



REGION 5

CHICAGO, IL 60604

August 30, 2024

Theresa Haugen, Manager
Water and Mining Section
Industrial Division
Minnesota Pollution Control Agency
520 Lafayette Road North
Saint Paul, Minnesota 55155-4194
Theresa.haugen@state.mn.us

Re: U.S. Environmental Protection Agency Review of NPDES Permit, 3M Chemical Operations LLC, 3M Cottage Grove Center, Cottage Grove, MN, Permit No. MN0001449

Dear Ms. Haugen:

The U.S. Environmental Protection Agency has reviewed the public notice draft National Pollutant Discharge Elimination System permit, fact sheet, permit application, and supporting documents for 3M Chemical Operations LLC, 3M Cottage Grove Center (3M), that were submitted to EPA on July 8, 2024. Based on our review to date, EPA provides the following comments:

Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF) Effluent Guidelines and Standards

1. The permit does not appear to apply the applicable effluent limitations guidelines (ELGs) at 40 C.F.R. Part 414¹ for Organic Chemicals, Plastics, and Synthetic Fibers (OCPSF). The OCPSF regulations at 40 C.F.R. § 414.91(a) specifically require that discharges must not exceed quantities of specific parameters listed in the ELG. The ELG provides concentration values to be multiplied by flow to result in mass-based effluent limits. The final OCPSF effluent limits identified in the draft permit are expressed only as concentrations and are identical to the concentrations provided in 40 C.F.R. § 414.91. Therefore, the permit apparently would not control the mass of the OCPSF parameters in the discharge as required by the ELG. Relatedly, 40 C.F.R. § 122.45(f) provides (with listed exceptions that do not appear to be applicable here) that “all pollutants limited in permits shall have limitations, standards, and prohibitions expressed in terms of mass.” The fact sheet identifies that mass limits were not included in the permit due to the difficulty of differentiating the waste waters regulated by the OCPSF rule from the numerous other non-OCPSF waste waters that are combined prior

¹ All cited federal regulations are made applicable to states by 33 U.S.C. §§ 1314(i) and 1342(c)(2) and 40 C.F.R. § 123.25.

to pollutant sampling. The fact sheet also states that the requirements at 40 C.F.R. Part 414 Subpart I do not apply to pilot projects.

40 C.F.R. § 414.11(b) identifies that pilot projects are subject to OCPFS requirements as follows:

The provisions of this part are applicable to wastewater discharges from OCPSF research and development, pilot plant, technical service and laboratory bench scale operations if such operations are conducted in conjunction with and related to existing OCPSF manufacturing activities at the plant site.

The 1987 *Development Document* for the OCPSF rule clarifies that the applicability of the Part 414 ELGs to pilot and research and development operations is based on whether the wastewater generated has characteristics similar to the commercial manufacturing facility. Decisions to exempt specific pilot project waste streams from the rule must be documented by the permitting authority.

The use of mass-based limits, as required at 40 C.F.R. § 414.91(a), minimizes the potential for dilution from non-OCPSF waters to impact whether the OCPSF rule requirements are met. The information provided in the fact sheet indicates that process wastestreams subject to 40 C.F.R. Part 414 are diluted with other flows prior to final effluent sampling. The permit should establish mass-based limits as provided in 40 C.F.R. §§ 414.91 and 122.45(f), and require the appropriate monitoring of pollutants and flows, to achieve the precision needed as provided in these regulations.

2. 40 C.F.R. § 122.21(g)(3) requires existing manufacturing dischargers to submit in their permit renewal application information about average flows and treatment, including “the average flow which each process contributes.” 3M apparently did not submit this information in their 2021 permit renewal application as required by the federal regulation and Section 3 of EPA form 3510-2C. Instead, 3M lists “Wastewater Treatment Facilities” as an operation with average flow of 2.6 MGD. No flows are provided for their actual process operations. MPCA should require 3M to provide this information as soon as possible but before preparation of a proposed permit. *See, also, 40 C.F.R. § 122.21(g)(13).*

