December 16, 2025

New York State Department of Environmental Conservation
Division of Environmental Permits
5786 Widewaters Pkwy
Syracuse, NY 13214

Submitted via: Comments.OakOrchard2025@dec.ny.gov

Re: Comments on Draft State Pollutant Discharge Elimination System (SPDES) Permit Number NY0030317

Dear Agency,

On behalf of CHIPS Communities United (CCU) and the Center for Public Environmental Oversight (CPEO), we respectfully submit the following comments to the New York State Department of Environmental Conservation (NYSDEC) on the Draft New York State Pollutant Discharge Elimination System (SPDES) Permit NY#0030317 for the Oak Orchard Wastewater Treatment Plant.

CCU is a national coalition organizing for an equitable and sustainable semiconductor manufacturing industry. CCU includes labor, environmental, social justice, civil rights, and community organizations representing millions of workers and community members nationwide. Based in Silicon Valley, CPEO experts have been working to clean up the semiconductor industry since the 1970s.

To meet the wastewater needs of the expansive Micron Campus planned in Clay, NY, the Onondaga County Department of Water Environment Protection (OCDWEP) is proposing to undertake a series of wastewater infrastructure and capacity improvements.

The semiconductor industry is known to use and discharge a broad range of harmful chemicals, including per- and polyfluoroalkyl substances (PFAS). Given the serious risks these chemicals pose to human health and the environment, it is imperative that NYSDEC and OCDWEP thoroughly plan for and address PFAS discharges, especially as they relate to Micron.

As currently drafted, the pollution limits and monitoring requirements for PFAS are inadequate to protect water quality, the environment, and the health of workers as well as

surrounding communities. We urge NYSDEC to strengthen PFAS monitoring, treatment, and minimization requirements in the Oak Orchard Wastewater Treatment Plant SPDES Permit.

I. Background

The Planned Micron Semiconductor Manufacturing Campus

The Micron New York Semiconductor Manufacturing LLC (Micron) is proposing an expansive new manufacturing operation located in the Town of Clay, NY. The approximately 1,377-acre site will consist primarily of four dynamic random-access memory (DRAM) manufacturing facilities (known as "fabs").[1] The construction of the campus is anticipated to take place in stages over approximately 16 years, with full production anticipated by 2045.[2]

The wastewater generated at Micron's facility will be pre-treated and then sent for specialized treatment at the Oak Orchard Wastewater Treatment Plant. Micron's wastewater discharges to the Oak Orchard Wastewater Treatment Plant will be required to meet the pretreatment program requirements of the Oak Orchard Wastewater Treatment Plant SPDES permit, which is the subject of the draft SPDES permit described herein.

Summary of Draft SPDES Permit

The Oak Orchard Wastewater Treatment Plant is a publicly owned treatment works (POTW) that receives flow from domestic and industrial users, including Micron, and stormwater from on-site areas at the Oak Orchard facility. To serve the planned Micron Campus, Onondaga County requests approval to modify this permit to expand and upgrade the municipal wastewater treatment train (MTT) and construct a new industrial wastewater treatment train (ITT) and water reclamation facility. Construction of the new ITT includes equalization and diversion tanks, influent screening, biological treatment in mixed anoxic tanks followed by aeration tanks, membrane bioreactors, UV disinfection, centrifugal solids dewatering, effluent reuse with ion exchange resin (IX) and reverse osmosis (RO).[3]

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[1] U.S. Department of Commerce et al, Micron Semiconductor Manufacturing Project, Clay, NY Final Environmental Impact Statement, (November 2025), https://ongoved.com/wp-content/uploads/2025/11/2025_1105_MicronNY_FEIS_Final.pdf (pg 0-1).
[2] U.S. Department of Commerce et al, Micron Semiconductor Manufacturing Project, Clay, NY Final Environmental Impact Statement, (November 2025), https://ongoved.com/wp-content/uploads/2025/11/2025_1105_MicronNY_FEIS_Final.pdf (pg 0-1).
[3] NYSDEC, "Notice of Complete Application, Notice of Public Comment Period, Notice of Public Comment Hearing", November 12, 2025, https://static.ongov.net/WEP/OakOrchard_WWTP/permitting/7-3124-00018%20Oak%20Orchard%20WWTP%20NOCA.pdf

At full build out, the Oak Orchard Wastewater Treatment Plant will include: Outfall 001 of treated sanitary and process wastewater, Internal Outfall 01A of MTT treated sanitary and process effluent wastewater to Outfall 001, Internal Outfall 01B of ITT treated process effluent wastewater to Outfall 001, Outfall 006 of MTT effluent reuse wastewater to Micron, and Outfall 007 of ITT effluent reuse wastewater to Micron.[4] When all phases are completed, the draft permit modification would increase the total monthly average design flow from 10 MGD to 30.8 MGD.[5]

The Oak Orchard Wastewater Treatment Plant (Outfall 001) will discharge treated sanitary and process wastewater to the Oneida River. The segment of the Oneida River at the point of discharge is classified as B. Classification B indicates the best usage for swimming and other recreation, and fishing. However, the Oneida River is a tributary of the Oswego River and part of the Lake Ontario watershed, which serves as a critical drinking water source for millions of people.

Summary of Project Phases

The Oak Orchard Wastewater Treatment Plant proposed expansion and associated upgrades will be completed in a series of four phases:

> PHASE 1: At the beginning of Phase 1, no upgrades to the MTT and no portion of the new ITT will be completed. During Phase 1, additional equipment will be installed, including moving bed bioreactor (MBBR) tanks. The facility will receive influent wastewater at flow rates up to 13.3 MGD, exceeding the design flow rate of the existing MTT (10 MGD).
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> PHASE 2: Phase 2 will begin when the first portion of the new ITT becomes operational. The design flow of the ITT at that time will be 8.25 MGD. The design flow of the MTT will remain at 13.3 MGD during Phase 2. The combined effluent flow rate for Phase 2 is thus 21.6 MGD. Beginning in Phase 2, all SPDES permit requirements, related to the new internal Outfalls 01A for the MTT and 01B for the ITT, become effective.
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> PHASE 3: Phase 3 will begin when the upgrades to the MTT are completed. The design flow rate for the MTT at that time will be 14.3 MGD. The design flow rate of

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[4] NYSDEC, "Notice of Complete Application, Notice of Public Comment Period, Notice of Public Comment Hearing", November 12, 2025, https://static.ongov.net/WEP/OakOrchard_WWTP/permitting/7-3124-00018%20Oak%20Orchard%20WWTP%20NOCA.pdf

[5] NYSDEC, "Notice of Complete Application, Notice of Public Comment Period, Notice of Public Comment Hearing", November 12, 2025, https://static.ongov.net/WEP/OakOrchard_WWTP/permitting/7-3124-00018%20Oak%20Orchard%20WWTP%20NOCA.pdf

the completed first portion of the ITT will still be 8.25 MGD at that time. The combined effluent flow rate for Phase 3 is thus 22.5 MGD.

