

**BEFORE THE
MINNESOTA POLLUTION CONTROL AGENCY**

In the Matter of 3M Chemical Operations LLC
Draft National Pollutant Discharge Elimination System/State Disposal System
Permit No. MN0001449

Case No. _____

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3M Chemical Operation’s Petition For A Contested Case Hearing
Pursuant to Minn. Stat. Ch. 14 and Minn. R. 7000.1800 and 7000.1900

Commissioner Katrina Kessler
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155-4194

TO THE MINNESOTA POLLUTION CONTROL AGENCY:

3M Chemical Operations LLC (3M) petitions for a contested case hearing pursuant to Minn. R. 7000.1800 and 7000.1900 on five issues relevant to the draft National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Permit MN00001449 (Draft Permit) for the 3M Cottage Grove Center (the Facility) drafted by the Minnesota Pollution Control Agency (MPCA) and published for public comment on July 1, 2024. As discussed herein and in 3M’s Comments to the Draft Permit, the Draft Permit exceeds the MPCA’s authority, is arbitrary and capricious, and otherwise is inconsistent with applicable law for multiple reasons, including, but not limited to: (A) inclusion of water quality based effluent limitations (WQBELs) for several per- and polyfluoroalkyl substances (PFAS) that were developed in a manner that does not meet governing legal requirements; (B) the imposition of WQBELs that the MPCA has not demonstrated are reasonable, feasible and practical to attain, as required by law; (C) the imposition of “intervention limits” that are not authorized by law or rationally related to ensuring compliance with discharge limits; (D) imposition of a compliance schedule for construction and optimization of the advanced wastewater treatment system that is arbitrary and capricious and does not consider operational realities; and (E) the inclusion on the Draft Permit’s analyte list of a significant number of analytes not believed to be present in wastewater from the Facility is arbitrary and capricious. This petition also includes a formal request for a meeting with the Commissioner pursuant to Minn. R. 7001.0125, subp. 1.

I. Introduction

3M petitions the MPCA for a contested case hearing on five issues set forth below. 3M has a substantial interest in this matter. Once the MPCA issues a final permit, 3M will be responsible for operating the Facility, and the advanced wastewater treatment system under construction at the Facility, in compliance with that permit. The factual issues raised by this petition and the legal issues raised in 3M's Comments to the Draft Permit demonstrate the significance of 3M's interest.

In its Comments to the Draft Permit, 3M has identified numerous issues with the Draft Permit beyond those listed below, and has proposed various revisions and corrections to the Draft Permit to address those legal deficiencies. This petition incorporates the Comments submitted contemporaneously with this petition, as well as the Exhibits to those Comments, and the information set forth in the Comments and Exhibits is submitted in support of this petition.

3M has not requested a contested case hearing with respect to each and every one of the issues raised in its Comments, but has, in accordance with Minn. R. 7000.1900, limited this request for a contested case hearing to the five issues set forth below. 3M contends that those issues meet the criteria set forth in Minn. R. 7000.1900, subp. 1:

- A. There is a material issue of fact in dispute concerning the matter pending before the board or commissioner;
- B. The board or commissioner has the jurisdiction to make a determination on the disputed material issue of fact; and
- C. There is a reasonable basis underlying the disputed material issue of fact or facts such that the holding of a contested case hearing would allow the introduction of information that would aid the board or commissioner in resolving the disputed facts in making a final decision on the matter.

By limiting its request for a contested case hearing, 3M does not intend to waive any arguments related to the other issues raised in its Comments, nor does it mean to suggest that those concerns are in any way insignificant.

II. Statement Of Issues (Minn. R. 7000.1800, subp. 2A(2))

- A. **Whether the MPCA Developed the WQCs underlying the WQBELs In The Draft Permit In A Manner Inconsistent With Law by Improperly Calculating Inputs, Using Information That Was Not Site-Specific, and Using Otherwise Unsupported Inputs.**
- B. **Whether The MPCA Had a Basis to Determine that the Unmeasurable WQBELs In The Draft Permit Can Be Reasonably, Practically, And Feasibly Attained by the Advanced Wastewater Treatment System.**

- C. Whether The Imposition Of Intervention Limits In The Draft Permit Will Function To Ensure Compliance With The Permit.**
- D. Whether MPCA's Proposed Compliance Schedule In The Draft Permit Is Rational And Reflects Operational Realities.**
- E. Whether The PFAS Analyte List Contained In The Draft Permit Contains Analytes Reasonably Believed To Be Present In Effluent From The Advanced Wastewater Treatment System.**

III. Background Of 3M's Operations At Cottage Grove

As set forth in 3M's Comments, the Facility is located approximately 15 miles south of St. Paul, and approximately three miles southeast of the City of Cottage Grove, along the northern bank of the Mississippi River. The Facility site (Site) occupies approximately 1,700 acres. 3M manufactures a variety of products at the Facility, including specialty paper products, adhesive products, industrial polymers, abrasives, and reflective road sign materials. 3M also conducts research and product development at the Facility.

3M announced in 2022 that it would exit all PFAS manufacturing by the end of 2025 and work to discontinue the use of PFAS across its product portfolio in that same timeframe. 3M is in the process of winding down its PFAS manufacturing operations at Cottage Grove, consistent with that announcement.