Effluent Limitations

3. 40 C.F.R. §122.45(d)(1) requires that, unless impracticable, all permit limits for continuous discharges from other than publicly-owned treatment works must be expressed as maximum daily and average monthly values. The nickel and copper effluent limitations at outfall SD 002 are expressed only as maximum daily values. The schedules of compliance for meeting water quality-based effluent limits for antimony, DEHP, cadmium, mercury, and selenium, PFOA, PFOS, PFHxA, PFHSxA, PFBS, and PFBA include interim limits that are expressed only as monthly maxima. The permit should be revised to express all limits as both maximum daily and average monthly values or include in the administrative record and/or fact sheet an explanation of why such limits are impracticable to establish. The *Technical Support Document for Water Quality-Based Toxics Control* (EPA/505/2-90-001)

includes methods for transforming acute wasteload allocations (WLA) into average monthly and maximum daily effluent limitations and it includes methods for transforming chronic WLAs into limits expressed over the same durations.

4. The 2003 permit contains a limit for acute Whole Effluent Toxicity (WET) at outfall SD 003. The draft permit appears to backslide in that the limit is not present. 33 U.S.C. §1342(o) and 40 C.F.R. §122.44(l)(1) prohibit backsliding unless one or more exceptions applies. The 2003 limit should remain unless the record demonstrates that an exception applies.

Schedules of Compliance

5. The compliance schedule for Final Effluent Limits for PFOS, PFOA, and PFHxS at Section 5.68.62 of the permit (page 43) states that the permittee will obtain compliance with final effluent limits by no later than December 31, 2026, “unless the Permittee requests by October 31, 2026, a modification of this compliance schedule or other appropriate provisions of the permit (with supporting documentation), based on its determination that the limits and associated compliance demonstration for PFOS and/or PFOA and/or PFHxS are not consistently attainable with the advanced wastewater treatment system.” A change to the compliance schedule should not occur unless the permit is actually finally modified to change the schedule. This language should be revised to make clear that the compliance schedule and all other provisions of the permit remain in effect unless and until MPCA formally modifies the permit in accordance with 40 C.F.R. § 124.5. MPCA may wish to set a request date earlier than October 2026 to provide sufficient time to consider the request and, if it tentatively decides to grant the request, complete required permit modification procedures.
6. The draft permit contains several compliance schedules that do not appear to be consistent with the requirements of 40 C.F.R. § 122.47(a)(3), which requires that schedules of compliance that exceed one year include interim requirements and dates for their achievement that are no more than one year apart. 40 C.F.R. § 122.47(a)(3)(ii) provides that, if interim requirements are not readily divisible into stages for completion, the permit must require the submission of reports of progress toward completion of the interim requirements. Pages 42-44 of the draft permit (Sections 5.68.61 through 5.68.68) contain the following four compliance schedules that exceed one year and do not contain interim requirements and/or progress report requirements as required at 40 C.F.R. § 122.47(a)(3). The compliance schedules in the draft permit should be revised to include interim requirements with specific dates established in accordance with 40 C.F.R. §§ 122.47(a)(3)(i) and 122.47(a)(3)(ii). The following compliance schedules should be revised:
 - Sections 5.68.68 and 5.68.69. The compliance schedule to upgrade the ISTS system exceeds one year (final deadline of October 31, 2027) and does not contain interim actions or annual reports.
 - Section 5.68.61. The compliance schedule to meet final effluent limits for PFBS, PFBA, and PFHxA exceeds one year (final deadline of December 31, 2026) and does not contain interim actions or annual reports.