PHASE 4: Phase 4 will begin when the second portion of the new ITT becomes operational. The total design flow of the ITT at that time will be 16.5 MGD. The design flow of the upgraded MTT will still be 14.3 MGD at that time. The combined effluent flow rate for Phase 4 is thus 30.8 MGD.

EFFLUENT REUSE: The construction of the effluent reuse systems for the MTT and the ITT will be completed after start-up of the respective treatment trains. The schedule of construction of the new reuse outfalls (Outfall 006 for the MTT effluent reuse system, and Outfall 007 for the ITT effluent reuse system) is independent from the phases described above.

Significant Adverse Effects Associated with PFAS

We are particularly concerned about the monitoring, treatment, and prevention of PFAS chemical discharges. According to the Environmental Protection Agency (EPA), PFAS are "an urgent public health and environmental issue facing communities across the United States."[6]

PFAS are a class of thousands of different human-made chemicals that contain one or more fully-fluorinated carbon atoms. Since their introduction in the 1940s, PFAS have been widely used in many manufacturing processes as well as countless consumer products. PFAS chemicals are notable because their carbon-fluorine bonds are very resistant to degradation, resulting in extremely long lifetimes. Known as "forever chemicals," PFAS are highly persistent and mobile in the environment, easily traveling through streams, rivers, and other water bodies, including drinking water sources.[7] This persistence acts as a force-multiplier for toxicity.

Because they break down very slowly, PFAS can easily bioaccumulate in human beings, wildlife, and the environment over time.[8] PFAS are highly toxic and linked to serious health problems, including damage to liver, thyroid, and pancreatic function; increased risk of high blood pressure or pre-eclampsia in pregnant women; developmental delays; immune

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[6] EPA, PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024 (Oct. 2021), https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf

[7] Ian T. Cousins et al., Why is High Persistence Alone a Major Cause of Concern?, 21 Env't Sci. Process Impacts 781, 785 (2019), https://pubs.rsc.org/en/content/articlelanding/2019/em/c8em00515j

[8] EPA, *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks

system harm; hormone disruption; increased cholesterol levels; and increased risk of kidney or testicular cancer.[9,10]

PFAS Usage in the Semiconductor Industry

The Semiconductor Industry Association (SIA) acknowledges the use of many PFAS compounds in semiconductor fabrication-related processes, including photolithography, wet chemical processing, plasma etch and deposition, assembly and packaging materials, among others.[11] Semiconductor manufacturers are known to use and discharge a wide array of PFAS, posing a "substantial risk for PFAS contamination of the environment."[12] One investigation at a semiconductor manufacturing facility detected 78,000 parts per trillion (ppt) of PFAS in wastewater from some samples, compared to EPA's proposed limit of 4 ppt for some PFAS in drinking water.[13]

Several PFAS-laden processes are anticipated to be used at Micron, including, but not limited to, photolithography and plasma (dry) etching processes. Appendix L of the MICRON Final Environmental Impact Statement (FEIS) provides an overview of the general uses of PFAS anticipated at Micron; however, the specific types of PFAS to be used are not provided, in part due to claims of proprietary information.[14]

Semiconductor production is an innovative and constantly evolving industry. Over the past two decades, semiconductor manufacturers have reduced or replaced the use of certain PFAS. For example, long-chain PFAS compounds, such as PFOS (perfluorooctane sulfonic acid), have been replaced by short-chain PFAS and the use of PFOA (perfluorooctanoic

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[9] EPA, *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks

[10] CDC, *How PFAS Impacts Your Health*, https://www.atsdr.cdc.gov/pfas/about/health-effects.html?CDC_AAref_Val=https://www.atsdr.cdc.gov/pfas/health-effects/index.html

[11] Semiconductor Industry Association. Background on Semiconductor Manufacturing and PFAS (May 17, 2023) https://www.semiconductors.org/wp-content/uploads/2023/05/FINAL-PFAS-Consortium-Background-Paper.pdf

[12] National Institute of Standards and Technology, Final Programmatic Environmental Assessment for Modernization and Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program (June 28,2024), https://www.nist.gov/system/files/documents/2024/06/28/Final%20PEA%20for%20Modernization%20and%20Expansion%20of%20Semiconductor%20Fabs%206-28-2024%20-%20OGC-508C.pdf (C-15)

[13] Tom Perkins, "Industry acts to head off regulation on PFAS pollution from semiconductors"The Guardian (August 24, 2024) https://www.theguardian.com/environment/article/2024/aug/24/pfas-toxic-waste-pollution-regulation-lobbying

[14] U.S. Department of Commerce et al, Micron Semiconductor Manufacturing Project, Clay, NY Final Environmental Impact Statement, Appendix L-1 (November 2025), https://ongoved.com/wp-content/uploads/2025/11/2025_1105_MicronNY_FEIS_Appendix_L.pdf.

acid) has also been phased out.[15] As a result, by the time Micron begins operations, it is likely that even newer chemicals may be used and discharged. Therefore, it is critical the SPDES permit remains flexible to be able to account for ongoing changes in semiconductor industry.

It is revealed in the Conceptual Design Engineering Report that "Micron stated … that PFAS and mercury are anticipated in low concentrations in the waste load coming from their facilities. These compounds will be limited in the discharge from Micron to a level that can be removed in the biological treatment to values below the discharge requirements."[16] However, it is well established that PFAS cannot be broken down biologically, and furthermore, the proposed "discharge requirements" are confined to action limits for two compounds that Micron has stated they will not be using.

Overall, it is imperative that NYSDEC and OCDWEP adequately plan for and address PFAS discharges, especially as they relate to Micron, to ensure that surrounding communities do not suffer any further burdens.

II. **Regulatory Context**

Clean Water Act Effluent Limitation Guidelines (ELGs) and the National Pretreatment Program

EPA promulgated the Electrical and Electronic Components (E&EC) Effluent Guidelines and Standards (40 CFR Part 469) in 1983. Subpart A regulates the semiconductor subcategory. In 2022, EPA conducted a detailed study of the E&EC category and concluded there was no need to revise the regulation at that time, but the study acknowledges that: "The PFAS data the EPA reviewed are limited; however, the EPA intends to continue to monitor discharges of PFAS from this category and expects to review additional data in the coming years to help identify any significant sources of these chemicals in future reviews."[17]

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[15] Semiconductor Industry Association. Background on Semiconductor Manufacturing and PFAS (May 17, 2023) https://www.semiconductors.org/wp-content/uploads/2023/05/FINAL-PFAS-Consortium-Background-Paper.pdf

[16] Brown and Caldwell, Onondaga County Department of Water Environment Protection Oak Orchard Industrial Wastewater Treatment Plant and Water Reclamation Facility Conceptual Design Engineering Report, (November 11, 2025) https://static.ongov.net/WEP/OakOrchard_WWTP/permitting/SPDES/Engineering-Reports/OCDWEP%20IWWTP%20WRF%20CDE%20Report_111025.pdf (pg 1-9)

[17] EPA, "Electrical and Electronic Components Effluent Guidelines" https://www.epa.gov/eg/electrical-and-electronic-components-effluent-guidelines (November 2022).

