

BEST MANAGEMENT PRACTICES: WHERE TO START?

For some pollutants, developing numeric discharge limits may not be feasible.

The NPDES and Pretreatment regulations allow for Best Management Practices (BMPs) to be used in lieu of numeric, end-ofpipe limits in such instances. See 40 CFR 122.44(k) and 40 CFR 403.5(c)(4).

EPA has published guidance on implementing BMPs for NPDES and Pretreatment:

- EPA Guidance for Developing Best Management Practices <u>https://www3.epa.gov/npdes/p</u> <u>ubs/owm0274.pdf</u>
- Chapter 9 of the NPDES Permit Writer's Manual <u>https://www.epa.gov/sites/defa</u> <u>ult/files/2015-</u> 09/documents/pwm_chapt_09. pdf
- Guides to Pollution Prevention: Municipal Pretreatment
 Programs
 https://www3.epa.gov/npdes/p

ubs/pretreatment mun guide.p df

Pretreatment Streamlining Rule
Fact Sheet 7.0: Best
Management Practices
<u>https://www.epa.gov/sites/defa</u>
<u>ult/files/2015-</u>
<u>10/documents/pretreatment_st</u>
<u>reamlining_7.0.pdf</u>

PFAS IN INDUSTRIAL WASTEWATER

PFAS can be found in the wastewater discharges of certain industrial facilities subject to NPDES permitting or pretreatment requirements (U.S. EPA, 2021).

Permit writers and pretreatment coordinators are encouraged to include PFAS monitoring in permits for facilities where PFAS are suspected of being present in the discharge. For some facilities where PFAS are found, it may be appropriate to require permit limits. In some cases, numeric discharge limits based on treatment technologies using granular activated carbon, ion exchange resins, reverse osmosis may be appropriate, but for others, pollution prevention practices and BMPs may be more appropriate.

Permit writers and pretreatment coordinators have observed some of the following pollution prevention practices for industries in their state or service area.

CHROME FINISHING

PFAS can be found in the effluent discharged from chrome plating facilities due to the use of PFAS-containing chemical fume suppressants used primarily in hexavalent chrome plating operations. Many of these facilities discharge to wastewater treatment plants (U.S. EPA, 2009). According to EPA's <u>Effluent</u> <u>Guidelines Program Plan 15</u> published in January 2023, preliminary investigations by EPA have indicated that some facilities may have the option of switching operations to trivalent chromium, which does not require the use of chemical fume suppressants, and that PFAS-free alternatives exist or are in

development for processes which require hexavalent chromium (U.S. EPA, 2023). Additionally, because historic use of PFOS-containing fume suppressants is believed to be a legacy source of PFAS discharges, some agencies have found that equipment replacement has been



necessary to achieve reductions in PFAS concentrations in effluent from these facilities (Michigan Department of Environment, Great Lakes and Energy, 2020).



AIRPORTS AND FIREFIGHTING

Work is ongoing to develop fluorine-free alternatives to Aqueous Film Forming Foam (AFFF) that meet Federal Aviation Administration and Department of Defense requirements for aircraft firefighting (U.S. EPA, 2023). Until fluorine-free foams are available, EPA recommends that NPDES permits for airports contain BMP provisions that restrict use of AFFF to emergencies and require both immediate clean up and collection of PFAScontaminated wastewater to prevent discharge to storm



sewer systems and notification of any downstream affected parties of potential discharges.

RECREATION

Some commercial products sold for recreational activities, such as ski wax and bicycle lubricants, are



believed to be a source of PFAS found in groundwater and surface water (National Science and Technology Council Office of Science and Technology Policy (NSTC), 2023). Investigations in Maine and Utah have indicated that ski wax is a source of groundwater contamination (Carlson & Tupper, 2020) (Park City Municipal Corporation, 2022). Though the industry has phased out use of these products, consumers and local retail shops may continue to use existing stock; illegal

importation of PFAS-containing products has also been observed. Municipally-sponsored take back programs, consumer awareness and education programs, and training programs for wax or bicycle technicians are examples of best management practices that have been implemented in impacted communities (U.S. EPA Office of Enforcement and Compliance Assurance, 2022).

OTHER INDUSTRIAL AND COMMERCIAL SOURCES

Other industries may have PFAS in their effluent that can reach surface waters or wastewater treatment plants. Some of these industries include chemical manufacturing; semiconductor manufacturing; textile mills; centralized waste treatment; landfills; pulp, paper and paperboard manufacturing; and coatings, paint, and varnish manufacturing. PFAS may also be used as surfactants in cleaning products used in industrial processes (National Science and Technology Council Office of Science and Technology Policy (NSTC), 2023). Permit writers are



encouraged to evaluate the appropriateness of PFAS BMPs at these facilities using the principles below.



