



MEMORANDUM

SUBJECT: Notes from Meeting with Michigan Department of Environment, Great Lakes, and Energy

FROM: Engineering and Analysis Division
Office of Water
U.S. Environmental Protection Agency

FOR: Effluent Limitations Guidelines and Standards Planning Record

DATE: April 25, 2022

On January 11, 2022, the U.S. Environmental Protection Agency (EPA) met with representatives from the Michigan Department of Environment, Great Lakes, and Energy (MI EGLE) to discuss per- and polyfluoroalkyl substances (PFAS) discharges from industrial facilities in Michigan. Of interest to EPA was the population of PFAS manufacturing facilities, chromium plating facilities, textile mills, and landfills in Michigan; available data on use, control, and discharge of PFAS by these types of facilities; and MI EGLE's efforts to quantify and control PFAS discharges from industrial facilities.

See Table 1 for a list of meeting attendees, along with professional affiliation and contact information.

Table 1. Meeting Attendees

Name	Affiliation	Email
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Below is a summary of the topics discussed during the meeting. PFAS monitoring results submitted by MI EGLE to EPA following the January 11 meeting are included in these notes as Attachments 1, 2, and 3.

Meeting Background

In September 2021, EPA published its [Preliminary Effluent Guidelines Program Plan 15](#), announcing several efforts to address industrial discharges of PFAS, including rulemakings for the Organic Chemicals, Plastics, Synthetics, and Fibers (OCPSF) and Metal Finishing point source categories and detailed studies for the Landfills and Textile Mills point source categories. EPA is meeting with state and regional permitting authorities to discuss local efforts to characterize and address PFAS discharges from these categories. EPA recently developed and published a single-lab approved analytical method for [PFAS quantification](#) that permitting authorities can include in their permitting processes.

EPA previously met with MI EGLE on several occasions since 2019 to discuss their efforts to characterize and control PFAS in industrial discharges. In January 2020, MI EGLE shared PFAS monitoring data for direct and indirect industrial dischargers within the state, which EPA used to inform the 2021 Multi-Industry PFAS Study.

PFAS Monitoring Data Collection and Sampling Efforts

MI EGLE launched the Industrial Pretreatment Program (IPP) PFAS Initiative in 2018, which requires municipal wastewater treatment plants (WWTPs) to identify their industrial users that are likely PFAS sources, establish source reduction plans at confirmed PFAS sources, and continue to monitor PFAS for compliance. WWTPs discharging low levels of PFAS were advised by MI EGLE to sample quarterly. Municipal WWTPs submit monitoring data to MI EGLE, and the volume of a WWTP's PFAS monitoring data varies with the level of PFAS contamination, as WWTPs with higher PFAS concentrations are required to submit data more frequently. Through the IPP PFAS Initiative, MI EGLE has continued to collect PFAS monitoring data, including data for facilities and chemicals not included in the 2020 submission. MI EGLE also accumulated two more years of direct discharge sampling data through compliance sampling inspections for permit reissuance and point source discharge sampling for watershed investigations. MI EGLE houses all sampling data in the MI Waters [EGLE PFAS IPP Web Map](#), MI EGLE's public online repository containing permit documents and sampling data for all permit holders in Michigan.

MI EGLE's 2020 submission included perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) monitoring data for IPP facilities (i.e., indirect discharges) and PFOA, PFOS, and total PFAS concentrations for facilities discharging directly to Michigan surface waters. PFOA and PFOS are currently the only PFAS chemicals that Michigan has established surface water quality values (WQVs). MI EGLE is currently in the process of revising the PFOA WQV, establishing a new WQV for perfluorobutane sulfonic acid (PFBS), and is gathering data to potentially review perfluorononanoic acid (PFNA) and perfluorohexane sulfonic acid (PFHxS) for future WQVs.

MI EGLE adopted maximum contaminant levels (MCLs) in drinking water for PFNA, PFBS, PFHxS, perfluorohexanoic Acid (PFHxA), and hexafluoropropylene oxide dimer acid (HFPO-DA, also referred to as a GenX chemical). The new drinking water standards also update Michigan's existing groundwater clean-up criteria. These MCLs and groundwater cleanup criteria are developed and established through a different regulation and process than the MI EGLE WQVs, which protect designated uses of surface waters and are used to regulate discharges to surface waters.

In 2018, MI EGLE conducted a [statewide study](#) alongside the IPP PFAS initiative that examined PFAS presence in the influent, effluent and biosolids of 42 municipal WWTPs. Some of the 42 surface water discharges were resampled in December 2021 along with some groundwater discharges, including municipal wastewater treatment plants and some industries.