The Clean Water Act also establishes the National Pretreatment Program (40 CFR Part 403). The objectives of general pretreatment regulations are to:

a. Prevent the introduction of pollutants into a POTW that will interfere with the operation of the POTW, including interference with its use or disposal of municipal sludge;
b. Prevent the introduction of pollutants into POTWs which will pass through the treatment works or otherwise be incompatible with such works; and
c. Improve opportunities to recycle and reclaim municipal and industrial wastewaters and sludges.

Under this program, any POTW with a total design flow greater than 5 million gallons per day (mgd) must implement a local pretreatment program to prevent pass-through and interference. Therefore, most of the responsibility of the pretreatment program falls on the local municipalities to establish pretreatment standards, local limits, and oversee compliance.

Safe Drinking Water Act Maximum Contaminant Levels (MCLs)

In 2024, EPA finalized enforceable Safe Drinking Water Act (SDWA) maximum contaminant levels (MCLs) for PFOA and PFOS at 4 ppt, the lowest level that can be reliably measured in drinking water (40 CFR Part 141.61(c)(2)). Because research indicates that PFAS chemicals can cause health risks at lower levels and in mixtures, EPA has also finalized a hazard index approach to regulating four chemicals - PFHxS, HFPO-DA (GenX), PFNA, and PFBS - when they occur in mixtures. However, the Trump administration's EPA is currently working to eliminate the drinking water standards for those PFAS.[18]

EPA has Directed All Levels of Government to Limit PFAS Discharges

EPA's *PFAS Strategic Roadmap* stresses that all levels of government (federal, Tribal, state and local) must "exercise increased and sustained leadership to accelerate progress to clean up PFAS contamination, prevent new contamination and make game-changing breakthroughs in the scientific understanding of PFAS."[19]

States do not have to wait for EPA to finalize additional PFAS ELGs to address PFAS in water pollution permits. Nor are states limited to addressing pollutants and contaminants

[18] Earthjustice, EPA Seeks to Eliminate Critical PFAS Drinking Water Protections, (September 12, 2025), https://earthjustice.org/press/2025/epa-seeks-to-roll-back-pfas-drinking-water-rules-keeping-millions-exposed-to-toxic-forever-chemicals-in-tap-water

[19] EPA, *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024 (Oct. 2021)*, https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf

with preexisting effluent limitations or guidance values. To the contrary, the Clean Water Act requires permits to include "technology based effluent limitations and standards," including "case-by-case effluent limitations" when other values are not available.[20] As a state designated to implement the National Pollutant Discharge Elimination System (NPDES) program, New York must adhere to these authorities.[21] In the absence of established standards and guidelines, NYSDEC must use its "best professional judgment" to establish limitations on all PFAS discharged by the expanded treatment plant.[22]

NYSDEC must also ensure that all discharges from the Oak Orchard Wastewater Treatment Plant comply with the state's narrative water quality criteria, including the prevention of releases that will "impair the [receiving] waters for their best usages."[23] Oak Orchard discharges wastewater to the Oneida River, a class B water. "The best usages of Class B waters are primary and secondary contact recreation and fishing."[24] PFAS are known to contaminate fish tissue, and the severe health threats associated with even low levels of PFAS contamination impair other recreational uses of the water body as well. The state's Dept. of Health has already set fish consumption advisories in several areas of New York, including L. Champlain, the Mohawk R., and Onondaga Lake, due to high levels of

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[20] 40 C.F.R. § 122.44(a)(1); *see also* 33 U.S.C. § 1342(a)(1)(B) (a discharge permit should include "such conditions as the Administrator determines are necessary to carry out the provisions of this chapter); *see also* EPA, *Technology-based Effluent Limits Flue Gas Desulfurization (FGD) Wastewater at Steam Electric Facilities*, attach. A *in National Pollutant Discharge Elimination System (NPDES) Permitting of Wastewater Discharges from Flue Gas Desulfurization (FGD) and Coal Combustion Residuals (CCR) Impoundments at Steam Electric Power Plants* at 2 (June 7, 2010), https://www3.epa.gov/region1/npdes/merrimackstation/pdfs/ar/AR-1564.pdf) ("[A]n authorized state must include technology-based effluent limitations in its permits for pollutants not addressed by the effluent guidelines for that industry ... In the absence of an effluent guideline for those pollutants, the CWA requires permitting authorities to conduct the [best professional judgment] analysis discussed above on a case-by-case basis for those pollutants in each permit.").

[21] 40 C.F.R. § 123.25; N.Y. ECL § 17-0811 (McKinney 2024) (SPDES permits must include, where applicable, effluent limitations, standards of performance for new sources, and any further limitations to comply with water quality standards); 6 N.Y.C.R.R. §§ 750-1.11(a)(1-3).

[22] *See also* 6 N.Y.C.R.R. § 750-1.2

[23] 6 NYCRR 703.2.

[24] 6 NYCRR 701.7.

PFOS in fish.[25] The number of fish advisories is sure to increase as more types of PFAS are included.

A permit must include limitations to control pollutants that "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."[26] To analyze whether the source has reasonable potential, EPA considers whether the "discharge, alone or in combination with other sources…could lead to an excursion above an applicable water quality standard."[27] Here, however, there is no evidence that NYSDEC considered whether Oak Orchard's potential PFAS discharges would violate the state's narrative water quality criteria. NYSDEC must do so.

In December 2022, EPA issued a guidance memo directing states to use NPDES permits to limit discharges of PFAS to surface waters.[28] That memo affirms that "[s]ite-specific technology-based effluent limits (TBELs) for PFAS discharges developed on a best professional judgment (BPJ) basis may be appropriate for facilities for which there are no applicable effluent guidelines (see 40 CFR 122.44(a), 125.3)."[29] In addition, the memo makes specific recommendations for permit conditions (like monitoring requirements, Best Management Practices [BMPs], effluent limits, etc.), which states should require for industrial permittees known or suspected of discharging PFAS.

For example, for monitoring, the memo recommends using EPA Method 1633 at least quarterly to assess the presence and concentration of PFAS in discharges. In addition, if appropriate, the memo recommends the use of the adsorbable organic fluorine wastewater method (EPA Method 1621) in conjunction with EPA Method 1633. EPA's memo makes it clear that states and POTWs can use their existing water program authorities to address PFAS in wastewater discharges immediately.

Therefore, NYSDEC and OCDWEP must make every effort to identify PFAS sources and hold industrial dischargers, including Micron, to the highest standards possible to minimize and prevent toxic PFAS discharges, as detailed below. Consistent with federal

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[25]New York State Department of Health, Advisory Listings by County, https://www.health.ny.gov/environmental/outdoors/fish/health_advisories/by_county.htm (Accessed December 16, 2025)

[26] 40 C.F.R. § 122.44(d)(1)(i).

[27] EPA, Off. of Wastewater Mgmt., NPDES Permit Writers' Manual (EPA-833-K-10-001) at 6-23 (2010), https://www3.epa.gov/npdes/pubs/pwm_2010.pdf

[28] EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf

[29] EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf

and state law, as well as EPA guidance, NYSDEC must exercise its best professional judgment to establish limits on all PFAS discharged by the Oak Orchard Wastewater Treatment Plant that are fully protective of public health and the environment.