3M has undertaken multiple environmental investigation and remediation efforts at the Site. In 2007, 3M and MPCA entered into a Settlement Agreement and Consent Order (SACO), under which 3M agreed to characterize the presence of certain PFAS in various environmental media at the Facility and develop an approach for remediating certain PFAS at the Facility. 3M also agreed to treat PFAS-containing groundwater from the 3M Woodbury Disposal Site at Cottage Grove.

All of the water used and treated at the Facility through its existing wastewater treatment plant is groundwater, including groundwater captured from the Woodbury Disposal Site pursuant to the SACO. Based on 2023 data, on average, about half (49%) of the water treated at the facility comes from Woodbury, and the Woodbury wells account for about 33% of the total PFAS mass. The Woodbury wells are the source of about 89% of the PFHxS, 25% of the PFOA, and 31% of the PFOS slated for treatment by the advanced wastewater treatment system. We also note for context that when Cottage Grove's advanced wastewater treatment system becomes fully operational, Cottage Grove will no longer be manufacturing PFAS. As the calendar turns to 2026, the advanced wastewater treatment system at Cottage Grove will become, with respect to PFAS, an advanced remedial system primarily supporting the cleanup of groundwater from Cottage Grove and the Woodbury disposal site. Thus, the PFAS discharges from the site will result from legacy production and from remedial activities agreed upon with the State of Minnesota.

In 2023, 3M commenced construction of the \$300-million state-of-the-science advanced wastewater treatment system. Prior to beginning construction of the advanced wastewater treatment system, and as required by MPCA, 3M submitted two studies, The “PFAS Treatability Alternatives Identification Plan (Updated)” prepared by Barr Engineering for 3M Cottage Grove facility dated July 2021 (Treatability Study)¹ and the “PFAS Treatability Study” prepared by Barr Engineering for 3M Cottage Grove Facility dated December 22, 2021 (Pilot Study)². The MPCA approved both.³ When completed, the advanced wastewater treatment system will utilize a combination of three technologies that have proven effective at filtering both long and short-chain PFAS from Facility wastewater: reverse osmosis (RO), ion exchange (IX) and granular activated carbon (GAC). The only other state-of-the science facility of the nature and size of the advanced wastewater treatment system under construction at Cottage Grove that is currently in operation in the United States is at 3M’s Cordova, Illinois facility.

Relevant to PFAS, and at a high-level, the advanced wastewater treatment system operates at follows:

PFAS-containing wastewater passes through three stages of treatment via RO, which involves forcing water through a membrane that prevents a high percentage of the PFAS from passing through. The filtered water that passes through the RO process is called “permeate” and represents approximately 85 percent of the original volume of water directed to the RO. The remaining 15 percent of the original volume is called “reject.” The reject contains the concentrated PFAS from the treated water. The reject is sent through the IX and GAC systems for removal of the PFAS concentrate. The filtered water from the IX and GAC systems is then combined with the RO system permeate and discharged through sampling locations designated as SD 001 and SD 0002. The remaining PFAS concentrate will be collected and sent off-site for disposal at a permitted hazardous waste facility.

The system is expected to begin operation in 2025. Once construction is complete and operation begins, time will be required to optimize the system and ensure consistent performance, as further discussed in the Compliance Schedule section.

IV. Statement Of Reasons (Minn. R. 7000.1800, subp. 2A(1))

The issues for which 3M requests a contested case hearing present material factual issues that bear directly upon the legality of elements of the Draft Permit. The resolution of the factual issues is within the Commissioner’s jurisdiction,⁴ and the holding of a contested case hearing would allow the introduction of evidence, including evidence from the operators of the advanced wastewater treatment

¹ This document is attached as Exhibit A-2 to the Comments.

² This document is attached as Exhibit B to the Comments.

³ A letter demonstrating MPCA’s approval is attached as Exhibit C to the Comments.

⁴ 3M does not believe that there is any dispute as to the Commissioner’s jurisdiction to resolve any of the factual issues raised in this petition, and therefore does not address this criterion in detail. Minn. R. 7000.1900, subp. 1B.

system and outside experts, that would assist the Commissioner in making a determination as to these issues. Minn. R. 7000.1900, subp. 1.

A. Whether The MPCA Developed The WQCs Underlying The WQBELs In The Draft Permit In A Manner Inconsistent With Law By Improperly Calculating Inputs, Using Information That Was Not Site-Specific, And Using Otherwise Unsupported Inputs.

The WQBELs for PFOS, PFHxS, and PFOA are based on so-called “site-specific” WQC developed by the MPCA in May 2024, mere weeks before the Draft Permit was issued for public comment. Unlike water quality standards, which are subject to the full notice and comment process required of rules under the Minnesota Administrative Procedure Act, Minn. Stat. Ch. 14, WQC are not subject to public notice and comment. The only avenue for administrative review of such criteria is set forth in Minn. R. 7050.0218, subp. 2.A:

A site-specific criterion so derived is specific to the point source being addressed. Any effluent limitation derived from a site-specific criterion under this subpart shall only be required after the discharger has been given notice of the specific proposed effluent limitations and an opportunity to request a hearing as provided in part 7000.1800.

By filing this petition, 3M is availing itself of this process.

