and indicate whether effluent limitations are TBELs or WQBELs.

MPCA documents effluent limitation development across various technical documents. For instance, the ELS document contains sections to identify conventional and nonconventional pollutants, toxic pollutants, significant industrial users of municipal systems, monitoring for toxic pollutants, variances, and TMDL requirements. In addition, MPCA documents RP evaluations and WQBEL calculations in the Toxics RP Memo and fact sheet. Both documents identify pollutants of concern and include a summary table presenting RP spreadsheet inputs, calculated projected effluent quality and preliminary effluent limitations, and the result for RP determination. Further, MPCA's Impaired Waters Review Memo discusses receiving stream impairment status and applicable TMDLs.

Minnesota adopted new antidegradation rules in 2016 to better align with federal regulations and Great Lakes Initiative (GLI) rules. Antidegradation rules are provided in Minn. R. 7050.0250 to Minn. R. 7050.0335, and, for the Lake Superior Basin, Minn. R. 7052.0300 to 7052.0380. Procedures for implementing antidegradation rules are found in Minn. R. 7050.0265 for individual wastewater permits and in Minn. R. 7050.0280 for general NPDES wastewater permits. Due to the complexity of implementing antidegradation requirements, MPCA developed antidegradation guidance for NPDES wastewater permittees (*Antidegradation Guidance for new antidegradation rule promulgated 2016*, dated December 2019) to provide support for implementing these rules. The guidance document states, "*Antidegradation assessments for wastewater discharges are completed on an individual pollutant-by-pollutant basis. All pollutants that will experience a net increase in loading must be considered in the antidegradation assessment and review process."* MPCA staff indicated that if the discharge is subject to an antidegradation review, the Toxics RP Memo will include a discussion of the review; observations made during the review of Toxics RP Memos during the PQR support MPCA's statement.

Minnesota's anti-backsliding rules are found in Minn. R. 7053.0275 and cite section 402(o) of the CWA. MPCA indicated during the PQR that situations involving anti-backsliding are relatively rare, and therefore special guidance documents have not been developed.

MPCA's permits consistently include a general statement indicating the permit complies with Minn. R. 7053.0275 regarding anti-backsliding. MPCA's permits and fact sheets include a brief discussion relevant to antidegradation; however, this is not consistent across the permits included in this review. Fact sheets include a section header for *Antidegradation and anti-backsliding*; however, the discussion did not consistently address both topics. Fact sheets would

be strengthened with discussions of considerations for both antidegradation and anti-backsliding, specific to the facility and discharge.

Program Strengths

MPCA implements appropriate procedures to develop TBELs and WQBELs. MPCA uses a variety of technical guidance documents and tools to determine effluent limitations appropriate for the facility; each of these documents provides information useful to understand the basis for effluent limitations and other permit conditions. Fact sheets clearly identify whether effluent limitations are TBELs or WQBELs and provide the regulatory basis for effluent limitations.

Areas for Improvement

Fact sheets should include a discussion that demonstrates that MPCA compared TBELs and WQBELs in establishing the which is the more stringent as the final effluent limitation. In addition, fact sheets should include details on the implementation of the TMDLs in the permit. While the Impaired Waters Review Memo discusses the applicability and implementation of TMDLs in the development of WQBELs, some fact sheets do not provide information to determine the applicability of a TMDL and if that the WQBEL are consistent with the assumptions and requirements of any available wasteload allocation in a TMDL (see 40 CFR 122.45(f)(2)).

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•Fact sheets should include a discussion that demonstrates that MPCA compared TBELs and WQBELs to establish the more stringent as the final effluent limitation. •Fact sheets should include greater detail regarding the applicability and implementation of TMDLs in the development of WQBELs.

C. Monitoring and Reporting Requirements

Background and Process

NPDES regulations at 40 CFR 122.41(j) require permittees to monitor their discharge and provide the results to the permitting authority. Monitoring and reporting conditions require the permittee to conduct routine or episodic self-monitoring of permitted discharges in a manner that is representative of the permitted effluent discharge(s) and where applicable, internal processes, and report the analytical results to the permitting authority with information necessary to evaluate discharge characteristics and compliance status.

Specifically, 40 CFR 122.44(i) requires NPDES permits to establish, at minimum, annual reporting of monitoring for all limited parameters sufficient to assure compliance with permit limitations, including specific requirements for the types of information to be provided and the methods for the collection and analysis of such samples. In addition, 40 CFR 122.48(b) requires that permits specify the type, intervals, and frequency of monitoring sufficient to yield data which are representative of the monitored activity. The regulations at 40 CFR 122.44(i) also require reporting of monitoring results with a frequency dependent on the nature and effect of the discharge. 40 CFR Part 127 requires NPDES-regulated entities to submit certain data electronically, including discharge monitoring reports and various program-specific reports, as applicable.

NPDES permits should specify appropriate monitoring locations to ensure compliance with the permit limitations and provide the necessary data to determine the effects of the effluent on the receiving water. Permits must also specify the sample collection method for all parameters required to be monitored in the permit. The fact sheet or administrative record should present the rationale for requiring grab or composite samples.

MPCA establishes monitoring frequencies sufficient to characterize the effluent quality and to detect events of noncompliance, considering the need for data and, as appropriate, the potential cost to the permittee. MPCA has developed permit writer guidance documents to identify recommended monitoring requirements. Additionally, MPCA permit writers determine monitoring requirements on a case-by-case basis and that are specific to the facility type, waste stream, constituents of concern, and receiving water characteristics. Factors for determining appropriate frequencies include facility size, characteristic of pollutant, sensitivity of receiving water, or number of samples needed to evaluate RP.

MPCA permit writers establish the base monitoring requirements and monitoring frequencies for each permit based on MPCA's monitoring policy for municipal and industrial dischargers (*Monitoring Requirements for Mechanical Plants* and *Monitoring Matrix for Minor Industrial Discharges*). MPCA's monitoring guidance categorizes monitoring requirements by facility classification, facility type, and flow volumes. MPCA's *Wastewater Permit User's Manual* provides permittees with a basic overview of certain monitoring requirements, including nitrogen, TP, mercury, salty discharges (e.g., chlorides, sulfates, salinity, and dissolved minerals), and WET. Additional monitoring guidance (which includes frequency location, and sample type requirements) has been created for pollutants such as phosphorous, nitrogen, mercury, residual oxidants, and salty parameters. Such pollutant-specific guidance includes *Minnesota NPDES Wastewater Permit Nitrogen Monitoring Implementation Plan*, *Permitting Strategy for Addressing Mercury in Municipal and Industrial Wastewater Permits*, and *"Salty Discharge" Monitoring at NPDES/SDS Permitted Facilities*. Monitoring frequencies for these parameters are determined by facility type, design flow, and waste stream characteristics.

MPCA permits list monitoring requirements in the *Limits and Monitoring* section in the table alongside effluent limitations. MPCA's permits clearly identify monitoring locations, parameter name, units, frequency, and sample type in the *Limits and Monitoring* table. Permits, in the section titled, *Permit requirements – Chronic Toxicity Requirements* clearly indicate WET

monitoring requirements and the monitoring threshold value. WET testing requirements are organized by *General Requirements, Species and Procedural Requirements, Quality Control and Report Submittals, Positive Toxicity Result for WET, WET Data and Test Acceptability Criteria (TAC) Submittal, Permit Re-opening for WET, and Whole Effluent Toxicity Requirement Definitions*. MPCA's permits for municipal facilities include requirements for sampling the effluent for priority pollutants (listing specific metals and referencing Table II of 40 CFR Part 122, Appendix D) three times in the life of the permit, further specifying that sampling events shall not be less than one year apart. The permit includes the following language regarding reporting limits: *"Reporting limits for Priority Pollutant analyses shall be as close as analytically possible to the Class 2B chronic water quality standards. Total cyanide shall be monitored to the free cyanide water quality standard."*

Requirements to use approved test methods were found in the *Total Facility Requirements* section of the NPDES permit and in conditions that: *"Sample preservation and test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and Minn. R. 7041.3200"* and *"Reporting limits for Priority Pollutant analyses shall be as close as analytically possible to the Class 2B chronic water quality standards."* Permits did not explicitly require use of sufficiently sensitive approved analytical test methods, however, the sufficiently sensitive requirement is satisfied by incorporation of 40 CFR Part 136.