III. NYSDEC and OCDWEP Should Strengthen Pretreatment Requirements for PFAS

Recommendations:

As part of the industrial pretreatment program implementation requirements, NYSDEC and OCDWEP should develop a PFAS Minimization and Management Plan with each Significant Industrial User (SIU), including Micron. These plans should be prepared prior to beginning operations and updated annually. The draft permit should be amended to include a PFAS Minimization and Management Plan that:

1. Identifies the ways the facility uses, generates, or releases PFAS.
2. Requires a comprehensive PFAS inventory with known or suspected PFAS compounds present, final deposition, and purpose of use.
3. Requires industrial dischargers to obtain and provide NYSDEC and OCDWEP with analytical reference standards for every PFAS used in their facility, so those PFAS can be detected in wastewater effluent and in the environment.
4. Establishes a monthly PFAS monitoring plan that includes sampling before and after any pretreatment, using EPA Method 1633 and EPA Method 1621. The results should be made publicly available online promptly after the results are available.
5. Requires the use of safer, non-PFAS alternatives, wherever feasible.
6. Prohibits the discharge to surface waters or groundwater of any wastewater containing PFAS at concentrations exceeding background levels, using best management practices and optimized treatment.
7. Establishes reporting requirements and requires receipt of all data within 30 days of sampling.

Rationale:

In EPA's *PFAS Strategic Roadmap*, EPA identifies the need to prevent "PFAS from entering the environment in the first place—a foundational step to reducing the exposure and potential risks of future PFAS contamination."[30] The industrial pretreatment program is an integral part of the Clean Water Act, requiring indirect industrial dischargers to reduce or eliminate the discharge of harmful pollutants to POTWs.

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[30] EPA, *PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024 (Oct. 2021)*, https://www.epa.gov/system/files/documents/2021-10/pfas-roadmap_final-508.pdf

The draft permit's industrial pretreatment program does not establish any requirements for PFAS. Under the Clean Water Act, industrial facilities are prohibited from sending any pollutant or wastewater to a POTW if the wastewater contains pollutants that will "pass through" the facility if inadequately treated prior to discharge into receiving water. Without PFAS-specific requirements, the POTW may be held accountable for pass-through releases of toxic PFAS compounds. In addition, accountability for pass-through releases of PFAS into the environment might add to the cost of operating the POTW. Therefore, the permit should institute a PFAS Minimization and Management Plan.

Although the draft permit refers to an Emerging Contaminant Minimization Plan on page 51, it only focuses on PFOA and PFOS and is only triggered when there is an exceedance of an action level. However, as described below in more detail, focusing solely on PFOA and PFOS is insufficient when considering the wide array of other PFAS used by the semiconductor industry.

Through the development of a PFAS Minimization and Management Plan as well as clear PFAS industrial pretreatment requirements, NYSDEC and OCDWEP would better understand the types and quantities of PFAS present in the effluent being sent to the POTW. A robust PFAS Minimization and Management Plan with each SIU would also help inform the monitoring requirements and treatment technologies necessary to effectively monitor, manage, and eliminate PFAS. Establishing a strong pretreatment program ensures that industrial users are held responsible for their pollution, rather than shifting the burden of treatment onto the POTW.

In addition, the draft permit requires that an industrial pollutant scan be conducted within the first 60 days after the initial receipt of wastewater to the ITT (Outfall 01B) using EPA Method 1633. This approach is insufficient. Allowing wastewater discharges for 60 days before completing the scan is inadequate to protect human health and the environment. Micron should instead be required to conduct the pollutant scan prior to commencing operations to ensure the early understanding and detection of contaminants. In addition, the industrial pollutant scan should be updated to include the additional PFAS monitoring strategies described in detail below, since EPA Method 1633 is inadequate for identifying the broad suite of PFAS discharged by semiconductor manufacturers.

Without these improvements, NYSDEC and OCDWEP will lack the information necessary and be unable to prevent the pass-through of toxic PFAS discharges. Therefore, a robust PFAS-specific pretreatment program should be implemented and incorporated into the permit.

IV. NYSDEC and OCDWEP Should Significantly Expand Requirements to Monitor, Identify, Quantify, and Characterize all PFAS Discharged by Micron

Background. The draft permit would only require quarterly sampling and monitoring for PFAS compounds using EPA Method 1633/1633A, which provides a targeted analysis for approximately 40 PFAS. The permit proposes to limit the monitoring to Outfall 01B, which will discharge the treated effluent from the industrial wastewater treatment plant.

The proposed monitoring requirements cannot ensure adequate protection of water quality, human health, and the environment from the industrial use of PFAS by Micron because they fail to determine:

- The chemical identity of most PFAS compounds in the wastewater discharge;
- The efficacy of PFAS removal by industrial and sanitary wastewater treatment; and
- The impact of PFAS compounds on beneficial uses of all receiving waters.

PFAS and their breakdown products are extremely persistent, mobile, and toxic. Therefore, monitoring requirements should be designed to detect and quantify a broad spectrum of PFAS, such that a mass balance accounting of the fate and transport of all PFAS can be constructed. Only a comprehensive approach to monitoring using a variety of analytical methods can assist in virtually eliminating all PFAS releases to waterways.

Fortunately, significantly more expansive monitoring requirements are clearly authorized by New York water quality regulations (N.Y. Comp. Codes R. & Regs. Tit. 6 §§ 750-1.13).

Recommendations:

1. The permit should require the industrial user (Micron Technology) to fully characterize and identify all PFAS present in the influent and effluent for the industrial wastewater treatment train. This aim should be accomplished through application of all the following methods, in addition to monitoring wastewater using Method 1633:

    a. Expanded targeted analysis enabled by requiring industrial user Micron to provide high quality analytical reference standards and stable isotope-labeled standards for all unique PFAS used in its manufacturing process;
    b. Identification and quantification of ultra short-chain PFAS, through a method conducted by a qualified contract laboratory;
    c. Nuclear magnetic resonance spectroscopy (^{19}F NMR) to determine total organic fluorine, total polymeric fluorine, and total inorganic fluorine as a

percent of total fluorine, in addition to providing information on chemical structure;

d. EPA Method 1621 to determine total Adsorbable Organic Fluorine (AOF);
e. Extractable Organic Fluorine (EOF), through a method conducted by a qualified contract laboratory;
f. Total Organic Precursors (TOP) assay, conducted by a qualified contract laboratory;
g. A non-targeted analysis using high-resolution mass spectrometry (HRMS) to characterize, semi-quantify, and identify PFAS compounds not detected by targeted analysis or measures of total organic fluorine; and
h. The above data shall be submitted with a report that analyzes and interprets the monitoring results and computes and closes a mass balance of all fluorinated compounds present in the influent and effluent of the industrial wastewater treatment plant.