Here, the MPCA developed the site-specific WQC in a manner inconsistent with applicable rules, Minn. R. 7050.0217-0219 as set forth below. It therefore follows that the WQBELs, which were developed to meet the WQCs, are arbitrary and capricious and exceed MPCA’s authority. Specifically, as set forth in greater detail in 3M’s Comments, which are incorporated herein by reference, the MPCA did not comply with the requirements governing the development of the WQC in three ways: (1) MPCA’s calculation of fish bioaccumulation factors (BAF) was not done in accordance with the methodology set forth in its own regulations; (2) MPCA used an inapplicable study from a demographically dissimilar, geographically separate and hydrologically distinct area of the state to establish the fish consumption rate (FCR) in the Cottage Grove area; and (3) MPCA used reference doses (RfDs) and a cancer slope factor (CSF) that were not derived in accordance with Minnesota Rules and are otherwise unsupported to calculate the relevant WQC.

As discussed below, factual issues exist with respect to each of these contentions and the evidence developed through a contested case hearing will assist the Commissioner in resolving these factual issues. 3M contends that evidence adduced in a contested case hearing would support a determination by the Commissioner that the WQBELs for PFOS, PFOA, and PFHxS, as well as the May 2024 WQCs for those PFAS should be set aside. As discussed below, the WQBELs are also deficient because the MPCA has failed to demonstrate that WQBELs are reasonable, feasible, and practical to attain at the Facility. Therefore, any redetermination of WQBELs must address the inaccuracies associated with the calculation of the underlying WQC and the MPCA must undertake the appropriate processes to ensure that any WQBELs imposed in a final permit are reasonable, feasible, and practical.

1. MPCA's Calculation Of Fish BAFs Is Technically Flawed And Inconsistent With Applicable Guidance.

3M and its experts have identified multiple flaws with the MPCA's calculation of fish tissue-based BAFs that raise factual issues as to whether calculation of these values was arbitrary and capricious. Specifically, MPCA calculated fish tissue-based chronic criteria for PFOA and PFHxS despite the lack of data supporting that these PFAS meet the definition of bioaccumulative chemicals of concern (BCC) under MPCA's rules; used a method for calculating fish tissue geometric means that was not supported by the data under EPA guidance; and appears to have misinterpreted data provided by 3M.

a) MPCA's Calculation Of Fish Tissue-Based Chronic Criterion For PFOA And PFHxS.

MPCA has arbitrarily and capriciously calculated fish tissue-based chronic criteria for PFOA and PFHxS, and based the WQBELs in the Draft Permit for those compounds on that criteria, because the mean BAFs for PFHxS and PFOA were less than 1,000 L/kg at this site.⁵ MPCA acknowledges that a fish tissue-based chronic criterion (CC_{FT}) is developed for bioaccumulative chemicals of concern (BCC).⁶ BCCs are defined as chemicals that accumulate in aquatic organisms by a human health BAF greater than 1,000 L/kg.⁷ There is no question that the site-specific fish tissue data did not demonstrate a BAF greater than 1,000 L/kg for these compounds.⁸ The expert report prepared by Dr. Robyn Prueitt and Dr. Tim Verslycke of Gradient (the Gradient Report)⁹ demonstrates that BAFs derived from site-specific data from the Mississippi River near Cottage Grove are demonstrably lower than the threshold required to be designated as a BCC under MPCA criteria.¹⁰ Acknowledging this, MPCA relied upon non site-specific data and evidence that it says supports that PFHxS and PFOA are bioaccumulative in humans to support its decision to calculate CC_{FT} for these two compounds.¹¹ Notably, MPCA did not develop a CC_{FT} for these two compounds in its January 2023 WQC.¹² The Gradient Report analyzes and refutes MPCA's contention that other evidence supports and justifies the MPCA's decision to calculate CC_{FT} for PFHxS and PFOA.

⁵ Laura Lyle & Summer Streets, Minnesota Pollution Control Agency, *Human Health Protective Water Quality Criteria for per-and Polyfluoroalkyl Substances (PFAS) I Mississippi River, Miles 820 to 81* at 9 (May 2024) (May 2024 WQC).

⁶ *Id.*; see also 7050.0219, subp. 15.

⁷ Minn. R. 7050.0218, subp. 3H, 7052.0010, subp. 4.

⁸ May WQC at 9.

⁹ Robin Prueitt & Tim Verslycke, *Expert Report of Robyn Prueitt, Ph.D. and Tim Verslycke, Ph.D. Related to Reissuance of the National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Permit MN0001449 for the 3M Cottage Grove Center Facility in Cottage Grove, Minnesota* (August 30, 2024) (Gradient Report).

¹⁰ Gradient report at 6-8.

¹¹ *Id.*

¹² Angela Preimesberger, Minnesota Pollution Control Agency, *Water Quality Standards: Human Health Protective Water Quality Criteria for Per- and Polyfluoroalkyl Substances (PFAS)* (January 2023) (January 2023 WQC).

As set forth above and in greater detail in 3M's Comments and supporting expert reports, there are material questions of fact related to MPCA's development of these CC_{FT}. At the contested case hearing, 3M intends to provide expert testimony demonstrating that PFHxS and PFOA are not BCCs as defined by Minnesota Rules and that MPCA's justifications for developing CC_{FT} for these compounds as set forth in the May 2024 WQC are not based on sound evidence, including evidence and analysis pertaining to the studies cited by MPCA in the May 2024 WQC. The presentation of evidence on this point at a contested case hearing would aid the Commissioner in resolving these disputed facts and in making a determination on this point, because a contested case hearing would allow for consideration of both the studies relied upon by MPCA, as well as studies that do not support MPCA's position in the Draft Permit. Expert testimony on this point would also provide relevant evidence on this issue, as would testing of MPCA's rationale for this decision through cross examination.¹³

b) Compliance With The Methodology For Calculating Fish BAFs.