The *Total Facility Requirements* section of the permit requires permittees to submit DMRs electronically. The *Submittal action summary* portion of MPCA's permits identify reporting deadlines for routine DMR submittals, priority pollutant monitoring reports, WET testing results, and any other special reporting requirements (e.g., mercury minimization plan, pretreatment annual reports, and biosolids annual reports).

MPCA's fact sheets generally lack targeted discussions of the rationale for monitoring and reporting requirements; however, they do address the basis for monitoring certain pollutants such as nitrogen and WET. MPCA's fact sheets provide the general basis for WET testing requirements, citing as the basis the ratio of the receiving stream's low flow to the facility's average dry weather design flow. MPCA's website provides useful guidance across a range of program- and pollutant-specific topics, including toxicity—MPCA provides three documents on their website for permittees to use to report acute and chronic WET testing results.

Program Strengths

MPCA establishes appropriate monitoring requirements in NPDES permits for municipal and non-municipal facilities. MPCA adequately considers the type of treatment process, effluent variability, and compliance history in establishing monitoring requirements. MPCA's permits clearly identify monitoring locations, parameter name, units, frequency, and sample type in the *Limits and Monitoring* table. Permits appropriately and clearly require the electronic submittal of DMRs. Permits plainly identify reporting requirements in the *Submittal action summary* section.

Areas for Improvement

MPCA NPDES permits incorporate by reference the requirements in 40 CFR 136.3(a) that permittees comply with 40 CFR Part 122, which in turn requires that the permittee uses sufficiently sensitive analytical approved methods. For clarity, it is recommended that in addition to 40 CFR Part 136, permits provide more explicit requirements for using sufficiently sensitive approved analytical test methods (see 40 CFR 122.44(i)(1)(iv))

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•For greater clarity, permits should incorporate (explicitly or by reference) requirements in 40 CFR 122.44(i)(1)(iv) regarding use of sufficiently sensitive approved analytical methods.

D. Standard and Special Conditions

Background and Process

Federal regulations at 40 CFR 122.41 require that all NPDES permits, including NPDES general permits, contain certain "standard" permit conditions. Further, the regulations at 40 CFR 122.42 require that NPDES permits for certain categories of dischargers must contain additional standard conditions. Permitting authorities must include these conditions in NPDES permits and may not alter or omit any standard condition unless such alteration or omission results in a requirement more stringent than those in the federal regulations.

Permits may also contain additional requirements that are unique to a particular discharger. These case-specific requirements are generally referred to as "special conditions." Special conditions might include requirements such as: additional monitoring or special studies such as a mercury minimization plan; best management practices (see 40 CFR 122.44(k)) or permit compliance schedules (see 40 CFR 122.47). Where a permit contains special conditions, such conditions must be consistent with applicable regulations.

MPCA's permits incorporate federal standard conditions at 40 CFR 122.41 and 122.42 by reference in the *Total Facility Requirements* section of the permit. In addition, permits explicitly state certain standard conditions throughout the permit requirements section. MPCA's permits include special conditions that require Mercury Minimization Plans, compliance schedules, variances, pretreatment, and biosolids.

MPCA has the authority to grant variances, as provided in Minnesota Stat. sections 115.03, 115.44, 116.02 and 116.07, and governs the issuance of variances through Minnesota Rules

(Minn. R. chapters 7000.7000, 7050.0190, 7052.0280, and 7053.0195). MPCA developed a resource document, *Guidance for Water Quality Standard Variances* (May 2020), that outlines the steps involved in the variance application and review process, provides permittees with an understanding of what is involved in the variance request process, and provides permittees with resources and information. The guidance document states, *"MPCA's variance rules allow an NPDES permitted facility to seek a temporary modification to the WQBEL and/or WQS. A variance must include an achievable interim effluent limit for the pollutant of concern and a schedule of pollutant reduction activities intended to result in a discharge of the highest quality wastewater possible. A variance does not exempt the discharger from the requirement to be compliant with all other applicable technology-based effluent limits (TBEL) or WQBEL for other pollutants."* Variance requests must be approved by the MPCA Commissioner and EPA Region 5. MPCA permitting staff provide an initial review of a permittee's variance request (and requests for renewal of a variance) and if MPCA supports the request, the permit writer will incorporate the variance into the draft NPDES/SDS permit. The draft permit and variance are subject to public review and comment during the standard permit public notice process. Following this process, the variance request must be approved by the MPCA Commissioner and EPA Region 5. Upon EPA's final approval of the variance, the permit—with the variance incorporated—can be issued as final.

Program Strengths

Permits incorporate federal standard conditions by reference and establish appropriate special conditions and compliance schedules. Fact sheets adequately discuss the basis for special conditions. Special conditions are readily identified in the permit. MPCA's guidance for WQS variances provides useful information for permittees and the public about WQS variances.

Areas for Improvement

The review team did not identify any areas for improvement in this core area.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•The PQR did not identify any recommended action items for this section.

E. Administrative Process

Background and Process

The administrative process includes documenting the basis of all permit decisions (40 CFR 124.5 and 40 CFR 124.6); coordinating EPA and state review of the draft (or proposed) permit (40 CFR 123.44); providing public notice (40 CFR 124.10); conducting hearings if appropriate (40 CFR 124.11 and 40 CFR 124.12); responding to public comments (40 CFR 124.17); and modifying a

permit (if necessary) after issuance (40 CFR 124.5). EPA discussed each element of the administrative process with Minnesota, and reviewed materials from the administrative process as they related to the core permit review.

Following the permit writer's development of the draft permit package, administrative support staff distribute the draft for public notice and comment. Permit writers will send draft permits to EPA Region 5 if the permits are selected for their review. MPCA posts public notices at the local post office, in local newspapers, and on their website (across all media programs) and retains archived public notices on their website. The public notice period for municipal permits is 60 days (in accordance with Minnesota Statute section 115.542) and is 30 days for non-municipal permits. Interested persons may register for an e-mail subscription service that allows them to receive notices on topics of interest via GovDelivery. Subscribers will receive notification of publicly noticed documents and then will locate online the public notice and draft permit documents in which they are interested. Public comments are directed to the specific staff permit writer. MPCA has adapted their public notice document to include procedures for sending comments via e-mail, since MPCA staff are working remotely. Permit writers respond in writing to every comment received to individual commenters. If comments address common issues or topics, permit writers will generate a formal response to comment document. MPCA includes statements in the final permit transmittal letter indicating whether comments were received on the draft permit and that responses are provided. If changes are necessary, the response to comments will describe the changes made to the permit. If public hearings are requested, permit writers will coordinate the public hearing and will coordinate with subject matter experts to conduct the meeting. The permit records include transcripts when public hearings are held.

Program Strengths

MPCA's public notice conformed to the requirements of 40 CFR 124.10. Additionally, comment letters and responses were available upon request during this PQR. MPCA documented whether comments were received during the public comment period and whether changes were made to the permit. Modifications made to the draft permit were available in the permit record with accompanying explanation for the modifications.

Areas for Improvement

The review team did not identify any areas for improvement in this core area.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•The PQR did not identify any recommended action items for this section

F. Administrative Record and Fact Sheet

Background and Process

The administrative record is the foundation that supports the NPDES permit. If EPA issues the permit, 40 CFR 124.9 identifies the required content of the administrative record for a draft permit and 40 CFR 124.18 identifies the requirements for a final permit. Authorized state programs should, but are not required to, have equivalent documentation. The record should contain the necessary documentation to justify permit conditions. At a minimum, the administrative record for a permit should contain the permit application and supporting data; draft permit; fact sheet or statement of basis;[3] all items cited in the statement of basis or fact sheet including calculations used to derive the permit limitations; meeting reports; correspondence between the applicant and regulatory personnel; all other items supporting the file; and final response to comments.

Current regulations require that fact sheets include information regarding the type of facility or activity permitted, the type and quantity of pollutants discharged, the technical, statutory, and regulatory basis for permit conditions, the basis and calculations for effluent limits and conditions, the reasons for application of certain specific limits, rationales for variances or alternatives, contact information, and procedures for issuing the final permit.