- Section 5.68.62. The compliance schedule to meet final effluent limits for PFOS, PFOA, and PFHxS exceeds one year (final deadline of December 31, 2026) and does not contain interim actions or annual reports.
7. 40 C.F.R. § 122.47(a)(1) requires that compliance schedules require compliance with final water quality-based effluent limits “as soon as possible.” A demonstration of the appropriateness of the compliance schedule, including that final compliance will be achieved “as soon as possible,” should be included in the administrative record or fact sheet. See 40 C.F.R. § 124.8 and 2007 Hanlon Memorandum.²

The draft permit contains a five-year compliance schedule to meet water-quality based effluent limits for antimony, cadmium, mercury, selenium, and DEHP. The shorter duration of the compliance schedules for the per- and polyfluoroalkyl substances³ (PFAS) WQBELs is based on the timeline for when the new AWT facilities will become fully operational. The fact sheet does not explain why the same compliance schedule duration is not sufficient for the permittee to meet WQBELs for antimony, cadmium, mercury, selenium, and DEHP. The permit should be revised to include a compliance schedule that provides compliance with final effluent limits “as soon as possible” or the fact sheet or record needs to provide an explanation for why the schedule in the draft permit meets this expectation.

8. 40 C.F.R. § 122.47(a)(4) states that schedules of compliance must require the permittee to submit, within 14 days of each interim date and the final date of the compliance schedule, all required reports and provide written notification to the Director of its compliance or noncompliance with each requirement. The following compliance schedules in the draft permit do not contain the 14-day reporting requirements for the interim and final due dates:

- Proposed Advanced Wastewater Treatment System (Sections 5.68.55 to 5.68.60)
- Final Effluent Limits for PFBS, PFBA, and PFHxA (5.68.61)
- Final Effluent Limits for PFOS, PFOA, and PFHxS (5.68.62)
- ISTS Systems (Sections 5.68.67-68)
- Flow Monitoring at SW 001 (Section 5.68.69).
- Phase 3 (Sections 5.68.70-71)

The permit should be revised to specify a 14-day deadline for submission of all compliance schedule reports and notification of compliance or non-compliance with all compliance schedule requirements.

² James Hanlon. (2007). Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits [Memorandum]. US EPA. https://www3.epa.gov/npdes/pubs/memo_complianceschedules_may07.pdf

³ Per- and polyfluoroalkyl substances (PFAS) as used herein refer to any of a broad class of chemicals that contain fully fluorinated carbon atoms.

9. We recommend the following revisions (shown in red font with strikeout) to paragraphs 5.64.2, 5.69.116 and 5.64.117 of the permit to make clear that the discharges at issue there are not authorized by the permit:

5.64.2 ~~Bypass/~~Overflow Locations: ~~The facility has~~Discharges from the following three ~~bypass/~~overflow locations are not authorized by this permit and shall be monitored and reported to MPCA in accordance with paragraphs 5.69.116 and 117 of this permit. The “bypass” provisions in paragraphs 5.79.406 and 5.79.407 of this permit do not apply with respect to discharges from these locations:

1. Woodbury Groundwater Emergency ~~Discharge Bypass~~. The Woodbury Groundwater consists of groundwater pumped from a 3M Woodbury site to the 3M Cottage Grove plant for use as process and cooling waters. It is typically monitored and discharged via SD 001 (process wastewater system) and SD 002 (NCCW, GW, and SW system). Infrequently, ~~a bypass of~~ Woodbury groundwater flow is impacted by ~~required due to~~ piping pressure constraints from plant shutdowns. During these infrequent occasions, Woodbury groundwater ~~may bypass is not directed to~~ the cooling water system (ponds) and is discharged to the ravine adjacent to the plant via a stormwater outfall, ~~which is not an authorized discharge for the Woodbury groundwater.~~

2. Emergency ~~Bypass Discharge~~ for SD 002. During high rainfall events typically exceeding a once in 10 year 24-hour rainfall volume, flow may exceed the normal SD 002 piping capacity and ~~may bypass the normal SD 002 discharge point. It will~~ discharge from the last cooling pond to the ravine located adjacent to the plant site via a stormwater outfall. ~~This is an overflow stormwater outfall for SD 002, site stormwater, the Woodbury remediation site disposal groundwater, and the Cottage Grove LSP power plant facility water, a practice which is not authorized by this permit.~~

3. This is a stormwater outfall that receives wastewater from the emergency bypass from the Cottage Grove LSP power plant, the emergency bypass for the Woodbury remediation site groundwater, and the emergency bypass for outfall SD 002. During periods of high flow or when 3M uses the NCCW stormwater pond for containment, LSP Cottage Grove LP wastewater and cooling water ~~can be~~ has been routed directly to surface water, ~~a practice which is not authorized by this permit.~~ [Minn. R. 7001]