There are also material factual issues presented by other aspects of MPCA's calculation of fish BAFs for PFHxS and PFOA, as discussed in 3M's Comments and the Gradient Report, specifically that MPCA used a method for calculating fish tissue geometric means (the Regression on Order Statistics (ROS)) that was not supported by the data and is contrary to applicable EPA guidance on the use of statistical methodology. MPCA has not explained or justified its use of the ROS method in contravention of EPA guidance on this point and has not explained how it accounted for outliers in using this methodology. Material factual issues exist with respect to MPCA's use of the ROS method here, and a contested case hearing would allow the introduction of expert testimony and other evidence to assist the Commissioner to resolve the issue of whether MPCA's unsupported use of the ROS method rendered its inclusion of the WQBELs in the Draft Permit arbitrary and capricious.

c) MPCA's Handling And Analysis Of Data Provided By 3M.

MPCA used data gathered by 3M (in part) to develop its BAFs. In 2021-2023, 3M conducted and submitted to MPCA the results of an extensive Mississippi River instream study.¹⁴ 3M has evaluated the MPCA's handling of that data, and has detected a number of discrepancies, as discussed in 3M's Comments and the Gradient Report. Deficiencies include the use of arithmetic means instead of geometric means in contravention of applicable regulations and modification of certain values from non-detect to detect, resulting in significant changes to mean concentrations for PFOA, PFHxA, and PFBS.

¹³ *Id.*

¹⁴ Weston Solutions, Inc., *Instream PFAS Characterization Study Final Report, Mississippi River, Cottage Grove, Minnesota* (June 29, 2023) (Weston Study). Due to size restrictions, the Weston Report, which is over 9000 pages long, is incorporated by reference rather than produced in its entirety. The final version of the Weston Report was previously provided to the MPCA on June 29, 2023.

The questions surrounding MPCA's handling of data presents a material question of fact, and a contested case hearing would assist the Commissioner in resolving these questions through the introduction of expert testimony as well as publications and reports relevant to this issue.

2. Applicability Of Fish Consumption Data From The FISH Study Conducted In The Grand Marais And Grand Portage Area To The Fish Consumption Rate (FCR) At Cottage Grove.

MPCA also improperly used a FCR value of 66 g/day. As discussed in greater detail in 3M's Comments and the Gradient Report, that value is not site-specific and therefore inconsistent with the development of a "site specific" WQC. As discussed in the Gradient Report, it is also significantly out of step with the fish consumption rates used by other state and federal authorities addressing PFOS exposures.

The MPCA relied on a study of fish consumption focused on the Grand Marais and Grand Portage area of northern Minnesota referred to as the FISH Study.¹⁵ Grand Portage is approximately 308 miles from Cottage Grove, and the FISH Study focused on fish consumption in a rural area located within one mile of the shores of Lake Superior with a significant Native American population. As discussed in detail in 3M's Comments, there is a material issue of fact as to whether MPCA's use of this study to develop "site specific" WQC for the Cottage Grove area was arbitrary and capricious, and as discussed in the Gradient Report, MPCA's rationale for relying on this report does not stand up to scrutiny. MPCA also misapplied the concept of "reasonable maximum exposure" as defined by the MPCA, and its assertion that the FISH Study results were similar to results from other surveys of fish consumption by Minnesota's women of child-bearing age (WCBA) is not supported by the record. At a contested case hearing, 3M will present data and expert testimony that demonstrates that MPCA's reliance on the non site-specific FISH Study to the exclusion of other more relevant data rendered its decision to use a FCR of 66g/D arbitrary and capricious and not supported by the record.

3. MPCA's Use Of Toxicological Values Is Inconsistent With Applicable Regulations And Previous Approaches Used By MPCA.

As discussed in 3M's Comments and the Gradient Report, in the course of developing the May WQC, MPCA used toxicological values, specifically RfDs and a CSF from United States Environmental Protection Agency (EPA) that are not consistent with Minnesota's water quality rules and that differ from the toxicological values that MPCA previously used for developing WQCs for these same PFAS. Minnesota rules define an RfD as "an estimate of a dose for a given duration to the human population, including susceptible subgroups such as infants, that is likely to be without an appreciable risk of adverse effects during a lifetime." A CSF is "an upper bound value for the number of cases of cancer estimated from a lifetime of exposure to a chemical" (MPCA, 2017). As discussed in greater detail in the

¹⁵ Minnesota Department of Health & Mary Turyk, Technical Report: Fish are Important for Superior Health (FISH) Project at 1-3 (May 2017) (FISH Study) available at <https://www.health.state.mn.us/communities/environment/fish/docs/consortium/fishtechreport.pdf>.

Gradient report, the RfD and CSF are determinative factors in the algorithms specified by Minnesota's water quality rules for developing site-specific WQCs. MPCA selected of RfDs values that have not been endorsed by MDH and for which MPCA offers no explanation.