Rationale:

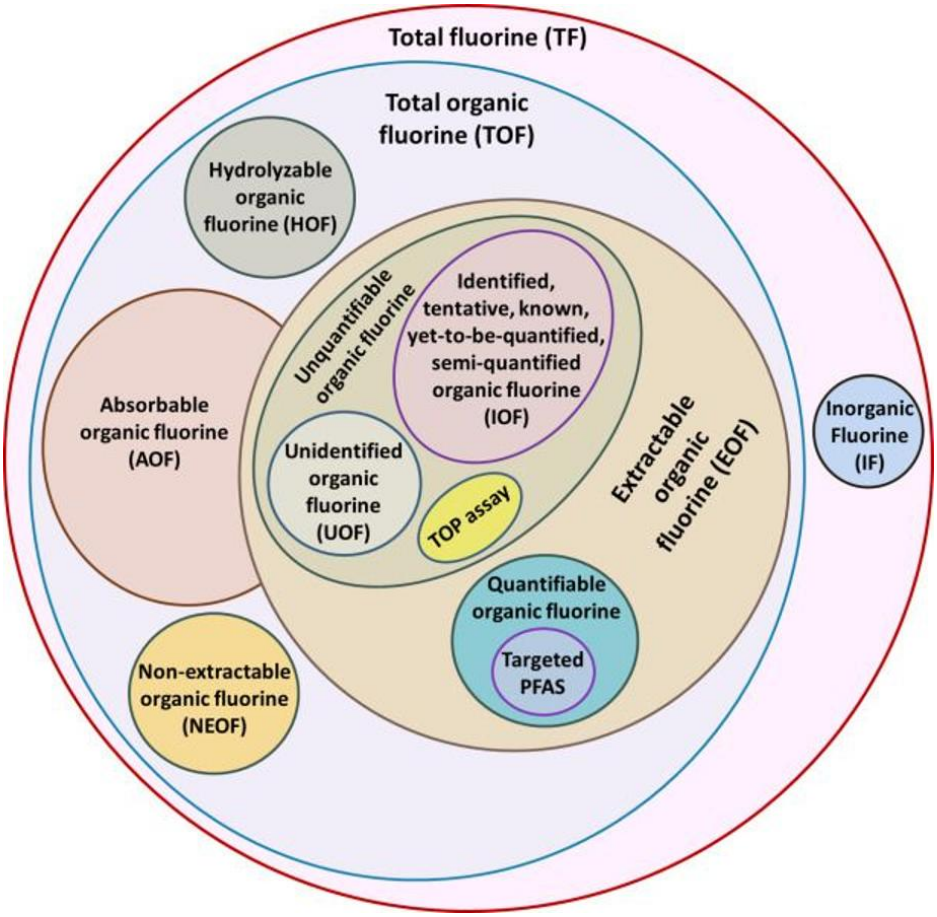
The draft permit would fail to detect the vast majority of PFAS that are present in Micron's wastewater including many chemical compounds and breakdown products that are uniquely used in semiconductor manufacturing. Without more rigorous monitoring and ongoing efforts to identify the chemical identity of the specific PFAS present in Micron's wastewater, it will be impossible to determine the effectiveness of wastewater treatment by the ITT or the impact of the treated industrial effluent on the POTW, biosolids, and the beneficial uses of the receiving waters.

Given that there are thousands of types of PFAS, of which over one hundred PFAS are known to be used by the semiconductor industry, and new PFAS are constantly being introduced, EPA Method 1633 is completely inadequate for identifying the full suite of PFAS in semiconductor wastewater discharge.

Method 1633 is a targeted analysis that identifies and quantifies only 40 chemical compounds in the PFAS class. **The peer-reviewed literature reports that targeted**

analysis often detects less than 10% of the total organic fluorine of environmental concern.[31,32, 33]

The figure below is a Venn diagram that illustrates how targeted analysis (small circle labeled "Targeted PFAS") such as method 1633 captures only a small portion of PFAS compounds and how several other analytical methods that are routinely offered by contract laboratories enable a much broader characterization of PFAS in wastewater.



Source: Ifeoluwa Grace Idowu, et al, A systematic review of methods for the analysis of total per- and polyfluoroalkyl substances (PFAS), Science of The Total Environment, Vol 967 (2025), https://doi.org/10.1016/j.scitotenv.2025.178644.

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[31] Shelor, C. P.; Warren, C.; Odinaka, C. V.; Dumre, K. Comprehensive review of combustion ion chromatography for the analysis of total, adsorbable, and extractable organic fluorine. *J. Sep.Sci.* 2024, 47 (15), 2400235.

[32] Ersan, M. S.; WangWongWesterhoff, B. M. S. P.; Westerhoff, P. Advanced oxidation processes may transform unknown PFAS in groundwater into known products. *Chemosphere* 2024, 349, 140865.

[33] Schultes, L.; Vestergren, R.; Volkova, K.; Westberg, E.; Jacobson, T.; Benskin, J. P. Per- and polyfluoroalkyl substances and fluorine mass balance in cosmetic products from the Swedish market: implications for environmental emissions and human exposure. *Environ. Sci. Process. Impacts* 2018, 20 (12), 1680–1690.

A recent journal article that reviewed analytical methods to characterize PFAS in the wastewater of semiconductor manufacturing facilities supports our recommendation: "The choice of the method used to cover a range of PFAS generally requires more than one analytical method, with some overlap between methods."[34]

Targeted analysis. For targeted analysis, this study concluded that "[T]o increase confidence in novel PFAS identified in semiconductor wastewater, high quality analytical standards and stable isotope-labeled standards will be needed."

Ultra short-chain PFAS. Regarding the need to measure for ultra short-chain PFAS, this study advised: "[T]he shift to short-chain PFAS by the semiconductor industry indicates that monitoring only for > [or equal to] C4 PFCAs or greater may miss many C1-C3 short-chain precursors, unless methods for ultra short-chain PFCAs are utilized."

Total organic fluorine. Further, these same scientists concluded: "[U]ntil analytical standards become available for all relevant PFAS present in semiconductor wastewater, investigations will require suspect and nontarget PFAS analysis that require sophisticated identification and data techniques." And: "[T]his review also stresses the need for advanced techniques, including high-resolution mass spectrometry for suspect and nontarget analysis as well as nonspecific methods for total organic and inorganic fluorine."

PFAS nuclear magnetic resonance (^{19}F NMR). The Semiconductor PFAS Consortium of the Semiconductor Industry Association (SIA) commissioned a study by chemists at the University of Toronto that successfully adapted an analytical method known as PFAS nuclear magnetic resonance **(**^{19}F NMR) spectroscopy to characterize PFAS in semiconductor industry wastewater.[35]

The method distinguishes total organic fluorine from total polymeric fluorine, indicators of PFAS that pose high environmental concern, from total inorganic fluorine, which presents a relatively low hazard. The results are expressed as a percentage of total fluorine. The method also provides data-driven clues that can help characterize the chemical structure of as-yet unidentified PFAS.

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[34] Droz B, Heron CG, Kim-Fu ML, Reardon PN, Roig-Paul M, Field JA. Practical Guidance on Selecting Analytical Methods for PFAS in Semiconductor Manufacturing Wastewater. *ACS Meas. Sci. Au.* 2025, 5, 399-423.