MPCA develops fact sheets for non-major permits that include a variance; otherwise, staff will develop a statement of basis. MPCA uses Tempo fact sheet templates, providing consistent fact sheet content across all permits. MPCA's permit writers receive public comments directly, generate responses, and scan (if received in paper format) and save in Tempo. Comments received electronically would be uploaded to Tempo.

[3] Per 40 CFR 124.8(a), every EPA and state-issued permit must be accompanied by a fact sheet if the permit: Incorporates a variance or requires an explanation under 124.56(b); is an NPDES general permit; is subject to widespread public interest; is a Class I sludge management facility; or includes a sewage sludge land application plan.

Program Strengths

MPCA's fact sheets are organized consistently and contain similar levels of detail. Fact sheets and supporting record information clearly identify the regulatory basis for effluent limitations. The administrative record includes information necessary to review permits during the PQR.

Areas for Improvement

MPCA's fact sheets did not include a brief description or refer to supplemental documentation with calculations or other necessary explanations of the derivation of specific effluent limitations. The review team observed that the supporting documents (e.g., Toxics RP Memo, and Impaired Waters Review Memo) contain this information but a clear link to the supporting documents was absent from fact sheets.

Action Items

Essential	•Fact sheets must include calculations or other necessary explanation of specific effluent limitations, consistent with 40 CFR 124.56. If calculations are found in a supporting doument (e.g., RP Toxics Memo), the fact sheet should refer to the supporting document.
Recommended	•Fact sheets should provide or reference where in the administrative record MPCA compared TBELs and WQBELs to establish the more stringent as the final effluent limitation. •Permit documentation should clearly describes the basis for all data considered in RP analyses and WQBELs development, and provide specific discussion of ambient water quality data, outliers analyses, and evaluation of non-detect data.

[*Following the review of the draft PQR report, MPCA noted that the fact sheets contain extensive language related to the effluent limit reviews, toxics review, and pollutant parameter reviews (i.e. phosphorus reviews). In the permits reviewed for the PQR, equivalent language in the fact sheet was provided to reference phosphorus effluent limit review memos and other supporting documents.*

Additionally, MPCA has committed to develop standard language in the fact sheet template that directly references the supplemental documents from which the fact sheet language was derived. These references include but are not limited to the effluent limits review, effluent limits review checklist, toxics memo, phosphorus review, and any relevant watershed memos or TMDL documents. While a date that MPCA's fact sheet template will be updated has not been set, MPCA indicated that permit writers can manually include the statement immediately. Therefore, no additional milestones are needed for this essential action item.]

IV. NATIONAL TOPIC AREA FINDINGS

National topic areas are aspects of the NPDES permit program that warrant review based on the specific requirements applicable to the selected topic areas. These topic areas have been determined to be important on a national scale. National topic areas are reviewed for all state

PQRs. The national topics areas are: Permit Controls for Nutrients in Non-TMDL Waters, Effectiveness of POTW NPDES Permits with Food Processor Contributions, and Small Municipal Separate Storm Sewer System (MS4) Permit Requirements.

A. Permit Controls for Nutrients in Non-TMDL Waters

Background

Nutrient pollution is an ongoing environmental challenge, however, nationally permits often lack nutrient limits. It is vital that permitting authorities actively consider nutrient pollution and the reasonable potential for such pollution in their permitting decisions. Of the permits that do have limits many are derived from wasteload allocations in TMDLs. For this section, waters that are not subject to a TMDL are considered. These waters may already be impaired by nutrient pollution or may be vulnerable to nutrient pollution due to their hydrology and environmental conditions. For the purposes of this program area, ammonia is considered as a toxic pollutant, not a nutrient.

Federal regulations at 40 CFR 122.44(d)(1)(i) require permit limits to be developed for any pollutant which causes, has the reasonable potential to cause, or contributes to an excursion of the state's WQS, whether those standards are narrative or numeric.

To assess how nutrients are addressed in the MPCA program, EPA reviewed the three individual major permits selected because they discharge to nutrient impaired water bodies but do not have a completed TMDL for nutrient/eutrophication (Flint Hills Resources LLC, Le Sueur WWTF, and Windom WWTF). While not subject to a nutrient TMDL, Le Sueur WWTF was subject to a TMDL for dissolved oxygen (DO) impairment which can be traced back to excessive phosphorus levels. Low DO can be due to high ambient BOD caused or contributed by algal respiration or decomposition. Algal biomass is controlled principally by phosphorus.

The EPA review considered supporting documentation in each permit's administrative record as well as information about the receiving water from the 2018 Integrated Report which identifies impaired waters and probable causes of impairment on the CWA Section 303(d) list.

Program Overview

Minnesota has adopted numeric TP standards for its rivers and lakes, known as the river and lake eutrophication standards or RES and LES, respectively. MPCA's approach to control TP from discharges to surface waters of the state has been to develop a TMDL study whereby the State drafts a TMDL and sets the TP limit based on a WLA. The focus of this PQR is on dischargers where TMDLs have not been finalized. All the permits reviewed indicate that MPCA conducted a reasonable potential analysis for TP, set an effluent limit based on a computer model either as a TBEL to be met monthly throughout the year or as WQBEL/WLA with a seasonal limit from June through September, and included compliance schedules to meet the TP final water quality-based effluent limit.

MPCA has developed procedures to help permit writers and modelers implement the RES and LES with TP requirements applicable to the unique combination of NPDES permittees

and rivers in Minnesota.[4] The permits selected for this topic area bear this out. Each one discharges to a different river system.

For Windom, MPCA procedures resulted in a 1.0 mg/L June-to-September limit based on attainment of the RES in the Des Moines River downstream of the outlet of Heron Lake. This limit is consistent with the modeling work to develop a WLA that MPCA later used to support the TMDL which was approved by EPA in 2021. Windom's TP monitor-only requirements during October to May are intended to allow MPCA to monitor plant performance during winter months when the RES standard does not apply. The review team learned during the PQR that the Windom permit does not include a mass TP limit since the treatment plant is substantially below the design average flow which according to 40 CFR 122.45(b), would otherwise be used to calculate the mass limit. With no anticipated increase in actual average flow, MPCA determined that the concentration limit will be sufficient to achieve the projected mass TP limit.

Whereas Windom's TP limits are based on the Des Moines River standards, Le Sueur's are based on those of the Minnesota River. The Le Sueur mass TP limit was determined using a long-term average WLA for June to September to meet the RES. MPCA then used a sensitivity analysis to determine a concentration limit for TP for Le Sueur.

Mass TP limitations for Flint Hills Resources, a Mississippi River discharger, are based on statewide requirements for eutrophication protection from wastewater discharges (Minn. R. 7050.0222).

Each of the three permits in this topic area has a compliance schedule to meet their final TP limit. While Windom and Flint Hills Resources must meet the final limit within the permit term, the Le Sueur permit allows for additional time. Le Sueur's permit expires in 2024 and includes a final compliance date as soon as possible but no later than 2029. According to the fact sheet, 10 years is needed to allow the facility time to retire their current debt service. For interim steps, the permittee must, on an ongoing basis, submit annual reports describing work done in the previous year and detailing work planned in the upcoming year to make progress toward attainment of the final TP limit. The state anticipates that a more developed compliance schedule will be included in the next permit cycle. [5]

[4] MPCA (November 2015) *Procedures for implementing river eutrophication standards in NPDES wastewater permits in Minnesota.* Available at https://www.pca.state.mn.us/sites/default/files/wq-wwprm2-15.pdf

[5] https://www3.epa.gov/npdes/pubs/memo_complianceschedules_may07.pdf.