At a contested case hearing, MPCA will present expert testimony as well as documentary evidence demonstrating that MPCA's use of these unsupported RfDs and the CSF for PFOA rendered the inclusion of the WQBELs in the Draft Permit arbitrary and capricious.

B. Whether The MPCA Had A Basis To Determine That The Unmeasurable WQBELs In The Draft Permit Can Be Reasonably, Practically, And Feasibly Attained By The Advanced Wastewater Treatment System.

As discussed in 3M's Comments, under Minnesota law, the Commissioner may only take actions that are reasonable, feasible, and practical.¹⁶ There is a material issue of fact as to whether the record supports the proposition that the advanced wastewater treatment system, which represents the "gold standard" in wastewater treatment, can reasonably and practically achieve the WQBELs and intervention limits for these certain compounds. Absent any evidence that the advanced wastewater treatment system can achieve these ultra-low WQBELs, the MPCA's actions are not reasonable, practical, or feasible. As discussed above and in the 3M Comments, the Draft Permit proposes to implement site-specific WQBELs for PFOS, PFHxS, and PFOA at levels in the parts per quadrillion, which are below levels that available laboratory analytical methods can quantify, as set forth in the Vitale Report.¹⁷ MPCA has provided no evidence suggesting that the advanced wastewater treatment system, or any other system, could meet these limits.

At a contested case hearing, 3M would present evidence from Corey Theriault, PE, National Technical Manager of Arcadis, U.S., Inc. a leader in wastewater remedial technology, that the advanced wastewater treatment system is unmatched with respect to the treatment of the wastewater at the Facility, which includes both process wastewater and wastewater from 3M's remedial activities at Woodbury. Mr. Theriault will also explain from a system engineering perspective what the Treatability Study and Pilot Study, required and approved by the MPCA, support in terms of the expected removal capacity of the advanced wastewater treatment system.¹⁸

At a contested case hearing, 3M would introduce expert testimony showing that while the advanced wastewater treatment system represents the "gold standard" with respect to treatment of PFAS, neither the Treatability Study, nor any other evidence, demonstrates that the advanced wastewater treatment system (or any other technology) can consistently attain the WQBELs for PFOA, PFOS and PFHxS. 3M contends that evidence adduced in a contested case hearing would support a

¹⁶ Minn. Stat. § 116.07, subd. 6.

¹⁷ Rock Vitale, *Expert Report of Rock Vitale, CEAC, Response to MPCA Proposed Intervention Limits for 3M's Cottage Grove, Minnesota Facility, Calendar Average and Dail Maximum* (August 27, 2024) (Vitale Report).

¹⁸ Arcadis, *Technical Review of 3M Cottage Grove Advanced Wastewater Treatment System* (August 2024) (Arcadis Report).

determination by the Commissioner that the WQBELs are deficient because the MPCA did not follow applicable regulations in developing the site-specific WQC from which the WQBELs were derived and that any redetermination of the WQBELs must address the deficiencies with the underlying WQC, and the MPCA must ensure that any WQBELs imposed in a final permit are reasonable, feasible, and practical.

C. Whether The Intervention Limits As Set Forth In The Draft Permit Will Operate To Further Compliance With The Permit.

MPCA includes in the Draft Permit “internal waste stream” or intervention limitations at numerous locations within the wastewater treatment system, including WS 001 and WS 002. The WS 001 and WS 002 intervention limits are set forth below:

Compounds	Limits¹⁹
PFBS	22,429 ng/L (monthly avg.) 38,856 ng/L (daily max)
PFBA (WS 001 only)	186,912 ng/L (monthly avg) 323,808 ng/L (daily max)
PFHxS	0.0171 ng/L (monthly avg.) 0.0298 ng/L (daily max)
PFHxA	32,897 ng/L (monthly avg) 56,988 ng/L (daily max)
PFOS	0.155 ng/L (monthly avg.) 0.27 ng/L (daily max)
PFOA	0.069 ng/L (monthly avg.) 0.117 ng/L (daily max)

MPCA has also proposed conditions requiring that as part of the “Annual O&M Deviation & WWTP Optimization Report” required under the Draft Permit,²⁰ 3M undertake an “evaluation of the WS001 and WS002 PFAS treatment performance relative to [eight PFAS] and [concentration-based] thresholds” for PFHpS, PDHxA, PFPeS, PFPeA, PFPrA, 2233-TFPA, TFA, and TFMS. Pursuant to this condition, should a performance threshold be exceeded, 3M is required to identify and implement steps to achieve the performance thresholds.

As discussed in 3M’s Comments, imposition of these intervention limits is inconsistent with applicable federal and state law and, for that reason, all intervention limits applied to internal waste

¹⁹ This table sets forth only those intervention limits at WS 001 and WS 002. These Limits are found in Section 7, “Limits and Monitoring,” at pp. 320-324 in the Draft Permit.