5.69.116 Sampling of a Bypass, Release, ~~or~~ Overflow, ~~or~~ Unauthorized Discharge. [Minn. R. 7001]

5.69.117 Upon discovery of a bypass, release, ~~or~~ overflow, ~~or~~ discharge from an outfall not authorized by this permit, the Permittee shall monitor flow from the event and obtain samples (grab) for the same monitoring parameters as required for Station SD 001 (see limits and monitoring table for SD 001). If the event continues for more than 24 hours, continue monitoring flow during the entire period of release and obtain samples once each 24 hours. Results are to be reported on the Release Report located on the MPCA's website at <https://www.pca.state.mn.us/business-with-us/discharge-monitoring-reports>. The Release Report shall be submitted to the MPCA with the next eDMR. [Minn. R. 7001]

Functional Equivalent Direct Discharges

10. The draft permit documents identify contaminated ground water at the facility, current and historic unlined storage/treatment ponds, and location of storage/treatment ponds in close proximity to and upgradient of the receiving water. These conditions identify high potential

for Functional Equivalent Direct Discharges (FEDD) as identified in *County of Maui v. Hawaii Wildlife Fund*, 140 S. Ct. 1462 (2020). The first page of the draft permit authorizes the permittee “to discharge from this facility to the receiving water named above, in accordance with the requirements of this permit.” The language is broad and may inadvertently authorize a FEDD. To prevent this from happening, the permit should expressly provide that FEDD discharges are not authorized by this permit.

Similar circumstances are present at the Minnesota Power, Boswell Energy Center (Minnesota Power; NPDES permit number MN0001007). MPCA recently renewed the Minnesota Power permit with the addition of requirements to study and identify if FEDDs are present at the facility. Page 29 of the Minnesota Power Draft Permit Fact Sheet, “Functional Equivalent Determination of Discharges,” explains MPCA’s basis for and summary of the FEDD permit requirements. Sections 5.34.51 – 5.34.53 of the Minnesota Power permit (page 15) identify the FEDD permit requirements and exclusions. Please revise the 3M Cottage Grove permit and fact sheet to include equivalent provisions appropriate for the 3M facility.

Stormwater

11. The permit and fact sheet are unclear regarding how stormwater is managed currently as well as under future conditions after additional treatment units are installed. In nearly every instance where stormwater is discussed it is in the context of being comingled with process wastewater. These flows of stormwater comingled with process wastewater should be regulated as process wastewater. Many comingled flows are routed to treatment trains and process wastewater outfalls, which is acceptable. Please clarify in the permit and permit support documents that the stormwater being discharged via stormwater outfalls is solely stormwater that has not been comingled with process wastewater or other non-stormwater flows.

Water quality criteria and PFAS limits

12. Minnesota’s water quality standards include narrative criteria at Minn. R. 7050.0222, Subp. 7.A requiring that:

No sewage, industrial waste, or other wastes from point or nonpoint sources shall be discharged into any of the waters of this category so as to cause any material change in any other substances, characteristics, or pollutants which may impair the quality of the waters of the state or the aquatic biota of any of the classes in subparts 2 to 6 or in any manner render them unsuitable or objectionable for fishing, fish culture, or recreational uses. Additional selective limits or changes in the discharge bases may be imposed on the basis of local needs.

As discussed in MPCA’s May 2024 technical report, *Human Health Protective Water Quality Criteria for Per- and Polyfluoroalkyl Substances (PFAS) in Mississippi River, Miles 820 to 812*, MPCA determined that:

- I. PFAS have the potential to adversely affect public health if ingested through the consumption of fish, and;
- II. PFAS have been detected in both water and fish tissue samples collected from the Mississippi River between river miles 812 and 820.