MI EGLE has also initiated a PFAS stormwater initiative at targeted facilities to identify stormwater runoff levels for pollutants of concern, including PFOS, and indicated that stormwater may be as contaminated as process wastewater. The first round of the initiative examined chromium plating facilities known to discharge high levels of PFOS to sanitary sewers.

Some IPP WWTPs have identified sources of PFAS infiltration and MI EGLE is looking into possible regulation practices.

Regulation of PFAS in Permits

After October 1, 2021, MI EGLE National Pollutant Discharge Elimination System (NPDES) permits may include PFOS and PFOA effluent limits in municipal WWTP NPDES permits. The permitting strategy outlines an approach involving monitoring and corrective action plans for facilities that do not achieve compliance with PFOA and PFOS limits. At this time, all major and all IPP WWTPs in Michigan are required to monitor for PFOA and PFOS.

MI EGLE stated that most IPP WWTPs have not yet developed local limits, but some WWTPs have started including a 12 nanogram per liter (ng/L) limit for PFOS in their industrial user permits or in administrative orders. MI EGLE stated that numerous industrial facilities were able to achieve PFOS discharges below the 12 ng/L limit through installation of granulated activated carbon (GAC) treatment units. MI EGLE noted that as municipal permits are reissued, WWTPs will be required to submit a PFOS and PFOA local limit evaluation for approval.

MI EGLE noted that it was common for industrial user permits to be modified to require semi-annual or monthly PFAS monitoring and 95 percent of the permit holders are currently sampling for a suite of 28 PFAS analytes.

Regulation of PFAS in Landfills

The Michigan landfills industry has stated opposition to the IPP PFAS Initiative requirements. Industry representatives have pointed to a study conducted by the Michigan Waste and Recycling Association (MWRA) that concluded that PFOS and PFOA found in landfill leachate should not cause pass through of these pollutants at WWTPs.¹ MI EGLE stated that a weakness of the study, however, is that it used WWTP design flow rates to calculate pollutant concentrations in WWTP effluent. In contrast, some WWTPs in Michigan passing through PFOS greater than Michigan's WQV in their effluent cite landfills as their only industrial wastewater source. MI EGLE has met with MWRA to discuss the relationship between WWTPs and landfills as conduits of PFAS, local limits for leachate, and pretreatment programs. MI EGLE stated that few landfills have installed treatment systems for PFAS removal; the ones that have are either municipal county landfills or landfills collocated at industrial sites. MI EGLE noted that where PFAS treatment has been implemented, landfills use activated carbon or ion exchange. In addition, some

¹ <https://www.bridgemi.com/sites/default/files/mwra-technical-report.pdf>

Detroit area landfill operators have implemented leachate volume reduction plans where PFAS concentrations are highest.

Since 2020, MI EGLE has acquired some additional data on landfill leachate characteristics through source identification for non-IPP permitted WWTPs. MI EGLE uses inspections or permit applications to identify non-IPP permitted WWTPs accepting leachate and works with aquatic biologists and the permit department to conduct short-term waste characterization studies and monitor for PFAS and pollutants of concern. MI EGLE wants to ensure that these WWTPs are not exceeding water quality requirements for PFAS and that landfills are sending leachate to the appropriate WWTP. In turn, landfills are a viable option for disposal of WWTP biosolids if they are not land applied.

MI EGLE implemented their biosolids strategy in 2021 which required both IPP and non-IPP facilities that land apply biosolids to analyze biosolids for PFAS prior to land application. If PFOS was found at specific levels, EGLE required specific management strategies for those biosolids.

PFAS Discharges from Chromium Plating Facilities

MI EGLE identified chromium plating facilities as potential sources of PFAS discharges, including both process wastewater and stormwater runoff. MI EGLE has observed PFAS contamination and discharges associated with use of PFAS-based fume suppressants used by chromium platers. In 2019, MI EGLE studied the use of [fume suppressants](#) and discharge of PFAS by 11 chromium platers in the state. MI EGLE is regulating contaminated stormwater runoff from chromium platers through administrative consent orders if industry finds PFOS greater than WQVs in its stormwater after conducting required short term waste characterization studies.

MI EGLE highlighted one chromium plater from the fume suppressant study that discharges treated stormwater as well as untreated contaminated groundwater that goes to a storm sewer. MI EGLE also discussed one decorative chromium plater from the fume suppressant study that had never used PFOS products but had to install GAC to manage the influx of PFOS into their wastewater, likely caused by installation of an old plating rack from a sister plant that used PFOS-based fume suppressants. Samples from the facility still show detectable levels of 6:2 fluorotelomer sulfonic acid (6:2 FTS) coming out of the GAC system.