²⁰ Draft Permit Requirement 5.69.111.

streams should be removed from the Draft Permit. Beyond that, however, MPCA has provided no rationale for the Draft Permit's intervention limit framework. The imposition of such intervention limits and response requirements that may be required in the event of an exceedance of those limits, without any justification, is arbitrary and capricious. While 3M and the public should not be left to guess at the reasons for these onerous Draft Permit conditions, the only discernable reason for the imposition of intervention limits is to allow the permittee to adjust operations of its wastewater treatment system to ensure that the quality of its discharge meets the requirements of its permit before any effluent limit is exceeded.²¹ The intervention limits discussed herein, however, will not achieve that aim. Additionally, the actions required in the event of an exceedance of the intervention limits are neither useful nor appropriate for ensuring optimal system operation.²²

In its Comments, 3M demonstrates that all intervention limits imposed at an internal waste stream are arbitrary and capricious and requests that they be removed from the Draft Permit. Additionally, 3M contends that evidence adduced in a contested case hearing would support a determination by the Commissioner that the intervention limits and the responses required in the event of an exceedance of those limits would not promote compliance with a final permit. Because they service no rational and legal purpose, the intervention limits are arbitrary and capricious and should be removed from the final permit.

1. Whether An Exceedance Of The Intervention Limits Demonstrates A Need For Investigation Or Adjustment Of The Advanced Wastewater Treatment System.

The Draft Permit requires extensive response actions in the event of a single exceedance of the WS 001/002 intervention limits. As a result, it is assumed that any detection of these three compounds will trigger the extensive actions required in the event of an exceedance of the intervention limits. These actions include:

- Sample the monitoring station again within two days of receiving sample results if the previous samples at the monitoring location did not exceed the intervention limit and a sample hasn't already been taken since the sample with the associated intervention limit exceedance;
- Evaluate the significance and the cause of the intervention limit having been exceeded. The cause shall include a thorough review of the carbon changeout frequency of the GAC system and the IX media regeneration and/or changeout frequency;

²¹ Draft permit Requirement 5.69.111.

²² See Arcadis Report and Donald Kaczynski, *Expert Report of 3M Employee Donald J. Kaczynski Submitted in Support of Comments from 3M Company on Draft NPDES Permit No. MN0001449 (August 30, 2024)* (Kaczynski Report).

- Evaluate the need for immediate corrective action to prevent pollutant levels from exceeding the intervention limits again; and
- Evaluate the need for changes in monitoring, including but not limited to, increasing sampling frequencies, changing the characteristics monitored, installing additional monitoring stations, identifying appropriate shorter-chain sentinel compounds to monitor, identify the specific monitoring locations at which to monitor them in order to best understand what operation and maintenance actions might be needed, and to ensure such actions are reflected in the Cottage Grove O&M manual(s), and reducing pollutant loadings.²³

Taking the required actions would require substantial effort without providing any improvement in advanced wastewater treatment system performance, and MPCA has provided no justification for requiring these actions.

As discussed in 3M's Comments and the Report of Donald Kaczynski, there is a material issue of fact as to whether a one-time exceedance, or even multiple exceedances, of the Intervention Limits is a reliable signal that there is a problem that must be addressed in the advanced wastewater treatment system.²⁴ As discussed in the Arcadis report, due to the frequent regeneration of the IX resin and three to four week lab turnaround time for samples, evaluating the root causes of an exceedance would be nearly impossible because of the turn-over in IX vessels.²⁵

A contested case hearing would allow for the presentation of information regarding the dynamic nature of the advanced wastewater treatment system operation from the operators as well as outside experts with experience with a number of wastewater treatment systems. This evidence would assist the Commissioner in determining whether these intervention limits, and the response actions required in the event of an exceedance of the intervention limits, serve any useful purpose with respect to ensuring compliance with the permit. If they do not, their inclusion is arbitrary and capricious.

2. Whether The Treatment Performance Thresholds Required To Be Assessed As Part Of The Required Annual O&M Deviation & WWTP Optimization Report Are Rationally Related To Achieving Effluent Limitations.

The Draft Permit contains additional requirements relative to eight compounds beyond those identified as subject to the stated intervention limits in the permit, specifically PFHpS, PFHxA, PFPeS, PFPeA, PFPrA, 2233-TFPA, TFA and TFMS.²⁶ As discussed in 3M's Comments, these analytes do not have effluent limitations. Under the Draft Permit, the Annual O&M Deviation & WWTP Optimization Report

²³ Draft Permit Requirements 5.33.5; 5.39.5.

²⁴ Kaczynski Report at 4-6.

²⁵ Arcadis, *Technical Review of 3M Cottage Grove Advanced Wastewater Treatment System* (August 20024) at 28 (Arcadis Report).

²⁶ Draft Permit Requirement 5.69.111.

requires an evaluation of the WS 001 and WS 002 PFAS treatment performance of these eight analytes and requires reporting on optimization steps the permittee intends to implement, and on what schedule, to achieve specific performance standards.²⁷ This requirement creates an additional set of intervention limits, despite the fact that there are no effluent limitations for these analytes. Therefore, a material question of fact exists as to how these requirements relate to achievement of enforceable effluent limitations, or any other aspect of permit compliance. At a contested case hearing, 3M will provide testimony from the operators of the advanced wastewater treatment system and Arcadis demonstrating that this requirement in the O&M Deviation and WWTP Optimization Report is unrelated to compliance with the permit, and therefore arbitrary and capricious.

D. Whether MPCA’s Proposed Compliance Schedule In The Draft Permit Is Rational And Reflects Operational Realities.

The Draft Permit proposes a schedule of compliance that establishes proposed deadlines by which 3M must (i) complete construction of the proposed advanced wastewater treatment system, (ii) stabilize, optimize, and test the system, (iii) commence operation of the system, and (iv) ultimately attain compliance with final effluent limitations set forth in the Draft Permit (Compliance Schedule).