Consequently, MPCA concluded that there was a potential for the narrative criterion at Minn. R. 7050.0222, Subp. 7.A to be violated at the site due to PFAS contamination. MPCA subsequently developed what it refers to as site-specific human health criteria to translate Minnesota's narrative criteria using its EPA-approved rules at Minn. R. 7050.0218 and 7050.0219 to identify the PFAS concentrations (specifically: PFOS, PFOA, PFHxA, PFBA, PFHxS, and PFBS) that would cause a violation of that narrative criterion. In doing so, MPCA used a methodology that appears to be consistent with EPA's recommended methodology for deriving human health criteria and incorporated data from EPA's maximum contaminant level goals for PFAS (published in April 2024, 89 Fed. Reg. 32532-32757), which similarly are intended to protect the public from health effects associated with ingestion of PFAS. MPCA's development and implementation of the site-specific criteria and effluent limitations as a means of implementing its narrative criteria appears to be consistent with the requirements of 40 C.F.R. § 122.44(d) to implement all applicable water quality standards, including narrative water quality criteria. EPA is not aware of any information to indicate that MPCA's site-specific criteria for PFAS are not protective of human health or otherwise are inappropriate for evaluating compliance with Minnesota's applicable narrative criterion at Minn. R. 7050, Subp. 7.A.

In addition to the comments above, EPA recommends that you also consider and address the comments identified in Enclosure A to improve the permit decision.

When the proposed permit is prepared, please forward one copy and any significant comments received during any public notice period to this office at r5NPDES@epa.gov. Please include the permit name and permit number in the subject line and cc Meade.Emma@epa.gov. If you have any technical questions related to EPA's review, please contact Emma Meade of my staff at Meade.Emma@epa.gov.

Thank you for your cooperation during the review process and your thoughtful consideration of our comments.

Sincerely,

Stephen M. Jann
Manager, Permits Branch
Water Division

Enclosure

cc: Emily Schnick, schnick.emily@sate.mn.us

Enclosure A

U.S. Environmental Protection Agency
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Please consider these comments to improve the clarity and overall quality of the permit and fact sheet.

Compliance Schedules

1. At Section 5.68.60 of the draft permit, the compliance schedule for the proposed AWT requires the permittee to submit “as-built drawings.” Please include language that specifies which “as-built” drawings should be submitted.
2. Sections 5.68.56 and 6.59.1 identify a specific date by when construction of the proposed advanced wastewater treatment (AWT) system must be completed; specify the deadline for submitting a notice of the initiation of operation in terms of 90 days following initiation of operation of the AWT system and by the specific date of June 30, 2025; but do not specify the deadline for the initiation of operation. If notification is due June 30, 2025, and that notification is 90 days after initiation of operations, the effective deadline for initiation of operation is March 31, 2025. This date conflicts with the schedule of compliance at 5.68.55 which specifies a deadline of December 31, 2026, for initiation of operation. Please correct the permit to reflect MPCA’s intended timeline for the compliance schedule.
3. Please revise the permit to specify the desired contents of the annual progress reports required in all compliance schedules (for example, 5.68.57 and 5.68.63). Please specify the time range that reports should cover (for example, annual progress reports must cover the previous 12 calendar months).
4. The date for compliance with final effluent limits for antimony, cadmium, mercury, selenium, and DEHP is expressed as “Due by permit expiration.” Please revise the permit to ensure that all compliance schedule deadlines are specified calendar dates or are expressed as due within a discrete time period from the date of permit issuance.
5. The five-year compliance schedule for antimony, cadmium, mercury, selenium, and DEHP (Sections 5.68.63-65) requires annual progress reports and contains one interim requirement, due 24 months after permit issuance, to submit a report describing planned wastewater treatment technology upgrades, operation and management practices, or source control measures for attaining compliance with the final effluent limitations. The schedule does not require implementation of the measures. The compliance schedule should be revised to include implementation of pollutant mitigation strategies as an interim requirement. It should specify that the annual progress reports should describe planned mitigation strategies and progress towards implementation of those strategies.

Monitoring of Process Flows

6. EPA recommends that the permit require the permittee to install equipment, as necessary, for monitoring the process wastewater flows needed to determine ELG limits.