[35] Gauthier JR, Mabury SA (2025). ^{19}F NMR analysis of semiconductor manufacturing facility wastewater samples for the Semiconductor PFAS Consortium, University of Toronto, Department of Chemistry, July 22. Available from https://www.semiconductors.org/19f-nmr-analysis-of-semiconductor-manufacturing-facility-wastewater-samples/.

The study concluded that "[B]ased on these promising results, multiple member companies of the Semiconductor PFAS Consortium are moving forward with acquiring the necessary equipment to begin this type of analysis in-house to assist in identifying and quantifying PFAS constituents in semiconductor manufacturing process wastewater."

Given that this study has been published on the SIA website, and Micron Technology is a member of the Semiconductor PFAS Consortium, and the method provides invaluable data, Micron should be required to apply this monitoring methods to it proposed wastewater discharge as recommended above.

Method 1621. As described above, the EPA's December 2022 memo recommends supplementing EPA Method 1633 with the Adsorbable Organic Fluorine (AOF) analysis using EPA Method 1621, the only other EPA-approved standard analytical method for PFAS in wastewater.[36]

Non-targeted analysis. Non-target analysis is needed to identify more PFAS including novel PFAS from semiconductor processes that end up in the wastewater. This will help NYSDEC anticipate the introduction of new PFAS in semiconductor manufacturing and ensure that the permit remains protective.

Peer-reviewed literature demonstrates that targeted analysis of PFAS can only identify a fraction of the PFAS present in the wastewater of typical semiconductor fabrication facilities. For example, in a study of wastewater effluent from three semiconductor manufacturing plants, researchers found that the total PFAS concentration in wastewater determined through non-targeted analysis significantly exceeded the PFAS concentration indicated by a targeted analysis of 25 PFAS (all of which are included in EPA Method 1633).[37] In that study, Jacob et al. (2021) measured PFAS using the two different methods and found the following concentrations expressed as nanograms per liter (ng/L):

Semiconductor Facility	Targeted analytes (25 PFAS)	Non-targeted analytes (133 PFAS)	TOTAL PFAS (sum of two methods)	Percent of PFAS (mass) missed by targeted analysis
Fab 1	623	867	1,490	58%

[36] EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf

[37] Jacob et al., Target and Nontarget Analysis of Per- and Polyfluoralkyl Substances in Wastewater from Electronics Fabrication Facilities, 55 *Env't Sci. & Tech.* 2346 (2021), https://pubs.acs.org/doi/10.1021/acs.est.0c06690

Fab 2	394	78,006	78,400	99.5%
Fab 3	376	1,794	2,170	83%
Source: Jacob et al., Target and Nontarget Analysis of Per- and Polyfluoroalkyl Substances in Wastewater from Electronics Fabrication Facilities, 55 Env't Sci. & Tech. 2346 (2021), https://pubs.acs.org/doi/10.1021/acs.est.0c06690.				

The non-targeted analysis above revealed 41 homologous series of PFAS, which included 133 individual PFAS compounds. Chemical structures were proposed for 15 compounds, six of which were reported for the first time ever. None of these PFAS are detectable using EPA Method 1633.

Other peer-reviewed non-targeted analyses have also characterized many PFAS in semiconductor industry wastewater that cannot be detected by targeted analysis,[38, 39] such as through the use of Method 1633.

V. NYSDEC and OCDWEP Should Expand the Locations and Frequency of PFAS Monitoring

PFAS monitoring must be comprehensive in order to capture the variability throughout the wastewater system. In addition to the need for robust identification and measurement of PFAS, the draft permit does not provide adequate monitoring for PFAS in terms of location and frequency.

Recommendations: The draft permit should be amended to:

1. Expand the monitoring points from effluent at internal Outfall 01B and Outfall 001 to influent and effluent at Outfall 01A, Outfall 01B, and Outfall 001; and
2. Increase the monitoring frequency from quarterly to, at minimum, monthly using the methods described above.

Rationale:

Influent monitoring is essential to better understand what is entering the POTW, while effluent monitoring is necessary to assess the effectiveness of treatment. The draft

[38] Chen, Y.-J.; Yang, J. S.; Lin, A. Y.-C. Comprehensive nontargeted analysis of fluorosurfactant byproducts and reaction products in wastewater from semiconductor manufacturing. *Sustain. Environ. Res.* 2024, 34, 14.

[39] Chen, Y. J.; Wang, R. D.; Shih, Y. L.; Chin, H. Y.; Lin, A. Y. Emerging perfluorobutane sulfonamido derivatives as a new trend of surfactants used in the semiconductor industry. *Environ. Sci. Technol*. 2024, 58 (3), 1648−1658.

permit's current monitoring requirements are insufficient to track the variability of PFAS discharges and the effectiveness of treatment.

Influent and effluent monitoring at the industrial wastewater treatment plant is also needed to ascertain how much PFAS may be transferred to solid waste as treatment residues. Whether those solid residues are subject to PFAS destruction, which should be required, or simply transferred to another environmental media, such as landfill leachate, is an important consideration.

Similarly, monitoring of the influent (from the industrial treatment plant) and effluent from the final combined sanitary and industry treatment plant (POTW) is needed to determine the efficacy of treatment in PFAS removal and the relative partitioning of PFAS between the final wastewater discharge to the receiving water and to biosolids whose ultimate management may raise additional environmental concerns.

Expanding the monitoring locations to include both influent and effluent at Outfall 01A, Outfall 01B, and Outfall 001 is necessary to evaluate PFAS levels throughout the system, to better identify where PFAS may be bypassing treatment processes and prevent dilution prior to monitoring for PFAS.

In addition, limiting monitoring to quarterly sampling at a single effluent location (Outfall 001) will fail to provide sufficient data to assess the types, amounts, and the potential for pass-through of PFAS. Quarterly monitoring would provide a very limited snapshot of PFAS discharges. Increasing the frequency of monitoring from quarterly to at least monthly is necessary to capture variability in PFAS discharges, given known fluctuations in the manufacturing processes. Therefore, the draft permit must be updated to expand the monitoring points for PFAS as well as the monitoring frequency.

VI. NYSDEC Should Expand the Universe of PFAS Being Regulated and Establish a Goal of Complete Elimination of PFAS Discharges

Recommendations:

The permit should be amended to ensure that no PFAS are discharged into surface waters. To achieve this, the draft permit should be amended to:

1. Expand the universe of PFAS being regulated;
2. Establish a zero-discharge goal for PFAS from all industrial sources connected to the POTW, including Micron; and

3. Require the use of treatment technologies that destroy PFAS, rather than transfer PFAS.

Rationale:

The draft permit only proposes action levels for PFOA and PFOS. These limits rely on the NYS Department of Health (DOH) Maximum Contaminant Level (MCL) of 10 ng/L for drinking water for PFOA and PFOS. However, the semiconductor industry no longer uses these compounds; rather the industry relies on a wide range of PFAS for use in photolithography and related processes. The semiconductor industry heavily relies on short-chain PFAS, which have been found to be more mobile and more difficult to remove from waste streams than PFOS and PFOA.[40]

The CHIPS Program Office (2024) *Final Programmatic Environmental Assessment for the Modernization and Expansion of Existing Semiconductor Fabrication Facilities* contains considerable detail about the use of PFAS in wafer fabrication.[41] Appendix C of that document includes a 10-page table describing the over one hundred types of PFAS used by the semiconductor industry. Furthermore, these compounds undergo transformations during semiconductor production. Consequently, one can expect thousands of different PFAS chemicals to exist in semiconductor plant wastewater.