Table 3. Permit Conditions for Total Phosphorus

Facility	Due Date	Requirement	Monitoring Type
Flint Hills Resources LLC MN0000418	*Interim.* Beginning on permit effective date until Phase 2*	Monitor-only Jan.-Dec. Report mg/L calendar month average and kg/d calendar month total (MPCA procedures)	1X/month by 24-hour flow composite
	Final. Beginning as soon as possible but not later than permit expiration	2,644 kg/yr. limit Jan.-Dec. 12-month moving total (WLA from draft TMDL)	
Le Sueur WWTP MN0068195	*Interim.* Beginning on Permit effective date until completion of Phase 2**	Monitor-only kg/d Jan.-Dec. Report as calendar month average	1x/week by 24-hour flow-composite
	Final. Beginning on permit effective date and lasting until the expiration date	2,036 kg/yr limit Jan.-Dec. 12-month moving total (WLA)	1x/month by 24-hour flow-composite
		1.0 mg/L limit Jan.-Dec. 12-month moving average (River Eutrophication Standard)	
	Final. Beginning on completion of Phase 2 and lasting until the expiration date**	5.4 kg/d limit June-Sep. Calendar month average (WLA)	
Windom WWTP MN0022217	*Interim.* Beginning on permit effective date until Phase 2.***	Monitor-only Jan.-Dec. Report mg/L and kg/d calendar month average	1x/week by 24-hour composite
	Final. Phase 2***	1.0 mg/L limit June -Sep. calendar month average (River Eutrophication Standard)	
		monitor-only Oct.-May. Report mg/L and kg/d calendar month average (MPCA Procedures)	

* MN0000418 Phase 2 begins as soon as 30 months (no construction option) or 45 months (construction option).
**MN0068195 Phase 2 begins by November 1, 2029 (10 years after permit issuance) or as soon as possible.
***MN0022217 Phase 2 begins as soon as possible but no later than one year after initiation of operation of upgraded facility (this would be approximately 3.5 years from the permit issuance date).

Program Strengths

Minnesota is one of four States nationwide that has adopted numeric phosphorus WQS for rivers and lakes[6]. MPCA has tracked annual point source phosphorus loading for over two

[6] State Progress Toward Developing Numeric Nutrient Water Quality Criteria for Nitrogen and Phosphorus | Nutrient Pollution Policy and Data | US EPA.

decades. Trends depict decreasing levels over the period of record (pre-2000 to 2021) showing that annual point source phosphorus loadings are decreasing by about 50 percent or about 1,000 metric tons per year. The most recent biannual progress reports on the Minnesota's Nutrient Reduction Strategy (NRS), confirm that through these efforts MPCA is making progress toward including numeric TP limits based on either the RES or LES in NPDES permits where it is determined to be needed.

Phosphorus has long been recognized by MPCA as a controlling factor in plant and algae growth in Minnesota lakes and streams. Consequently, NPDES controls on nutrients have centered primarily on TP. Nitrogen is another nutrient parameter of concern and MPCA is paying increasing attention to nitrogen-containing pollutant parameters. In 2009, MPCA began including total nitrogen (TN) effluent monitoring requirements in NPDES permits.

NPDES applicants statewide must provide the results from at least one effluent testing for ammonia nitrogen, nitrate-nitrite, total Kjeldahl nitrogen (TKN), or TN. In addition, monitoring for TN is consistent with the National Gulf Hypoxia Task Force Action Plan 2008 and the State's NRS. As shown in the following table, the three reviewed permits all require monitoring for nitrite-nitrate N and TKN, but only one (Flint Hills Resources LLC) requires TN monitoring.

Table 4. Permit Conditions for Nitrogen

Facility	Total N*	Nitrite-nitrate N*	Total Kjeldahl N*
Flint Hills Resources LLC MN0000418	702 kg/d Calendar month ave (TBEL)	Report as calendar month average, March and Sept.	Report calendar month average, March and Sept.
	1,455 Daily max (TBEL)		
	Monitor 3x/week	Monitor 1x/month	Monitor 1x/month
Le Sueur WWTP MN0068195	No total N requirements**	Report as calendar month average, Jan. through Dec.	Report as calendar month average, Jan. through Dec.
		Monitor 1x/month	Monitor 1x/month
Windom WWTP MN0022217	No total N requirements**	Report as calendar month average, Apr. and Sept.	Report as calendar month average, Apr. and Sept.
		Monitor 1x/month	Monitor 1x/month

*All monitoring shall be by 24-hour flow composite
**Total N is the sum of nitrite-nitrate N and TKN.

Areas for Improvement

The NPDES permit documentation provides background about TP limits and resources that apply to limit development, but the documentation can be general and without sufficient detail to allow the public to understand how specific limits were developed. MPCA uses its procedures to support TP limit development, but more detail to describe how the procedures

apply to specific TP requirements applicable to the unique combination of NPDES permittees and rivers in Minnesota would be helpful.

One permit reviewed has a 10-year compliance schedule with generic, report only interim requirements. Even though the permit says that the limit must be attained as soon as possible, the fact sheet or permit record should include documentation that the schedule included in the permit does indeed provide for attainment of the water quality-based effluent limitation "as soon as possible." Additionally, the compliance schedule should have identified the annual steps that the permittee must take to achieve the limits (i.e. interim requirements beyond reporting). See 40 CFR 122.47 (a)(1) and (3) including the note under subsection (a)(3)(iii) that includes examples of interim requirements, made applicable to Minnesota at 40 CFR 123.25(a)(18), see also, compliance schedule principal 2 in EPA's May 10, 2007 memo[7].

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•When a TP WQBEL is included in a permit, ensure that the fact sheet fully documents the technical basis of the WQBEL, either by identifying the technical basis in the fact sheet itself or by providing a reference to the administrative record. •When a compliance schedule is included in a permit to achieve a final numeric WQBEL, ensure that the fact sheet and the administrative record provide the rationale behind the state's determination that the schedule is appropriate and that the final compliance date is "as soon as possible."

B. Effectiveness of POTW NPDES Permits with Food Processor Contributions

The PQR national topic area *Effectiveness of POTW NPDES Programs with Food Processor Contributions* evaluates successful and unique practices with respect to food processor industrial users (IUs) by evaluating whether appropriate controls are included in the receiving POTW's NPDES permit and documented in the NPDES permit fact sheet or statement of basis. This topic area aligns with the EPA Office of Enforcement Compliance and Assurance National Compliance Initiative, Reducing Significant Noncompliance with National Pollutant Discharge Elimination System Permits by gathering information that can be used to provide permit writers with tools to maintain or improve POTW and IU compliance with respect to conventional pollutants and nutrients.

[7] https://www3.epa.gov/npdes/pubs/memo_complianceschedules_may07.pdf

The food processing sector manufactures edible foodstuffs such as dairy, meat, vegetables, baked goods, and grains from raw animal, vegetable, and marine material. The main constituents of food processing wastewaters are conventional pollutants (BOD_5, total suspended solids (TSS), oil and grease (O&G), pH, and bacteria) and non-conventional pollutants (such as TP and TN). These pollutants are compatible with POTW treatment systems. However, the POTW may not be designed or equipped to treat the intermittent or high pollutant loadings that can result from food processing indirect discharges.

The General Pretreatment Regulations at 40 CFR 403.5(c)(1) require POTWs with approved pretreatment programs to continue to develop and apply local limits (LLs) as necessary to control any pollutant that can reasonably be discharged into the POTW by an IU in sufficient amounts to pass through or interfere with the treatment works, contaminate its sludge, cause problems in the collection system, or jeopardize workers' health and safety. POTWs that do not have approved pretreatment programs may also be required to develop specific LLs as circumstances warrant (see 40 CFR 403.5(c)(2)). LLs and other site-specific requirements are enforced by the POTW through IU control mechanisms and POTW sewer use ordinances.

The General Pretreatment Regulations require an Approval Authority to ensure that all substantive parts of the POTW's pretreatment program are fully established and implemented, including control mechanisms a POTW issues to its IUs to reduce pollutants in the indirect discharge (see 40 CFR 403.11). The MPCA is the Approval Authority for facilities in Minnesota as it has an EPA-approved state pretreatment program (see 40 CFR 403.10).

According to 40 CFR 122.44(2)(i) and 403.8(c), the Federally approved pretreatment program must be incorporated as an enforceable condition of the NPDES permit. Table 5 identifies the pretreatment and NPDES requirements considered during this PQR. For the purposes of this table, the terms Director and Permitting Authority refer to MPCA. As the Approval Authority, MPCA is responsible for administering the NPDES program consistent with provisions of the Clean Water Act, including issuance of NPDES permits to POTWs with approved pretreatment programs. The term Control Authority refers to the two POTWs with approved pretreatment programs reviewed for this PQR, or to MPCA for the two POTWs without an approved pretreatment program reviewed for the PQR.