Enclosure A

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Effluent Monitoring

7. The permit does not contain monitoring requirements for several pollutants identified in the application as present in outfall SD 001, including aluminum, boron, arsenic, and cobalt, which all have State water quality standards. EPA recommends that monitoring for these pollutants be included in the permit to inform potential future permit actions.

PFAS Sampling

8. The draft permit requires 24-hour flow proportional composite samples for all PFAS analytes. EPA Method 1633 strongly discourages composite sampling of PFAS for Clean Water Act compliance monitoring because of the risk of analyte loss due to the surfactant tendencies of many PFAS compounds. (See Sections 6.1.3 and 8.2.1 of Method 1633.)
 - a. To mitigate the risk of low bias in the PFAS data collected, EPA recommends that MPCA include conditions in the permit that require the use of the compositing equipment described at Section 6.1.3 of Method 1633 and stipulate the procedures and equipment that must be used by the samplers and lab when working with composited PFAS samples.
 - b. In addition, EPA recommends that the permit include an additional QA/QC validation requirement in Section 5.69.81 of the permit that requires the permittee demonstrate that significant analyte loss is not occurring in the composited samples by comparing data from 24-hour flow proportional composite samples to data from mathematically flow weighted sets of 24 grab samples.

Review of the PFAS data submitted in 3M's permit application (Appendix D.1-1) and a June 2024 lab report used for permit compliance indicates that 3M currently uses grab sampling for PFAS. Communication with the State has implied that 3M has never conducted grab sampling for PFAS and that grab sampling may be infeasible. Considering the risk of analyte loss due to composite sampling (see above), please consider the facility's sampling history when providing justification for how conducting composite sampling does not conflict with effluent variability evaluation provision in 40 C.F.R. § 122.44(d)(1)(ii).

Corrections and Recommendation to Improve Clarity

9. To improve permit clarity, please consider capitalizing defined terms when used as defined terms to distinguish them from their non-defined meanings and to provide clarity to the reader. For example, it would be helpful if the "initiation of operation" and "completion of construction" as defined in section 5.68.73 and 5.68.74, respectively, were capitalized in the definitions and throughout the permit when there are compliance requirements associated with these milestones.

Enclosure A

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10. In the draft permit and fact sheet, the term “phase” is separately used to describe the existing wastewater treatment systems and the effluent limits subject to a compliance schedule in ways that might obfuscate the requirements without additional qualifying language. Specifically, the term “phase” is used in reference to the following:

- the different process wastewaters generated and treated in the Phase 1, 2, and 3 wastewater treatment trains; [throughout the permit and fact sheet] and
- the “subject item” in the “Limits and Monitoring” section for each pollutant at each monitoring station that has interim limitations and monitoring requirements due to a compliance schedule.

EPA recommends that MPCA use additional qualifying language with each use of the term “phase” throughout the permit and fact sheet to clearly distinguish between the different meanings of that term.

11. Page 7 of the fact sheet describes four clarifiers in the Phase 1 treatment train. Diagram 2 on page 25 of the fact sheet identifies five clarifiers in the Phase 1 treatment train. Please revise the text description and diagram to reflect the current treatment processes and, if necessary, clarify whether the number of clarifiers in the Phase 1 treatment train will change over the course of the next permit term.
12. Page 108 of the draft permit states that total cyanide at SD 001 shall be limited to a monthly average of 1200 ug/L and daily maximum of 420 ug/L. These limits appear to be reversed from what is required at 40 C.F.R. Part 414 Subpart I which is a 1200 ug/L maximum for any one day and 420 ug/L maximum for any monthly average. Please revise to correct the error.
13. The coordinates identified for the locations of outfalls SD 001-003 on page 12 of the fact sheet contain incorrect unit symbols for degrees, minutes, and seconds. Please revise to correct the error.
14. Table 12 on page 76 of the fact sheet indicates that hexavalent chromium and free cyanide were evaluated for reasonable potential to exceed water quality standards. Page 80 of the fact sheet clarifies that reasonable potential to exceed water quality standards was not evaluated for these pollutants as no effluent data was available. Please remove the reference to the reasonable potential calculations for hexavalent chromium and free cyanide to correct the fact sheet.