Managing PFAS through limits for one chemical at a time will take years, delay critical protections, and may encourage the creation of alternatives that are just as harmful to skirt around protections. Given the persistent, bioaccumulative, and toxic nature of PFAS, NYSDEC should require a zero-discharge goal for PFAS from all industrial uses. Every additional release of PFAS builds up in the local, regional and global environment, leading to contamination of drinking water supplies, fish, wildlife, livestock, and in humans. It is especially important to control PFAS at point sources such as Micron and the Oak Orchard Wastewater Treatment Plant.

Based on the draft permit, the new ITT is expected to use biological treatment in mixed anoxic tanks followed by aeration tanks, membrane bioreactors, UV disinfection, centrifugal solids dewatering, effluent reuse with ion exchange resin (IX) and reverse osmosis (RO) treatment. However, this process does not destroy PFAS, and instead

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[40] C. Kwiatkowski et al., *Scientific Basis for Managing PFAS as a Chemical Class*, June 2020, https://pmc.ncbi.nlm.nih.gov/articles/PMC8297807/

[41] National Institute of Standards and Technology, *Final Programmatic Environmental Assessment for Modernization and Expansion of Existing Semiconductor Fabrication Facilities under the CHIPS Incentives Program* (June 28,2024), https://www.nist.gov/system/files/documents/2024/06/28/Final%20PEA%20for%20Modernization%20and%20Expansion%20of%20Semiconductor%20Fabs%206-28-2024%20-%20OGC-508C.pdf

generates a concentrate containing high levels of PFAS that must be transported off-site for disposal. This concentrated waste stream poses numerous environmental and public health concerns, including:

- Exposure for workers who handle these wastes
- Potential exposure during transport of wastes through local communities
- Likely exposure in the vicinity of waste disposal sites, often sited near communities of color and low-income communities.

Industrial dischargers of PFAS-containing wastewater, such as Micron, should therefore be required to use treatment methods that destroy PFAS, rather than simply filter PFAS.

A growing variety of technologies exist which are capable of destroying PFAS (breaking the C-F bond). (See, for example, https://www.wastedive.com/news/dod-pfas-destruction-disposal-demos-waste/805991/) These include:

- Supercritical water oxidation (SCWO)
- Hydrothermal alkaline Treatment (HALT)
- Electrochemical oxidation
- Surface Plasma

The Applicant (Onondaga County) should be required to investigate and install such a system to address the concentrated waste streams resulting from the ion exchange and RO treatment steps. For further information see:

1) U.S. Department of Defense-funded PFAS demo projects show promise for remediation and destruction (A. Reese, Waste Dive, Dec. 1, 2025) https://www.wastedive.com/news/dod-pfas-destruction-disposal-demos-waste/805991/
2) Competition to destroy 'forever chemicals' heats up (B. Erikson, Chem & Eng, News, Mar. 4, 2024) https://cen.acs.org/environment/persistent-pollutants/Competition-destroy-forever-chemicals-heats/102/i7

40 CFR 403.5(c)(4) authorizes POTWs to develop local limits in the form of Best Management Practices (BMPs) and source reduction opportunities.[42] As described above, NYSDEC and OCDWEP should develop a robust PFAS Minimization and Management Plan.

[42] EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf

The BMPs and the PFAS Minimization Plan must encompass a much broader range of PFAS, not just PFOA and PFOS.

Because the complete elimination of PFAS is both technically feasible and available, NYSDEC should not permit the discharge of any PFAS into surface waters.

VII. NYSDEC Should Limit Solid Waste Disposal

Recommendations:

The draft permit fails to adequately address the proper management of PFAS concentrate from the RO process. Based on the Conceptual Design Engineering Report, it is estimated that 75 tons/day will be generated.[43] This material, produced from crystallizing the RO permeate, is simply slated for off-site disposal at a landfill. The draft permit should be amended in the following ways:

1. The permit must describe NYSDEC's plans to coordinate with all relevant agencies responsible for solid and hazardous waste management and occupational safety as it relates to PFAS-contaminated solid waste;
2. A detailed PFAS waste management plan must be submitted to address the handling, storage, transportation, and disposal of the PFAS filtrate; and
3. Transparent documentation and reporting of final disposal locations must be required and made publicly available.

Rationale:

PFAS-contaminated solid waste poses significant occupational and environmental hazards if not properly managed. As described above, the new ITT process will use RO, which does not destroy PFAS and will create a concentrated brine solid that must be disposed of off-site. These residuals will contain concentrated levels of PFAS and other industrial compounds which are amenable to biological treatment, such as triazoles and tetramethyl ammonium compounds. The solids may need to be managed as hazardous waste. The permit should specify routine testing of this solid waste stream for PFAS, and other recalcitrant compounds.

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[43] Brown and Caldwell, Onondaga County Department of Water Environment Protection Oak Orchard Industrial Wastewater Treatment Plant and Water Reclamation Facility Conceptual Design Engineering Report, (November 11, 2025) https://static.ongov.net/WEP/OakOrchard_WWTP/permitting/SPDES/Engineering-Reports/OCDWEP%20IWWTP%20WRF%20CDE%20Report_111025.pdf (pg 3-30)

These residuals are required to be managed as solid or hazardous waste and fall outside of the scope of SPDES permitting. As stated in EPA's December 2022, "Certain industrial processes may generate PFAS-contaminated solid waste or air emissions not covered by NPDES permitting and permitting agencies should coordinate with appropriate state authorities on proper containment and disposal to avoid cross-media contamination." [44] Without coordinated oversight of the PFAS concentrate from the RO process, unnecessary additional PFAS contamination and exposure could occur. Therefore, since the draft permit currently relies on RO, it is critical that NYSDEC coordinates closely with all relevant state agencies to ensure that the hazardous waste disposal is properly managed to protect workers and surrounding communities.

Overall, it is essential that NYSDEC coordinate and limit solid waste disposal to protect worker safety, human health, and the environment.

VIII. NYSDEC Should Include Additional Pollution Limits for Other Toxic Constituents in Micron's Wastewater

Recommendations:

The draft permit should be amended to include effluent limits for other known toxic constituents in Micron's wastewater including Tetramethylammonium hydroxide (TMAH); 1-Butanol, 3-methoxy-3methyl; Polyethylene glycol; Methoxyirane polymer with oxirane, ether with 2,4,7,9-tetramethyl-5-decyne-4,7-cicl (2:1); EDTA; and 1,2,4-Triazole.