CONSUMER PRODUCTS

PFAS can be found in a number of consumer products used by households or commercial establishments that may be discharged in the domestic wastewater received by POTWs. Since many relevant federal regulations do not apply to domestic wastewater, pollution prevention education campaigns targeted at customers are an available tool for cities to reduce PFAS discharges to wastewater treatment plants. EPA's Safer Choice program is a resource to municipalities for directing customers to PFAS-free alternatives to many of these products.

STATE AND MUNICIPAL EXAMPLES OF POLLUTION PREVENTION

• In Michigan, the state Department of Environment, Great Lakes and Energy (EGLE) implemented a <u>targeted analysis of PFAS use in chrome plating facilities</u>. Through their Industrial Pretreatment Program, the state worked with chrome platers to reduce PFAS discharges both through the installation of pretreatment systems and adoption of BMPs.

 In California, the State Water Resources Control Board issued <u>Order WQ 2019-0045-DWQ</u> to chrome plating facilities identified by the

state, requesting the completion of a questionnaire and development of a site work plan.

- In Park City, Utah, the municipality has partnered with local organizations to raise awareness of <u>PFAS in ski wax and</u> <u>implement take back programs for</u> <u>consumers</u>.
- In Colorado, the state has issued <u>Policy</u> <u>20-1, Policy for Interpreting the</u>



Narrative Water Quality Standards for Per- and Polyfluoroalkyl Substances (PFAS). One draft permit that has been public noticed under this policy includes provisions for conducting site investigations and submitting a report about PFAS on site.

 The state of Vermont partnered with EPA on a project to collaborate with the metal finishing and aerospace industries in the state to apply pollution prevention principles to reduce and eliminate PFAS discharges to wastewater treatment plants. The project involved training and education to businesses on optimizing operations and transitioning to PFAS-free alternatives. A final report on the project is expected in June 2023.

IMPLEMENTING BEST MANAGEMENT PRACTICES: DEVELOP A BMP PLAN

When permitting a facility, permit writers and pretreatment coordinators should evaluate whether PFAS are currently used, and whether site-specific BMPs and pollution prevention strategies are appropriate. If so, work with the permittee to develop a BMP plan for the site. Elements of a BMP plan are described below.

NPDES Pollution Prevention Strategies for Industrial PFAS Discharges

BMP PLAN DEVELOPMENT

- ✓ Are PFAS used at this facility? Consider both industrial uses as well as cleaning, pest management, emergency (fire) response applications at the site.
- ✓ Have PFAS historically been used at this facility?
- ✓ If the answer is uncertain, permit writers can also consider a permit requirement that a site investigation or report be submitted that documents any uses or inventory of PFAS-containing chemicals on site.

If PFAS are present in the facility's discharge, consider the following permit language: Within 6 months of the effective date of the permit, the facility shall provide an evaluation of whether the facility uses or has historically used any products containing PFAS, whether use of those products or legacy contamination reasonably can be reduced or eliminated, and a plan to implement those steps.

If the written evaluation determines that BMPs and pollution prevention strategies are appropriate, a BMP plan for the site should be developed, which may include:

- ✓ Product substitution and replacement. Do alternatives to PFAS exist? Permittee should document basis for requiring PFAS and why alternatives are not available.
- ✓ Good operating and housekeeping practices, such as:
 - Chemical inventory regularly maintained.
 - Safe chemical storage, such as secondary containment and placement away from floor drains that lead to WWTP or storm drain, including legacy PFAS chemicals during product substitution.
 - Replacement of contaminated equipment, if source of legacy PFAS discharges.
 - Containing or reusing contaminated equipment in between uses, rather than rinse and disposal.
 - Containing contaminated rinse water of equipment, employee handwashing, or protective gear.
 - Proper operation and maintenance of equipment to avoid malfunction and accidental discharge.
 - o Emergency response plan that addresses spill containment and cleanup of PFAS.
 - Employee education and training on good housekeeping, operations, and emergency response.
 - Proper management/disposal of legacy PFAS chemicals.
- ✓ Solid waste disposal as a result of implementing best practices (such as with equipment replacement) may be out of scope of NPDES or pretreatment requirements, but may be considered as part of a holistic agency PFAS response.
- ✓ BMP plan should require an annual certification statement and maintenance of records related to adherence to BMPs.



REFERENCES

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Disclaimer:

This document provides general information about the flexibilities permit writers and pretreatment coordinators have in regulating industrial PFAS discharges. While this document cites statutes and regulations that contain requirements applicable to these discharges, it does itself not impose legally binding requirements on EPA, states, authorized tribes, other regulatory authorities, or the regulated community. EPA, states, authorized tribes, and other decision makers may adopt approaches on a case-by-case basis that differ from those provided in this document, as appropriate and consistent with statutory and regulatory requirements. Also, EPA may update this document as new scientific and technical information becomes available.