Table 5. Regulatory Focus for this Section of the PQR

Citation	Description
40 CFR 122.42(b)	POTW requirements to provide adequate notice of new pollutants to the Director
40 CFR 122.44(j)	Pretreatment Programs for POTW
40 CFR 124.3(a) and (c)	The POTW must submit a timely and completed application for an NPDES permit or NPDES permit renewal
40 CFR 124.8(a) and (b)	The permitting authority must prepare a fact sheet for every draft permit for a major NPDES facility. Fact sheets must briefly set forth the principal facts and the significant factual, legal, methodological and policy questions considered in preparing the draft permit including references.
40 CFR 403.5(a), (b) and (c)	National pretreatment standards: Prohibited discharges
40 CFR 403.3	Definitions
40 CFR 403.8	Pretreatment program requirements: Development and implementation by POTW
40 CFR 403.10	Development and submission of NPDES state pretreatment programs
40 CFR 403.11	Approval procedures for POTW pretreatment programs and POTW granting of removal credits

Findings

Pretreatment Program Coverage

As shown in Table 6, 91 POTWs in Minnesota, or approximately 16 percent of all NPDES-permitted POTWs in the state, receive indirect discharges from one or more significant industrial users (SIUs). Among them, 16 POTWs have an approved pretreatment program; those POTWs are the Control Authority for a total of 313 SIUs. MPCA serves as the Control Authority for 64 Categorical Industrial Users (CIUs) connected to POTWs without an approved pretreatment program.

Table 6. Minnesota SIUs by Pretreatment Program Status

SIU Description	Number of SIU(s) Controlled by an Approved Pretreatment Program (16 POTWs)[1]	Number of SIU(s) Not Controlled by an Approved Pretreatment Program (75 POTWs)[1]	Total
CIU	**277**	64[2]	**341**
Non-CIU	**36**	106[3]	**142**
Total SIU	**313**	**170**	**483**

[1] Data source: Received data via email on 2/26/2021 from the MPCA Pretreatment Coordinator.
[2] MPCA issues control mechanisms to all CIUs in non-approved POTW pretreatment programs.
[3] MPCA does not issue control mechanisms to non-categorical SIUs in non-approved POTW pretreatment programs. These SIUs are controlled by the receiving POTW.

MPCA's Municipal Division is responsible for writing NPDES permits for municipal permittees and the Industrial Division writes permits for direct discharging industrial facilities. MPCA requires POTWs with a design flow of five MGD or greater that receive process wastewater from discharging SIUs to develop and implement a formal pretreatment program. According to the MPCA pretreatment coordinator, there are currently 16 approved pretreatment programs

in the state and one additional program that will be added when the POTW's NPDES permit is reissued.

Major Wastewater Treatment Plants (WWTPs) are required by 40 CFR 122.21(j)(6) to submit the EPA permit application and include details on their SIUs. The non-major WWTPs are also required to include SIUs in the permit application if they have SIUs discharging to the POTW. Before drafting a municipal permit, the MPCA permit writers notify the MPCA pretreatment coordinator to allow for review of the application and to provide input on the need for pretreatment language. MPCA has draft boilerplate language for use in drafting permits. All permits for municipally owned WWTPs include some pretreatment language. The permits for POTWs without approved pretreatment programs include basic requirements including requiring the POTW to notify MPCA of all industrial users.

MPCA inspectors discuss pretreatment with WWTP staff in POTWs without approved pretreatment programs as part of compliance inspections of the WWTP. During these inspections, MPCA inspectors ask questions to determine whether the POTW has IUs, and if they are identifying SIUs and CIUs and notifying MPCA. Permittees are required to notify MPCA of IUs, as specified in their NPDES permits, but MPCA uses these compliance inspections to confirm information reported by the POTWs. Once a POTW notifies MPCA of a SIU, the POTW is also required to submit to MPCA a copy of the agreement or control mechanism put in place to control that SIU's wastewater discharge. MPCA does not directly permit non-categorical SIUs in POTWs without approved programs; however, they do permit CIUs discharging to POTWs without approved programs. MPCA permits approximately 64 indirect discharging CIUs. Of these 64 permittees, nine have individual permits while 55 are covered under a metal finishing general permit.

MPCA's pretreatment coordinator is responsible for implementing the state's pretreatment program. The pretreatment coordinator conducts all the pretreatment program report reviews, including annual report reviews. One additional MPCA staff member contributes up to 20 percent of their time to the pretreatment program and assists mostly with annual report reviews. According to MPCA's pretreatment coordinator, 91 POTWs submit an annual report, 16 of whom have approved pretreatment programs. MPCA has an alternate Compliance Monitoring Strategy (CMS). According to the MPCA pretreatment coordinator, MPCA performs Pretreatment Audit Inspections (PAIs) at the POTWs with approved pretreatment programs once every five years to determine compliance with the pretreatment conditions of their NPDES permits. Pretreatment Compliance Inspections (PCIs) are completed on an as needed basis in accordance with MPCA's approved CMS with EPA Region 5.

EPA Region 5 determined that only a small number of IUs are food processors. Table 6 shows that 341 of the 483 SIUs are CIUs, covered by Federal categorical pretreatment standards (see 40 CFR 403.8(f)(1)(ii)). There are currently no Federal categorical pretreatment standards for food processors.

For this section, EPA selected POTWs for review by requesting that MPCA identify POTWs with food processor IUs and then built the permit selection using a random number selection which factored in section of at least four of these POTWs, two with pretreatment program that are Federally approved and two with pretreatment programs that do not require Federal approval. Table 7 identifies the four NPDES permits selected for this topic area. All four have a sewer use ordinance (SUO) controlling discharges to the POTWs. Table 3 shows minimum standards for IUs through the SUO LLs and/or surcharge controls for conventional pollutants. The type of control (LL or surcharge) and parameters controlled vary by SUO: all four regulate BOD_5 (or $CBOD_5$) and TSS; one controls TP; one controls ammonia nitrogen; and one controls O&G. SUOs are available online for all the POTWs (hyperlinked in the table).

Table 7. NPDES Permits Selected for the Pretreatment Topic Area

Permittee (SUO is linked)	Permit No.	Federally Approved Program?	Design Average Flow (DAF) (MGD)	No. of SIUs[1]	No. of Food Processor IUs[1]	Example of SUO Controls (Local Limits = LLs)
City of Austin	MN0022683	Yes	8.475	5	2	LLs: pH, petroleum oil, non-biodegradable cutting oil or products of mineral oil origin; Monthly surcharge calculated using flow, BOD_5 and TSS concentrations
City of Faribault	MN0030121	Yes	3.31	6	3	LLs: arsenic, BOD_5, cadmium, chromium, copper, cyanide, lead, mercury, molybdenum, TN, nickel, selenium, silver, TSS, zinc; O&G (BMPs)[2], pH; User service charge calculated using flow, $CBOD_5$, TSS, ammonia, and TP.
City of Le Sueur	MN0068195	No	1.225	1[3]	1	LLs: arsenic, cadmium, copper, cyanide, lead, mercury, nickel, silver, total chromium, zinc, fats, O&G, pH; phenolic compounds which cannot be removed by the WWTP; Industrial user charges calculated using flow, BOD_5 and TSS.
City of Windom	MN0022217	No	1.13	3	1	LLs: cadmium, copper, cyanide, lead, mercury, nickel, total chromium, zinc, BOD_5, TSS.

[1] Based on the information provided in the permit application, unless otherwise noted.
[2] The SUO does not describe the types of BMPs that can be enforced by the City to control O&G in wastewater discharges nor are the O&G BMPs identified in the food processing SIU permits.
[3] The NPDES permit application lists the food processing industrial users as CIUs.