MI EGLE also noted the difference in PFAS discharges from two chromium platers operated by MAHLE. The Muskegon facility used fume suppressants, unlike the St. Johns facility which never used fume suppressants, and had much higher PFAS concentrations in their discharge.

MI EGLE knows of three facilities using non-PFAS-based fume suppressants of the 11 chromium platers in the fume suppressant study. They are all decorative chromium plating operations. MI EGLE found no metal finishers using PFOS-based fume suppressants. Most chromium platers switched to a 6:2 FTS based fume suppressant or found alternative methods of controlling hexavalent chromium emissions (e.g., mechanical controls, conversion to trivalent chromium).

EPA asked if MI EGLE had investigated PFAS discharges from metal finishers other than chromium platers, specifically chromate conversion coaters or chromic acid etchers. MI EGLE stated that those types of metal finishers had been investigated but chromium platers were the only metal finishers they have seen with consistently discharge high concentrations of PFAS. MI EGLE further stated that many chromic acid etchers with high PFAS concentrations are also conducting chromium plating operations and does not

have a separate list of chromic acid etchers. In short, other types of metal finishing are potential sources of PFAS discharges but are less problematic than those finishing chromium.

MI EGLE has seen different best management plans and reduction strategies with varying success for controlling PFAS discharges from chromium platers and metal finishers. Some metal finishers with Teflon™ in lubricant have been able to reduce PFAS discharges to under 12 ng/L by switching lubricant products and cleaning and/or replacing tanks, piping, and equipment. One chromium plating facility, Lapeer Plating and Plastics, stopped using PFAS-based products in their operations in 2013 but did not switch out or clean their tanks. This facility had elevated PFOS concentrations in its effluent when sampled in 2017. Cleaning and tank replacement, conducted piecemeal, lead to some reduction in PFOS but PFOS still remains well above acceptable values and the facility continues to pretreat its wastewater with multi-stage GAC. Another facility, Ventra, cleaned their tanks but later still found high concentrations of PFOS in discharge. MI EGLE hypothesized that cleaning tanks to reduce legacy PFOS discharge may be more successful in smaller operations with one sump, but may not be effective for more complex systems where new equipment may become contaminated by old equipment, piping, air pollution control equipment, etc.

PFAS Discharges from Centralized Waste Treaters (CWT)

MI EGLE stated that centralized waste treaters (CWTs) are a source of PFAS and believe that some may accept landfill leachate that has been rejected by the municipal WWTP. MI EGLE stated that many CWTs are in Southeast Michigan, close to Detroit, and discharge to one of the largest WWTPs in the country. Detroit has issued a permit to a CWT that includes a limit for PFOS, but the limit was not reviewed or approved by MI EGLE. MI EGLE noted that many CWTs have installed pretreatment for PFOS.

PFAS Discharges from Other Industries

MI EGLE stated that textile mills or carpet mills are not very prevalent in Michigan (less than 10 facilities). MI EGLE is not aware of any PFAS use at any operating leather tanneries in the state that are PFAS sources, but some inactive tanneries have used PFAS in the past and are now considered contaminated sites (e.g., Wolverine Worldwide in Belmont, Michigan). Currently operating tanneries that have been monitored have not been found to be sources of PFOS or PFOA.

Appendix A: EPA Follow-up Questions and MI EGLE Responses

1. **EPA Question:** Please provide the PFAS monitoring data that has been collected and digitized (i.e., those data entered into Excel format) since January 2020. To the extent possible, please specify the industrial classification and category, permit identification number, and treatment in place for facilities with direct and indirect PFAS discharges.

MI EGLE Response: On February 10, 2022, MI EGLE provided a spreadsheet containing PFAS monitoring data for industrial facilities directly discharging to Michigan surface waters. This spreadsheet is included with these notes as Attachment 1. On March 24, MI EGLE provided a spreadsheet containing PFAS monitoring data for POTWs and industrial facilities indirectly discharging to Michigan wastewater treatment plants. This spreadsheet is included with these notes as Attachment 2.

2. **EPA Question:** MI EGLE mentioned that the Diamond Chrome Plating facility has extensive PFAS monitoring data. If these data are not provided with the updated spreadsheets, please identify where EPA can acquire these data.

MI EGLE Response: On March 17, 2022, MI EGLE provided a spreadsheet containing PFOS monitoring data for Diamon Chrome Plating facility direct discharges to Michigan surface waters. This spreadsheet is included with these notes as Attachment 3.