Rationale:

As part of the Notice of Intent to Assess (NOIA) response documents available for review, the attachment entitled "Worst-Case Organic Wastewater Constituents to OCDWEP" identifies dozens of additional toxic and potentially hazardous constituents that are expected to be present in Micron's wastewater. These constituents warrant specific effluent limits and monitoring requirements in the SPDES permit. Among the constituents of concern are Tetramethylammonium hydroxide (TMAH); 1-Butanol, 3-methoxy-3methyl; Polyethylene glycol; Methoxyirane polymer with oxirane, ether with 2,4,7,9-tetramethyl-5-decyne-4,7-cicl (2:1); EDTA; and 1,2,4-Triazole. It appears that most of these pollutants are simply assumed to be sufficiently treated to a concentration of 10 µg/L. But that level of needs to be verified during plant start-up, and periodically throughout its operation. Given that these constituents are toxic to humans, aquatic life, and, in some cases, are very

[44] EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), https://www.epa.gov/system/files/documents/2022-12/NPDES_PFAS_State%20Memo_December_2022.pdf

persistent in the environment, NYSDEC should establish pollutant limits and appropriate monitoring as part of the permit.

IX. NYSDEC Should Institute a Long-Term PFAS Monitoring Program for the Receiving Waters

Recommendations:

1. Require monitoring of fish, sediments, biota, and ambient water quality for PFAS upstream and downstream of the combined sanitary and industrial wastewater Outfall 001; and
2. Establish a long-term monitoring plan that tracks PFAS discharges in the Oneida River, Oswego River, and Lake Ontario.

Rationale:

Many PFAS and their breakdown products are both extremely persistent and bioaccumulative, as well as highly toxic. If the goal of zero discharge of PFAS is not achieved, it's imperative that potential impacts on beneficial uses of the receiving waters be determined.

Upstream and downstream monitoring of sediments, fish, other representative biota, and ambient water quality should be required to determine whether PFAS are accumulating in the ecosystem and to enable NYSDEC to assess and understand the larger impacts of PFAS discharges. NYSDEC should establish a long-term monitoring program that tracks PFAS and other chemicals unique to Micron to understand the broader implications of PFAS discharges, bioaccumulation, persistence and potential risks to aquatic biota and drinking water sources.

Because the Oak Orchard Wastewater Treatment Plant discharges into the Oneida River, a tributary of the Oswego River that flows into Lake Ontario (a drinking water source and ecological haven), it is critical to monitor for emerging contaminants that are known to be highly persistent and toxic. The program should include regular upstream and downstream monitoring and sampling as well as monitoring in aquatic biota for accumulation.

A comprehensive long-term monitoring program will allow New York State to become a leader in understanding these emerging contaminants and help safeguard the Oneida River and Lake Ontario as a critical ecological resource and drinking water source. Such data will also help inform the establishment of water quality criteria and effluent limits for specific PFAS compounds.

X. NYSDEC Should Require All Data be Made Publicly Available Online

Recommendations:

1. All influent, effluent, and biosolids monitoring and sampling data should be made publicly available online and updated regularly.

Rationale:

Public access to monitoring data ensures transparency, accountability, and public trust. NYSDEC should require data be reported and posted to an easily accessible public website within 30 days of collection. Timely posting will build public trust in the effectiveness of minimization and treatment efforts and allow for the early detection of emerging issues.

XI. NYSDEC and OCDWEP Should Clarify the Overall Schedule, Timing of Compliance, and Cost Implications

Recommendations:

1. NYSDEC and OCDWEP should provide a clearer and more detailed overall schedule for the permit and the timing of compliance; and
2. NYSDEC and OCDWEP should provide more information on how costs will be managed and passed onto ratepayers.

Rationale:

The permit's overall schedule, including the timing and sequence of compliance requirements, is vague and more clarity should be provided. The permit does not provide a clear sense of how long construction is anticipated to take. In addition, since Outfall 01B is associated with Micron, the schedule and compliance requirements are highly dependent on Micron's construction schedule. Therefore, additional information must be provided to understand the timing of the improvements at the Oak Orchard Wastewater Treatment Plant as well as Micron's schedule and how it relates to the phasing, overall schedule, and implementation of the requirements in the Oak Orchard Wastewater Treatment Plant permit.

It has been estimated that the cost of the project is $549.5 million, a significant project for the POTW.[45] It is unclear how this will impact local residents and ratepayers. Therefore,

[45] Tim Knauss, syracuse.com, Onondaga County's $549 million sewage project likely to hike your rate. But how much?, (December 16, 2025) https://www.syracuse.com/news/2025/12/onondaga-countys-549-million-sewage-project-likely-to-hike-your-rate-but-how-much.html (Accessed December 16, 2025)

additional information should also be shared on how this substantial cost will be managed by OCDWEP and passed onto ratepayers. Transparent information is essential for improving public understanding of the improvements and providing meaningful stakeholder engagement.

XII. NYSDEC Should Ensure the Timely Modification and Renewal of the Permit

Recommendations:

1. NYDEC must ensure the permit includes mechanisms to account for changes in effluent limits, monitoring requirements, or PFAS treatment technologies that may evolve over time; and
2. NYSDEC should commit to reviewing and renewing the permit on schedule.

Rationale:

Given the evolving nature of the semiconductor industry, wastewater management at the Oak Orchard Wastewater Treatment Plant must be robust and flexible to prevent harmful environmental releases. Although semiconductor manufacturers have proven themselves willing to engineer solutions once regulations are in place, they also have a history of failing to share information with the affected public.

By the time Micron begins operations, new chemicals (including additional PFAS) may be used and discharged. At the same time, treatment technologies for PFAS continue to rapidly advance. Since the landscape for this facility is expected to change significantly over the coming years, NYSDEC should include a condition in the permit allowing modification of effluent limitations outside the permit renewal cycle based on new information, if appropriate, to protect human health.

Per 40 CFR 122.46, NPDES permits should be reviewed and reissued at minimum every five years. Despite this, the current NPDES permit for the Oak Orchard Wastewater Treatment Plant has been administratively continued for nearly six years (since 2019). In this context, NYSDEC must ensure that the next permit is not only renewed timely but also updated to be sufficiently robust and flexible to prevent harmful PFAS releases.

XIII. Conclusion

As currently drafted, the draft SPDES Permit NY#0030317 for the Oak Orchard Wastewater Treatment Plant is inadequate in protecting water quality, the environment, and the health of workers as well as surrounding communities. The permit is designed to support the operations of one of the largest factories in New York history, a facility that will use and

discharge a broad and evolving range of harmful chemicals, including PFAS, so it deserves careful, deliberate review.

PFAS are toxic, highly persistent, and mobile in the environment, posing a significant risk to water quality, human health, and the environment. Without adequate monitoring, treatment, and oversight, PFAS discharges from industrial dischargers, such as Micron, can pass through the Oak Orchard Wastewater Treatment Plant and pose long-term risks to the Oneida River, Lake Ontario, downstream drinking water sources, and aquatic biota.

NYSDEC and OCDWEP must make every effort to identify PFAS sources and hold industrial dischargers, including Micron, to the highest standards possible to minimize and prevent toxic PFAS discharges.

The final permit should be amended based on the recommendations outlined above. Please specifically respond to each requested change in the Response-to-Comments issued in the final permit. Please provide the final permit and response to comments to the email provided below.

Sincerely,

Julie MacNamara
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Clean Water Action / Clean Water Fund
Jmacnamara@cleanwater.org