EPA performed reviews of seven food processing SIU permits issued by POTWs in approved programs and non-approved programs (listed in Table 8). EPA reviewed these discharge control mechanisms issued by the POTWs to identify how, and if any, IU controls on conventional pollutants are being implemented. As shown in Table 8, these reviews included one food processor for the City of Le Sueur, two food processors for the City of Austin, three food processors for the City of Faribault, and one food processor for the City of Windom.

Table 8. Summary of SIU[1] Discharge Permit Conditions

Facility Name	Permit Number	Receiving POTW	Type of Food Processor[2]	Average Process Wastewater Discharge (gallons per day [gpd])	Monitored Pollutants[3, 4]
Le Sueur Cheese	N/A	City of Le Sueur	Cheese processing	450,000	Limits: Flow, CBOD, TSS, phosphorus
Hormel Foods	N/A	City of Austin	Pork processor	2,100,000	Limits[5]: Flow, CBOD, ammonia, TSS, and pH; Monitoring only: TKN
Bellisio Foods [6]	N/A	City of Austin	Food packaging company	80,000	Limits[5]: CBOD, TSS, pH, Flow; Surcharges: BOD and TSS
Faribault Foods	2021-01	City of Faribault	Canning a variety of bean products	458,000	Limits: Flow, $CBOD_5$, TSS, phosphorus, and pH; Surcharges: $CBOD_5$, TSS, ammonia, and total phosphorus
Jennie-O Turkey Store	2021-03	City of Faribault	Turkey meat products	553,000	Limits: Flow, $CBOD_5$, TSS, phosphorus, and pH; Surcharges: $CBOD_5$, TSS, ammonia, and total phosphorus
Prairie Farms	2021-05	City of Faribault	Cheese producer	11,000 (intermittent)	Limits: Flow, $CBOD_5$, TSS, phosphorus, and pH; Surcharges: $CBOD_5$, TSS, ammonia, and total phosphorus
Prime Pork	N/A	City of Windom	Livestock slaughtering services and meat packing[7]	426,000[8]	Limits: $CBOD_5$, TSS, TKN, TP, pH, and O&G

[1] The City of Le Sueur's NPDES permit application specifies that Le Sueur Cheese is subject to categorical standards. The Faribault Foods permit specifies that the permittee is subject to the categorical pretreatment standards at 40 CFR 407, Subpart G. The Prairie Farms permit specifies that the permittee is subject to the categorical pretreatment standards at 40 CFR 405, Subpart F. The City of Windom NPDES permit application lists Prime Pork as a categorical industrial user subject to 40 CFR Part 432.

[2] Based on information included in the POTW's NPDES permit application.

[3] Includes parameters identified in the industrial user's control mechanism with numerical discharge limits, applicable surcharge values, and/or monitoring only requirements.

[4] All four POTWs are performing monitoring in lieu of requiring the named industrial users to performed self-monitoring. The federal regulations at 40 CFR 403.12(g) allow control authorities to perform all monitoring and analysis in lieu of requiring the industrial users to conduct self-monitoring. However, POTWs without approved programs must ensure that they have the legal authority to do so prior to implementing this practice.

[5] Permits include limits based on purchased sewer capacity.

[6] Bellisio Foods closed, and a new company purchased the facility in Spring 2020 but had not started any operations at the time of the PQR file review.

[7] Listed as beef products on NPDES permit application, but pork products on NPDES permit fact sheet.

[8] This value is the total process flow as listed in the City of Windom's 2015 NPDES permit application. The 2018 NPDES permit application lists the total flow from Prime Pork as 1 MGD.

Minimal monitoring of a potentially inconsistent quality industrial user discharge may prevent a POTW from detecting and expeditiously reacting to influent quality changes. EPA compared IU effluent limitations and discharge monitoring frequencies for food processors with those for

the receiving POTWs to evaluate the adequacy of IU discharge monitoring frequencies to support timely detection of discharges with the potential to cause problems with the POTW collection or treatment systems.

Program Strengths

Approved Programs

The City of Austin and City of Faribault's NPDES permits require a written technical evaluation of the need to revise LLs following permit issuance or reissuance (40 CFR 122.44(j)(2)(ii)).

The NPDES permit fact sheets for the City of Austin and City of Faribault identify and characterize the contributing industrial dischargers and identify multiple food processing sources as SIUs. The City of Austin and City of Faribault's NPDES permits establish effluent monitoring and/or limitations for TP, ammonia, BOD_5, and TSS. As noted above in Table 8, the City of Faribault has adopted LLs for BOD_5, TSS, and TN and calculates the user service charge based on flow, $CBOD_5$, TSS, ammonia-nitrogen, and TP effluent concentrations.

The IU permits issued to the food processors by the City of Faribault have similar monitoring frequencies to the POTW's NPDES permit. The permits issued to food processors by the City of Austin have similar monitoring frequencies to the POTW's NPDES permit for BOD_5 and TSS. These monitoring frequencies appear adequate to provide the POTW information to assess if the industrial conventional pollutant flow affects the POTW operations.

The City of Austin and City of Faribault's NPDES permits require the POTW to implement an approved Pretreatment Program per 40 CFR 403.8 and the NPDES permits identify the original approval date of the Permittee's Pretreatment Program: August 31, 2012 for the City of Fairibault and June 13, 2013 for the City of Austin. The fact sheet for the City of Austin also identifies the original approval date. However, an approval date is not included in the fact sheet for the City of Fairibault. It is unclear from the permit record if the Permittee's pretreatment program has been amended since the original approval date. The City of Austin and City of Faribault's NPDES permits also require submittal of an annual pretreatment report (40 CFR 403.12(i)).

The City of Austin and City of Faribault's NPDES permits require development and enforcement of LLs. The City of Austin and City of Faribault's NPDES permits require the permittees to evaluate the need to revise their LLs*"…at least once during the term of this permit*. *Prior to the expiration date of this permit, the permittee shall submit, for approval, a report on the evaluation. If the evaluation determines that a more restrictive local limit is needed, the permittee shall submit for approval a suggested schedule for amending the permittee's local limits*".

In addition, the City of Austin's NPDES permit contains special conditions to control or monitor the indirect food processing waste stream. Industrial wastewater from Hormel Foods enters the WWTP via a separate dedicated influent line which has its own treatment train prior to combining with all treated wastewaters from all other industrial users and domestic sources. The combined waste stream then goes through ammonia removal, final clarification, and

disinfection prior to discharge. The NPDES permit requires the POTW to monitor the wastewater from the Hormel treatment train prior to it mixing with the other industrial and domestic wastewater. In addition, the NPDES permit requires reporting of industrial discharge flow volume (and changes).

Non-Approved Programs

The City of Windom has adopted LLs for BOD_5 and TSS even though the City does not have an approved program. Adoption of local limits for conventional pollutants helps ensure that the WWTP is protected from high strength loadings of these pollutants.

The NPDES permit fact sheets for both the City of Le Sueur and the City of Windom identify and characterize the contributing industrial dischargers. Furthermore, the NPDES permits include pretreatment requirements. The NPDES permits state the general and specific prohibitions from the Minnesota state pretreatment regulations (Minn. R. 7049), which mirror the federal prohibitions at 40 CFR 403.5(a) and (b). The NPDES permits also require control of SIUs. The permits require that the permittees *"…impose pretreatment requirements on SIUs which will ensure compliance with all applicable effluent limitations and other requirements set forth in this permit or any federal or state law or regulation limiting the release of pollutants from the POTW. These requirements shall be applied to SIUs by means of an individual control mechanism*". In addition, the NPDES permits include requirements for monitoring SIUs – the permits state "*[t]he Permittee shall obtain from SIUs specific information on the quality and quantity of the SIU's discharges to the Permittee's POTW. Except where specifically requested by the Permittee and approved by the MPCA, this information shall be obtained by means of representative monitoring conducted by the Permittee or by the SIU under requirements imposed by the Permittee in the SIU's individual control mechanism. Monitoring performed to comply with this requirement shall include all pollutants for which the SIU is significant and shall be done at a frequency commensurate with the significance of the SIU…".*

The NPDES permits for both the City of Le Sueur and the City of Windom also require the permittees to *"…notify the MPCA in writing of any: …SIU of the Permittee's POTW which has not been previously disclosed to the MPCA; …anticipated or actual changes in the volume or quality of discharge by an industrial user that could result in the industrial user becoming an SIU as defined in this chapter; or …anticipated or actual changes in the volume or quality of discharges by a SIU that would require changes to the SIU's required local limits*."