Below is a table comparing 3M’s proposed deadlines, which were submitted to MPCA, to the Compliance Schedule included in the Draft Permit:

5.68.55	3M Proposal	Draft Permit
Proposed Advanced Wastewater Treatment System	As soon as possible, but no later than April 30, 2027 , the initiations of operations of the advanced treatment system shall be complete and the Permittee shall comply with all PFAS Effluent Limits listed in the Limits and Monitoring section of this permit. In addition, the Permittee shall meet the following interim commissioning milestone dates:	As soon as possible, but no later than December 31, 2026 , the initiations of operations of the advanced treatment system shall be complete and the Permittee shall comply with all PFAS Effluent Limits listed in the Limits and Monitoring section of this permit. In addition, the Permittee shall meet the following interim commissioning milestone dates:
1. System A (ISW, GW, NCCW) RO Subsystem	a. Completion of construction of System A RO subsystem by no later than October 31, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than October 31, 2026 ;	a. Completion of construction of System A RO subsystem by no later than July 31, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than July 31, 2025 ;

²⁷ Draft Permit Requirements 5.69.111; 6.60.32.

5.68.55	3M Proposal	Draft Permit
2. System A GAC Subsystem	a. Completion of construction by no later than December 31, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than December 31, 2026 ;	a. Completion of construction by no later than September 30, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than September 30, 2025 ;
3. System A IX Subsystem	a. Completion of construction by no later than March 31, 2025 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than March 31, 2027 ;	a. Completion of construction by no later than December 31, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than December 31, 2025 ;
4. System B (WWT) RO Subsystem	a. Completion of construction by no later than November 30, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than November 30, 2026 ;	a. Completion of construction by no later than August 31, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than August 31, 2025 ;
5. System B GAC Subsystem	a. Completion of construction by no later than January 31, 2025 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than January 31, 2027 ;	a. Completion of construction by no later than October 31, 2024 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than October 31, 2025 ;
6. System B IX Subsystem	a. Completion of construction by no later than April 30, 2025 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than April 30, 2027 ;	a. Completion of construction by no later than January 31, 2025 ; b. Complete system stabilization, optimization, and conduct reliability testing by no later than January 31, 2026 ;

MPCA provided no explanation or reasoning for accelerating 3M’s proposed deadlines, and the only information in the record on the appropriate compliance schedule was provided by 3M, the entity most familiar with construction, optimization, and stabilization of these state-of-the-science advanced wastewater treatment systems.

There is a material question of fact as to whether the Draft Permit’s Compliance Schedule takes into account operational realities and is achievable, and specifically whether the one-year time period

allotted for stabilization and optimization will be sufficient. As discussed in 3M's Comments, 3M proposed two stages of post-construction operations—early operations and steady operations, with early operations lasting for 12 months from completion of construction. As discussed in detail in 3M's Comments, based on 3M's experience with its Cordova, Illinois wastewater treatment system, significant challenges can arise in both the early operations and stable operations stages.

If a contested case hearing is granted, 3M would introduce evidence, including testimony from 3M personnel involved in the construction and prospective optimization of the System and outside wastewater treatment experts regarding the myriad factors and variables involved in constructing, optimizing and stabilizing complex treatment systems, including based on 3M's experience with its system in Cordova, Illinois. As discussed in the Arcadis Report, no other company has experience with constructing wastewater treatment systems similar to the advanced wastewater treatment system being installed at Cottage Grove. The record does not support MPCA's decision to shorten the time allotted to optimize and stabilize the advanced wastewater treatment system. 3M contends that evidence adduced in a contested case hearing would support a determination by the Commissioner that the MPCA's decision to shorten the time allotted for 3M to construct, optimize and stabilize the advanced wastewater treatment system is unsupported by the record and arbitrary and capricious, resulting in a reinstatement of the schedule proposed by 3M.

E. Whether The PFAS Analyte List Contained In The Draft Permit Is Comprised Of Compounds Believed To Be Present In Facility Effluent.

The Draft Permit's analyte list includes a number of PFAS for which there is no basis to believe they are present in the Cottage Grove effluent, and some PFAS for which there is strong evidence they will not be present. MPCA has therefore acted in an arbitrary and capricious manner by including these compounds in the analyte list. In addition, MPCA has failed to provide any justification for its inclusion of such analytes, thereby effectively violating its regulatory duty to provide an opportunity for public comment on the analyte list.

3M has prepared an Analyte Table, Exhibit I to 3M's Comments, that shows in column G, a list of the 49 PFAS analytes "believed to be present" in the effluent discharged from the advanced wastewater treatment system in 3M's 2021 permit application. 3M also has submitted to MPCA the 3M Annual Analytical Methods Report (AAMR).²⁸ The 2024 AAMR includes a PFAS analyte list of 70 compounds (plus total organic fluorine). This list includes all PFAS analytes for which 3M has developed analytical methods. These PFAS are identified in Column H of the Analyte Table. The MPCA has provided no evidence showing that any of the 108 PFAS included in the Draft Permit (identified in Column E of the Analyte Table) that are not included in either of these columns are believed to be present in effluent from the advanced wastewater treatment system.

