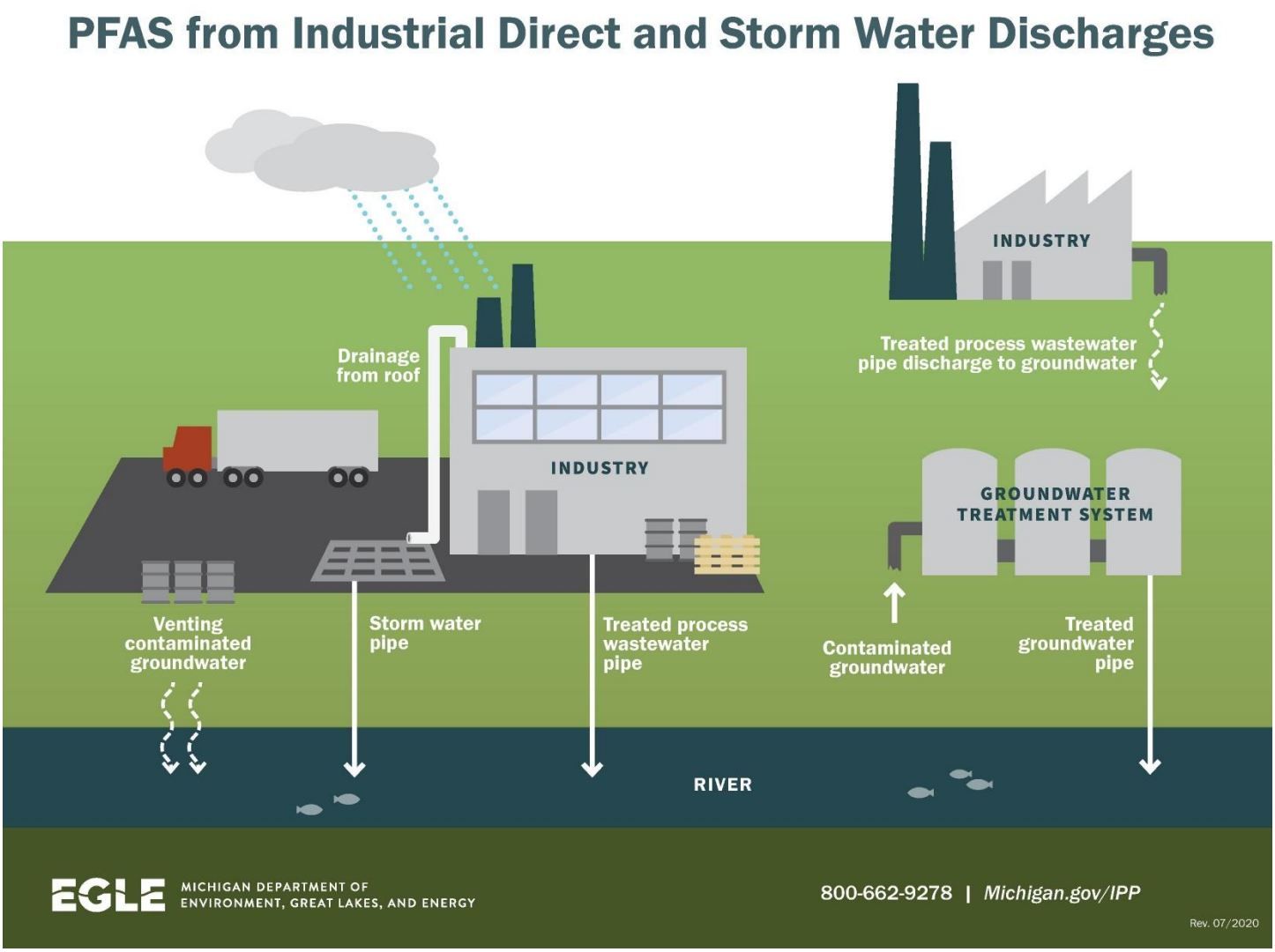
COMPLIANCE STRATEGY FOR ADDRESING PFAS (PFOS/PFOA) FROM INDUSTRIAL DIRECT DISCHARGES AND INDUSTRIAL STORM WATER DISCHARGES

BACKGROUND

Per- and polyfluoroalkyl substances (PFAS), also known as PFCs, have been classified by the United States Environmental Protection Agency as emerging contaminants on a national level. PFAS are a suite of chemicals historically used in thousands of applications throughout the industrial, food, and textile industries. Historical uses include firefighting foams, fume suppressants in chrome plating, food packaging, and various other products. PFAS are also used by industries such as tanneries, carpet manufacturers, and clothing manufacturers where waterproofing or stain resistance is desired. These chemicals are incredibly stable, breaking down very slowly in the environment, and are highly soluble which makes them easily transferable through soil to groundwater. For two of these chemicals, perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA), Michigan has established Water Quality Standards (WQS) under the Part 4, Water Quality Standards, administrative rules promulgated pursuant to Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); and the Part 7, Cleanup Criteria Requirements for Response Activities, administrative rules promulgated pursuant to Part 201, Environmental Remediation, of the NREPA. Should criteria be developed in the future for additional PFAS compounds under these administrative rules, the compliance strategy described in this document will be expanded to address those compounds as well.

The Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD) regulates wastewater discharges from industrial (non-municipal) facilities to waters of the state under Part 31 of the NREPA and the administrative rules promulgated thereunder. Specifically, discharges to surface waters (rivers, lakes, and streams) are authorized under National Pollutant Discharge Elimination System (NPDES) Permits in accordance with the Part 21, Wastewater Discharge Permits, administrative rules promulgated pursuant to Part 31 of the NREPA; and discharges to the ground and groundwaters are authorized under Groundwater Discharge Permits in accordance with the Part 22, Groundwater Quality, administrative rules promulgated pursuant to Part 31 of the NREPA. As information is developed regarding the potential for a permitted industrial facility to discharge PFAS (PFOS/PFOA) to waters of the state in exceedance of applicable criteria and regulations, the WRD will prioritize these discharges and address them through compliance efforts coordinated by the Emerging Pollutants Section. Information concerning a facility's potential to discharge PFOS/PFOA may come from various sources including known or suspected use of PFAS containing products/materials on-site or through sampling data (soils, groundwater, storm water, wastewater, and surface water) associated with the facility. Common types of discharges that are covered under this strategy include direct discharges of process wastewater from industrial facilities, industrial storm water discharges, direct discharges (including groundwater infiltrating into storm sewers and surface waters) from remediation sites, or a combination of all. Information commonly used in identifying permittees that may be discharging PFOS/PFOA include data generated from the EGLE Industrial Pretreatment Program (IPP) PFAS Initiative which includes known industrial sources, literature reviews, data collected by EGLE in compliance sampling inspections and source tracking activities, and data provided by permittees.

Pollutants in industrial wastewater, storm water, and from remediation sites may contaminate waters of the state and impair the use of groundwater and/or of surface water as a source of drinking water and/or as a fishery. The infographic below demonstrates the various regulated discharges from industrial facilities that may contain PFAS. The figure below shows why it is important to address this group of discharges for PFAS to protect Michigan's waters.



GOAL

The goal of this Compliance Strategy is to reduce or eliminate the emerging pollutants PFOS and PFOA from industrial (non-municipal) facilities holding NPDES and Groundwater Discharge permits. Currently, industrial discharge permits do not specify effluent limitations for PFOS or PFOA. Industrial wastewater and storm water discharges that either discharge directly to surface waters (lakes, streams, and county drains) or to separate storm sewer systems will be addressed with an Administrative Consent Order (ACO) or similar type of agreement including PFOS and PFOA limits and a schedule to meet applicable criteria.

APPROACH

Currently, PFAS is not included as a required parameter in Industrial Direct Discharge permits; however, EGLE's WRD is evaluating which industrial discharges will be required to submit PFAS data in the NPDES application. As a result, data indicating a discharge of PFOS or PFOA above WQS is considered new information. EGLE's WRD has the following options available to address PFOS and PFOA in permits.

INDUSTRIAL DIRECT DISCHARGES AND REMEDIATION SITES

When PFAS sampling data was not required by the WRD's NPDES or Groundwater Discharge permit application form, nor was PFAS apparently known to be in the discharged effluent at that time by the permittee or EGLE, the presence

of PFAS in the effluent is not a violation of the NPDES or Groundwater Discharge permit, but is rather considered new effluent information. Bringing the discharge into compliance with the applicable standards for PFAS needs to be accomplished expeditiously. Therefore, EGLE's approach will be to utilize a voluntary ACO to prevent pollution EGLE considers to be unreasonable and against the public interest. The ACO will establish a path/process to comply with the applicable PFAS standards with a mutually agreed upon compliance plan and schedule. If a permittee chooses not to enter an ACO for these purposes, EGLE may deny reissuance of a renewal application or terminate the permit after notice and opportunity for hearing. If terminated, any discharge by the permittee would be an unauthorized discharge. EGLE would then pursue enforcement of the unauthorized discharge violations in accordance with Part 31 of the NREPA.