The NPDES permits for both the City of Le Sueur and the City of Windom require the POTWs to submit an annual report on forms provided by the agency or provide equivalent information.

Areas for Improvement

Approved Programs

The NPDES permit for the City of Austin and that for the City of Faribault identify a pretreatment program approval date. However, based on discussions and material reviewed it was not clear that the programs were modified since the original approval date. If the programs have been modified, include the approval date(s) of the modifications.

For clarity, the fact sheet for the City of Faribault refers to the City's pretreatment program, but it does not state that the pretreatment program was approved under the General Pretreatment regulations. By providing the regulatory citation to the General Pretreatment regulations, it fulfills the requirement to provide the regulatory basis for pretreatment related permit conditions (see 40 CFR 124.8(b)(4)). For example, the presence of CIUs or SIUs with potential to cause pass-through and interference at the POTW and require limitations. Permit writers should ensure the dates shown in the permit and/or fact sheet refer to the approval and most recent modification dates (if applicable).

The City of Austin's NPDES permit application does not specify, for SIUs, the average daily volume of wastewater discharged, or whether any problems at the POTW have been attributed to the SIU in the past 4.5 years. Permit writers shall ensure that the NPDES permit applications received are complete as permit processing shall not occur until application requirements are complied with (see 40 CFR 124.3(a)(2)).

The City of Austin has not adopted LLs for the following: BOD_5, TSS, ammonia nitrogen, TP, or total nitrogen. The files reviewed did not indicate that the POTW has experienced pass through or interference; however, the permit writers are reminded to ensure that POTWs maintain adequate controls on industrial discharges to ensure that the POTW is protected from pollutant loads that could overwhelm the WWTP.

The industrial user agreements issued by the POTWs with approved pretreatment programs were not adequate equivalent individual control mechanisms to control the discharges from these food processing facilities. These agreements were signed by both the industrial user and the POTW, thereby making the agreements more similar to contracts than adequate control mechanisms. The General Pretreatment Regulations require an Approval Authority to ensure that all substantive parts of the POTW's pretreatment program are fully established and implemented, including control mechanisms a POTW issues to its IUs to reduce pollutants in the indirect discharge (see 40 CFR 403.11). The federal regulations at 40 CFR 403.8(f)(1)(iii) require POTWs with approved pretreatment programs to "*control through Permit, order, or similar means, the contribution to the POTW by each Industrial User to ensure compliance with applicable Pretreatment Standards and Requirements. In the case of Industrial Users identified as significant under 403 CFR 403.3(v), this control shall be achieved through individual permits or equivalent individual control mechanisms issued to each such User…*" The federal register notice of EPA's promulgation of the final rule (53 FR 40561-40616 PIRT [Pretreatment Implementation Review Task Force] Final; published October 17, 1988), states that, "*EPA has recognized that contracts are not an adequate enforcement mechanism*." It is recommended that MPCA conduct appropriate pretreatment oversight to ensure that approved pretreatment programs are fully implementing their programs with regard to food processing as well as other facilities, including issuing adequate control mechanisms to SIUs.

<u>Non-approved programs</u>

The City of Le Sueur NPDES permit application indicates that the food processor (a dairy industry) is subject to categorical standards; however, this is incorrect. There are no categorical

pretreatment standards for indirect discharging dairy industrial users. In addition, the permit application lists the name but not the mailing address for the City of Le Sueur's SIU. Permit writers shall ensure that the NPDES permit application is complete with specific information including for SIUs, the SIU address prior to processing the permit (see 40 CFR 122.21(J)(6)(ii)(A) and 124.3(a)(2)).

The NPDES permits for the City of Le Sueur and the City of Windom do not require development and enforcement of local limits. The City of Le Sueur has adopted local limits, but these do not include BOD, TSS, ammonia, phosphorus, or nitrogen. The City of Le Sueur does assess surcharge fees for flow, BOD, and TSS. The City of Windom has adopted local limits for pollutants of concern, including BOD_5 and TSS. The files reviewed did not indicate that either of these POTWs have experienced pass through or interference; however, the permit writers should ensure that POTWs maintain adequate controls on industrial discharges to ensure that the POTW is protected from pollutant loads that could overwhelm the WWTP. For example, note that 40 CFR 403.5(c)(2) requires POTWs that have experienced pass through or interference to develop local limits, regardless of full program development. Furthermore, based on the information provided in the City of Windom's NPDES permit application, the food processing SIU (Prime Pork) contributes at least 50 percent of the total flow to the WWTP. It is recommended that MPCA work with the City of Windom (and similar facilities) to ensure that their industrial users do not adversely affect their system, including periodic reevaluation of local limits.

Action Items

Essential	•Permit writers shall ensure that the NPDES permit applications received include all required SIU information at 40 CFR 122.21(J)(6) prior to processing the permit (40 CFR 124.3(a)(2)).
Recommended	•Permit fact sheets should include the basis for requiring implementation of a pretreatment program (40 CFR 124.8(b)(4)). •Permit writers should ensure that the pretreatment program approval and program modification date(s) shown in the permit and/or fact sheet are the most recent applicable date to ensure that the permit record. •Permit should ensure POTWs maintain adequate controls on industrial discharges to ensure that the POTW is protected from pollutant loading exceeding the POTW's treatment capacity. This includes loading from conventional pollutants. For example, note that 40 CFR 403.5(c)(2) requires POTWs that have experienced pass through or interference to develop local limits, regardless of full program development. •MPCA should provide oversight ensure that approved pretreatment programs are fully implementing their programs, including issuing adequate control mechanisms to food processor SIUs. •MPCA should work with the City of Windom (and similar facilities) to ensure that their industrial users do not adversely affect their system, including periodic reevaluation of local limits.

[*Following a review of the draft PQR report, MPCA acknowledged that the two permit applications reviewed for this topic area are missing certain information. MPCA attributed the oversight to individual permit writer errors and not part of a systematic issue. MPCA plans to remind all permit writers of the importance of reviewing permit applications for completeness. Additionally, MPCA noted that permit writers can use information submitted outside the permit application [such as POTW Annual Reports] as a reference for information or source to cross-check information in the permit application. As permit writers can implement this immediately, agreed-upon milestones are not needed for this essential action item.*]

C. Small Municipal Separate Storm Sewer System (MS4) Permit Requirements

Background

The PQR reviewed the state's small General Permit for Small Municipal Separate Storm Sewer Systems (Small MS4 GP) for consistency with the Phase II stormwater permit regulations. EPA recently updated the small MS4 permitting regulations to clarify: (1) the procedures to be used when coverage is by general permits (see 40 CFR 122.28(d)); (2) the requirement that the permit establish the terms and conditions necessary to meet the MS4 permit standard (i.e., "to reduce the discharge of pollutants from the MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act"), including conditions to address the minimum control measures, reporting, and, as appropriate, water quality requirements (see 40 CFR 122.34(a) and (b)); and (3) the requirement that permit terms must be established in a "clear, specific, and measurable" manner (see 40 CFR 122.34(a)).

MPCA's Small MS4 GP was signed and became effective November 16, 2020. This GP was written following the MS4 Remand Rule which was effective on January 9, 2017. MPCA's Small MS4 GP complies with the Remand Rule. It is a two-step GP, and includes all the requirements, including TMDL related requirements upfront. Permittees will update/amend current Storm Water Pollution Prevention Plans (SWPPPs) to document how they will meet the requirements of the new permit. Based on receiving SWPPPs and annual reports for the duration of this permit term, MPCA will adjust future iterations to best establish the measures and goals necessary to protect water quality from Small MS4 discharges. Also, staff in the MS4 program perform an antidegradation review during permit development and the public process. Program and legal staff review anti-backsliding considerations throughout the MS4 permit development and issuance/reissuance process.