The Draft Permit's analyte list is also arbitrary and capricious because it was developed without taking into account the availability of approved analytical methods, laboratory certification and

²⁸ The AAMR is submitted in compliance with MPCA's 2021 Notice of Violation to 3M.

accreditation requirements, and the capabilities of commercial laboratories to analyze for the required PFAS compounds. This renders the obligations set forth in the Draft Permit with respect to the analyte list not reasonable, feasible, or practical, and therefore inconsistent with applicable law.

At a contested case hearing, 3M would introduce evidence as to which of the PFAS identified on the Analyte List in the Draft Permit are reasonably “believed to be present” in 3M’s effluent at Cottage Grove. This evidence would inform the Commissioner’s decision as to which PFAS should be included in the Draft Permit’s Analyte List. 3M contends that evidence adduced in a contested case hearing would support a determination by the Commissioner that only the 49 PFAS set forth in Column G of the Analyte List should be included in the Draft Permit.

V. Presentation Of Evidence (Minn. R. 7000.1800, subp. 2B,C)

Pursuant to Minn. R. 7000.1800, subp. 2C, 3M reserves its right to modify the proposed list of witnesses and publications, references and/ or studies to be introduced at the contested case hearing.

A. Witnesses

In the event the Commissioner grants this petition for a contested case hearing, 3M anticipates presenting testimony from the following expert witnesses:

- Robyn Prueitt, Ph.D. (Gradient) – Dr. Prueitt is a board-certified toxicologist with expertise in toxicology, carcinogenesis, and human health risk. It is anticipated that Dr. Prueitt will provide toxicological expert testimony related to evaluating the proposed effluent limits for PFAS in the Draft Permit.
- Tim Verslycke, Ph.D. (Gradient) – Dr. Verslycke is an ecotoxicologist with experience in ecological risk assessment. It is anticipated that Dr. Verslycke will provide ecotoxicological expert testimony related to evaluating the proposed effluent limits for PFAS in the Draft Permit.
- Corey Theriault (Arcadis) – Mr. Theriault is a chemical engineer. It is anticipated that Mr. Theriault will provide expert testimony regarding the capabilities of the Advanced Wastewater Treatment System as it relates to the intervention limits and compliance limits proposed in the Draft Permit.
- Rock Vitale (Environmental Standards) – Mr. Vitale is a Certified Environmental Analytical Chemist. It is anticipated that Mr. Vitale will provide expert testimony regarding the ability of current analytical measures to reliably and consistently measure the final effluent limits and intervention limits proposed in the Draft Permit.
- Don Kaczynski (3M Chemical Operations) – Mr. Kaczynski is a chemical engineer and the Water Purification Technical Manager at 3M. It is anticipated that Mr. Kaczynski will

provide expert testimony regarding the proposed intervention limits as it relates to optimal operation of the Advanced Wastewater Treatment System for removal of PFAS.

3M also anticipates potentially presenting fact testimony from the following fact witnesses:

- 3M operator witness familiar with the background of 3M’s operations at Cottage Grove
- 3M witness familiar with construction, optimization, and stabilization of the advanced wastewater treatment system and 3M’s system in Cordova, IL

B. Reports, Publications And Documents

If the Commissioner grants this petition for a contested case hearing, 3M anticipates introducing and relying upon the following reports, publications, and documents:

Prueitt and Verslycke, *Expert Report of Robyn Prueitt, Ph.D. and Tim Verslycke, Ph.D. Related to Reissuance of the National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Permit MN0001449 for the 3M Cottage Grove Center Facility in Cottage Grove, Minnesota (XXX, 2024)*, and references cited therein;

Arcadis, *Treatability Review Memorandum*, prepared by Corey Theriault, PE, Keith Foster, Lauren March, PE of Arcadis and references cited therein;

Memorandum from Rock Vitale, CEAC, Environmental Standards, Inc., *Response to MPCA Proposed Intervention Limits for 3M’s Cottage Grove, Minnesota facility, Calendar Average and Daily Maximum* and references cited therein;

Impact of Intervention Limits on Advanced Wastewater Treatment System Performance, (Aug. 28, 2024)

“PFAS Treatability Alternatives Identification Plan (Updated)” prepared by Barr Engineering for 3M Cottage Grove facility dated July 2021 (Treatability Study)

“PFAS Treatability Study” prepared by Barr Engineering for 3M Cottage Grove Facility dated December 22, 2021 (Pilot Study)

[Water Quality Standards: Human Health Protective Water Quality Criteria for Per- and Polyfluoroalkyl Substances \(PFAS\) \(state.mn.us\)](#) (2020, 2023 and 2024 documents)

All documents cited throughout 3M’s Comments

All documents identified on the Exhibit List filed with 3M’s Comments

C. Time Estimated For 3M’s Presentation

3M requests that any contested case hearing in this matter should proceed through the use of prefiled testimony pursuant to Minn. R. 1400.5500(L) due to the complex nature of the subject matter to be considered.

If the matter proceeds using prefiled testimony, 3M anticipates that the hearing in this matter will take approximately three days. 3M is not bound to this estimate pursuant to Minn. R. 7000.1800, subp. 2C.

VI. Request For Meeting With Commissioner

Pursuant to Minn. R. 7001.0125, subp. 1, 3M respectfully requests a meeting with the Commissioner to discuss the issues raised in this petition for contested case hearing and, as appropriate, other topics raised in 3M's Comments on the Draft Permit.

Dated: August 30, 2024

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