Obtaining additional PFAS effluent results is important for identifying PFAS sources, evaluating treatment and other reduction approaches, and establishing the compliance plan and schedule for the ACO. Therefore, EGLE will also require that permittees begin PFAS effluent sampling and reporting utilizing appropriate sampling and analytical methods.

INDUSTRIAL STORM WATER DISCHARGES

Industrial storm water regulations apply to a wide range of industrial facilities. A phased approach to conduct screening at regulated facilities began in 2019. This approach focuses on prioritized facilities with known use of PFAS containing products and where elevated concentrations of PFAS (PFOS/PFOA) in storm water are suspected. Industrial storm water permits include language prohibiting any discharge of pollutants in exceedance of WQS. As a result, if initial sampling (often conducted as part of a short-term characterization study) shows results over WQS then EGLE will initiate a progressive compliance and enforcement process and the facility will be required to implement actions to reduce PFAS concentrations in their storm water discharge. This process includes entry of an ACO or similar control document as described previously for industrial direct dischargers. Due to the variety of scenarios that may be present at these facilities and the complicated nature of compliance programs, the control document will be tailored to address site specific conditions.

SUMMARY OF COMPLIANCE REQUIREMENTS

As stated previously, the WRD's compliance strategy for industrial NPDES and groundwater discharges is predicated on entering into enforceable agreements that contain a range of appropriate compliance measures and schedules developed to bring PFAS (PFOS and PFOA) discharges into compliance with applicable standards. In each individual circumstance there are a number of variables to consider when developing compliance programs to address PFAS including concentration, flow, and the complexity of the source. Each compliance schedule will be written with the ultimate objective to meet applicable standards and will include provisions for installation of treatment (Granular Activated Carbon [GAC] or other treatment) if intermediate measures do not succeed in achieving compliance with standards or regulations. In some complex scenarios, like military bases or multi-outfall high flow discharges, progress will necessarily be incremental with priority given to controlling PFAS sources based on relative loading contribution.

In general terms, this strategy, and associated ACOs, will lay out a range of potential compliance measures that a discharger may undertake toward achieving compliance with standards. These measures will be crafted based on concentration, flow, loading, and complexity. Other considerations may be present and should be considered in addition to those mentioned including:

- The receiving water is a drinking water source.
- Impacts to the receiving streams including a fish consumption advisory that is PFAS driven.
- Ownership of the facility if it is an orphaned remediation site.

The ACOs or control document will contain minimum requirements for controlling and monitoring discharges to surface water/groundwater for PFAS including enforceable compliance schedules for meeting interim milestones and

applicable standards, requirements for sampling and analysis, stipulated penalties for failure to comply and other provisions as appropriate.

POTENTIAL COMPLIANCE MEASURES

The following is a list of potential compliance measures that could be included in a schedule of an ACO;

- Source identification/isolation including internal sampling and process evaluation. This could be an evaluation of process flows within a manufacturing plant or across a landscape that may have a storm water collection system.
- Collection system or production system cleaning or replacement, such as cleaning pipes, tanks, racks, vats, air handling equipment, or product storage and handling areas.
- Product substitution depending on the presence of PFOS or PFOA and/or precursor analytes. (It is unlikely that PFOS or PFOA are present in currently used PFAS products.)
- Elimination of external sources such as contributing discharges and/or inputs (leachate, recycled feedstock, etc.).
- Elimination/isolation of impacted and non-impacted flows (separate the discharges or reduce flow that may require treatment).
- Installation of interim treatment at "hot spots" for large scale remediation sites like military bases or facilities that conducted fire training with Aqueous Film Forming Foam.
- Regular monitoring and re-evaluation of concentrations as compliance measures progress.
- Cessation of the discharge through rerouting to larger system or transporting to a treatment facility (central waste treatment facility) or other disposal option.
- Submission of reports/progress updates/workplans and final corrective action plans.
- Installation of appropriately scaled treatment (usually GAC).

CONCLUSION

PFAS is an emerging pollutant that needs to be addressed when it is being discharged into waters of the state above applicable standards. The-WRD's approach is to address industrial PFAS (PFOS/PFOA) discharges through entry of ACOs. The ultimate objective is to bring all discharges into compliance with applicable standards, but progress may be incremental based on priority dictated by individual circumstances at each facility.

Requirements for PFAS sampling will be incorporated into future application requirements for industrial permits. Municipal NPDES permits issued after **October 1, 2021**, will specify effluent limits with schedules, as appropriate, after completion of the IPP PFAS Initiative if PFAS concentrations in publicly owned treatment works effluent have not been sufficiently reduced to meet appropriate WQS.