Program Strengths

- The GP includes requirements under Minimum Control Measure (MCM) 4: Construction Site Stormwater Runoff Control for permittees to develop, implement, and enforce regulatory mechanisms that are at least as stringent as MPCA's Construction Stormwater General Permit (MNR100001).
- The GP provides a clearly defined schedule of permit requirements for existing and new permittees under Appendix B. Schedules.

Areas for Improvement

- EPA Region 5 plans to work with the state in advance of the next issuance of its MS4 permit to encourage the adoption of additional clear, specific, and measurable requirements in specific areas. For instance, among other examples, the Region suggests the state consider, under the Illicit Discharge Detection and Elimination MCM, requiring permittees to screen a minimum percentage of outfalls within their system for illicit discharges per year and, under the Post-Construction Stormwater Management MCM, including additional requirements such as requiring a minimum removal efficiency for TSS and TP or a minimum number of inspections to be conducted on Post Construction BMPs.
- Consider including conditions in the GP that apply when another entity carries out responsibilities for the MS4 permittee as specified in 40 CFR 122.35(a)(1)-(3).
- Following permit issuance, there may be additional waters that become listed as impaired, and new TMDLs that are reviewed and approved by EPA. Some permits address these post-permit issuance impairment listings and TMDLs with provisions requiring the MS4 permittee to take steps to respond to these specific water quality issues. Consider whether the MS4 permittee will be responsible for tracking relevant changes to the state's list of impaired waters and approved TMDLs, and then notifying the permitting authority of these changes. Alternatively, consider whether the permitting authority is responsible for notifying the MS4 permittee.

Action Items

Essential	•The PQR did not identify any essential action items for this section.
Recommended	•In the next issuance of the MS4 permit, consider the adoption of additional clear, specific, and measurable requirements in specific areas. The Region suggests under the Illicit Discharge Detection and Elimination MCM, requiring permittees to screen a minimum percentage of outfalls within their system for illicit discharges per year and, under the Post-Construction Stormwater Management MCM, including additional requirements such as requiring a minimum removal efficiency for TSS and TP or a minimum number of inspections to be conducted on Post Construction BMPs. •Consider including conditions in the GP that apply when another entity carries out responsibilities for the MS4 permittee as specified in 40 CFR 122.35(a)(1)-(3). •Consider how the MS4 permittee will be responsible for tracking relevant changes to the state's list of impaired waters and approved TMDLs, with provisions requiring the MS4 permittee to take steps to respond to these specific water quality issues and then notifying the permitting authority of these changes.

V. REGIONAL TOPIC AREA FINDINGS

Region 5 elected not to include a Regional Topic in this review.

VI and VII. REVIEW OF PROGRESS ON ACTION ITEMS FROM LAST PQR

Region 5 did not participate in the 2012-2017 PQR cycle; therefore, there are no previous essential or recommended action items.

VIII. ACTION ITEMS FROM FY 2018–2022 PQR CYCLE

This section provides a summary of the main findings of the PQR and provides proposed action items to improve Minnesota's NPDES permit program, as discussed throughout sections III, IV, and V of this report. The proposed action items are divided into two categories to identify the priority that should be placed on each Item and facilitate discussions between Regions and states.

- **Essential Actions -** Proposed "Essential" action items address noncompliance with respect to a federal regulation. EPA has provided the citation for each Essential action item. The permitting authority is expected to address these action items in order to comply with federal regulations. Essential actions are listed in Table 3 below.
- **Recommended Actions -** Proposed "Recommended" action items are recommendations to increase the effectiveness of the state's or Region's NPDES permit program. Recommended actions are listed in Table 4 below.

Table 9. Essential Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
Administrative Record and Fact Sheet	• Fact sheets must include calculations or other necessary explanation of the derivation of specific effluent limitations, consistent with 40 CFR 124.56. If calculations are found in supplemental documents (e.g., RP Toxics Memo), the fact sheet must include a statement referencing the supplemental documents.
Pretreatment: Food Processing Sector	• Permit writers shall ensure that the NPDES permit applications received include all required SIU information at 40 CFR 122.21(J)(6) prior to processing the permit (40 CFR 124.3(a)(2)).

Table 10. Recommended Action Items from FY 2018-2022 PQR Cycle

Topic	Action(s)
Basic Facility Information	• To facilitate use of digital mapping tools such as GIS or Google Maps, ensure that the facility and discharge locations are expressed as latitude and longitude in permit applications and fact sheets.
Permit Application Requirements	• Ensure that WET test results submitted by the permittee, as required by the permit application, are appropriately documented in the permit record.
Reasonable Potential and WQBEL Development	• The permit record (e.g., fact sheet or Toxics RP Memo) should identify the ambient-water-quality sample location(s) and sample date(s) associated with data used for RP calculations.

	• The permit record (e.g., fact sheet or Toxics RP Memo) should document the technical basis for decisions regarding data outliers or data below the method quantification level. • The fact sheet or Toxics RP Memo should include example equations that illustrate how WQBELs are calculated. • Ensure that the sampling frequency used for WQBEL calculations agrees with the actual sampling frequency to be required in the permit or provide justification for using a default value. • Ensure documentation clearly describes how MPCA applied the mixing zone policy in the development of WQBELs.
Final Effluent Limitations and Documentation of Effluent Limitations Development	• Fact sheets should include a discussion that demonstrates that MPCA compared TBELs and WQBELs to establish the more stringent as the final effluent limitation. • Fact sheets should include greater detail regarding the applicability and implementation of TMDLs in the development of WQBELs.
Monitoring and Reporting Requirements	• For greater clarity, permits should incorporate (explicitly or by reference) requirements in 40 CFR 122.44(i)(1)(iv) regarding use of sufficiently sensitive approved analytical methods.
Administrative Record and Fact Sheet	• Fact sheets should provide or reference where in the administrative record MPCA compared TBELs and WQBELs to establish the more stringent as the final effluent limitation. • Permit documentation should clearly describe the basis for all data considered in RP analyses and WQBELs development and provide specific discussion of ambient water quality data, outliers analyses, and evaluation of non-detect data.
Nutrients	• When a TP WQBEL is included in a permit, ensure that the fact sheet fully documents the technical basis of the WQBEL, either by identifying the technical basis in the fact sheet itself or by providing a reference to the administrative record. • When a compliance schedule is included in a permit to achieve a final numeric nutrient WQBEL, ensure that the fact sheet and the administrative record provide the rationale behind the state's determination that the schedule is appropriate and that the final compliance date is "as soon as possible."
Pretreatment: Food Processing Sector	• Permit fact sheets should include the basis for requiring implementation of a pretreatment program (40 CFR 124.8(b)(4)). • Permit writers should ensure that the pretreatment program approval and program modification date(s) shown in the permit and/or fact sheet are the most recent applicable date to ensure that the permit record.

	• Permit should ensure POTWs maintain adequate controls on industrial discharges to ensure that the POTW is protected from pollutant loading exceeding the POTW's treatment capacity. This includes loading from conventional pollutants. For example, note that 40 CFR 403.5(c)(2) requires POTWs that have experienced pass through or interference to develop local limits, regardless of full program development. • MPCA should provide oversight ensure that approved pretreatment programs are fully implementing their programs, including issuing adequate control mechanisms to food processor SIUs. • MPCA should work with the City of Windom (and similar facilities) to ensure that their industrial users do not adversely affect their system, including periodic reevaluation of local limits.
Municipal Separate Storm Sewer Systems (MS4s)	• In the next issuance of the MS4 permit, consider the adoption of additional clear, specific, and measurable requirements in specific areas. The Region suggests under the Illicit Discharge Detection and Elimination MCM, requiring permittees to screen a minimum percentage of outfalls within their system for illicit discharges per year and, under the Post-Construction Stormwater Management MCM, including additional requirements such as requiring a minimum removal efficiency for TSS and TP or a minimum number of inspections to be conducted on Post Construction BMPs. • Consider including conditions in the GP that apply when another entity carries out responsibilities for the MS4 permittee as specified in 40 CFR 122.35(a)(1)-(3). • Consider how the MS4 permittee will be responsible for tracking relevant changes to the state's list of impaired waters and approved TMDLs, with provisions requiring the MS4 permittee to take steps to respond to these specific water quality issues and then notifying the permitting authority of these changes.