

Industrial Pretreatment Program (IPP) PFAS Initiative

Carla Davidson & Anne Tavalire
DEQ, Water Resources Division
DAVIDSONC@michigan.gov | 517-243-1249
TavalireA@michigan.gov | 248-508-1102

Overview

- PFAS - What they are, why they are important. and where you may find them.
- Lapeer WWTP Case Study
- DEQ WRD IPP Requirements
- Sampling & Analysis
- Resources & Additional Information

PFAS – What’s in a Name?

- PFAS – Per and Polyfluoroalkyl substances
- Also called PFCs for Perfluorinated Compounds (leaves out Polyfluorinated)
- But PFCs can also mean Perfluorocarbons associated with greenhouse gases--confusing
- PFAS and PFOS sound similar, also confusing

PFAS

- Class of manufactured chemicals
- Synthetic, used extensively for 70 years
- Over 3,000 PFAS
- Useful properties: oil- and water- resistance
- Emerging pollutants: science about the chemicals & impacts is being developed

Environmental & Health Concerns

- Widespread wildlife & human health exposure
- Human health concerns
- Fish advisories
- Most studied PFAS chemicals are PFOS & PFOA

PFAS & Consumer Products

- Stain & water-repellants for fabrics, leather & carpets

PFAS & Consumer Products

- Used in non-stick coatings:
 - cooking pans, pots, sheets
 - auto polishes & waxes
 - food wrappers & cartons
 - Cosmetics, sunscreens, dental floss, lotions

PFAS of Concern: PFOA & PFOS

- PFOA = Perfluorooctanoic acid (also called “C8”)
 - Human health exposure through food & drinking water; occupational exposure
- PFOS = Perfluorooctane Sulfonate
 - Associated with Fish Consumption Advisories
 - Banned from some uses

- Voluntary manufacturing phase out in US/Europe
- Still may be found

Water Quality Standards

- Rule 57 values

Fish Consumption Advisories due to PFOS

PFOS & Fish Consumption Advisories

- Genesee County & Lapeer County – Flint River (upstream of Mott Dam, including the Mott & Holloway Reservoirs)

PFAS Sites in MI

PFAS & POTWs

- American Chemical Society (ACS) Study, 2016
 - PFOS/PFOA found in quantities greater than EPA lifetime health advisory (70 ng/l) in public drinking water sources for 6 million US residents
 - Number of PFOS/PFOA manufacturers, military fire training areas, and WWTPs in watersheds were significant predictors of PFAS detection in public water supplies

ACS Study, 2016

- Detectable PFAS levels in public water supplies
 - Industrial sites
 - Military sites
 - WWTPs

Case Study: Flint River PFOS

Case Study: Flint River PFOS

Lapeer WWTP

- DEQ found PFOS in Lapeer's effluent in June 2017
- Worked with the City to find the source

Source = Chrome Plater

- PFOS-containing demister in etch baths & electroplating tanks
- Discontinued use in 2013, prior to ban
- Tanks & pits not changed or cleaned
- City is working IU to eliminate PFOS

Lapeer PFOS Reduction Effort

Industrial Pretreatment Program (IPP)

- Some POTW NPDES/GW permits require an IPP to regulate industrial wastewater accepted
- POTWs with IPPs: WRD requires source evaluation and follow up
 - Ensure POTWs are not passing through PFOS/PFOA greater than WQS
 - Current permit requirement, new pollutants

Sources of PFOS/PFOA to POTWs

- Platers: chemical fume suppressants
- Leather & fabric treaters, tanneries
- Paper & packaging manufacturers
- Manufacturers of parts with PTFE coatings
- Landfills (leachate)

- Centralized Waste Treaters
- AFFF fire fighting foam

IPP PFAS Requirements

- Potential source screening
- Monitor probable sources
- If sources found:
 - Reduce/Eliminate PFOS & PFOA sources
 - Monitor POTW effluent
- Submit Interim Report – due 6/29
- Continue source reduction & monitoring
- Submit Summary Report – due 10/26

Alternative Monitoring Plans

- Geared toward the larger POTWS with many probable sources
 - Extension of due dates
 - Monitoring groups of sources
- DEQ WMRPD landfill initiative

Plan Ahead for Sampling

- PFAS Standard Operating Practices (SOPs)
- Preserve samples (ice)
- Transportation/shipping
- Laboratory
- Method of analysis
- Modification as needed – safety first!

Preventing Cross Contamination

- Use lab-supplied PFAS bottles
- Use PFAS-free sampling equipment if needed
- Take grab samples
- Wear PFAS-free clothing, boots, gloves, etc.
- Avoid many personal care products
- Special handling practices (SOPs)

PFAS Test Methods

- EPA: in external validation process for ASTM D7979 LC/MS/MS; isotope dilution method
- DOD specifications: isotope dilution method
- Common for “EPA Method 537(mod)” to mean isotope dilution method
- Concern that “modified” varies by lab
- QA/QC is important
- DEQ using EPA 537 Rev 1.1 for drinking water

PFAS Analytes

- Which PFAS compounds to analyze?
- Most labs have established their own lists
- DEQ has a minimum analytes list
- IPP recommends same

PFAS Resources

- Regional IPP PFAS Specialists
 - Assure statewide consistency
 - Provide regulatory assistance

PFAS Resources

- DEQ Industrial Pretreatment website: <http://www.michigan.gov/ipp>
 - Several links to useful PFAS resources, more in the future including IPP PFAS FAQs, sampling guidance and more
- Per- and Polyfluoroalkyl Substances (PFASs): What EPA is Doing: <https://www.epa.gov/pfas/and-polyfluoroalkyl-substances-pfass-what-epa-doing>
 - Overview of laws and regulations (including test methods) that are applicable as well as a sidebar on sites around the country – Also, the “Emerging Contaminant Fact Sheet – PFOS and PFOA”

PFAS Resources

- Interstate Technology Regulatory Council
 - <https://pfas-1.itrcweb.org>
- Fact sheets
 - Naming conventions
 - History & use
 - Regulations
 - Remediation technologies & methods

MPART—Statewide Effort**Questions?****Contacts**

- Carla Davidson
Senior Environmental Quality Analyst
Lansing District Office
517-243-1249
DavidsonC@michigan.gov
- Tom Berdinski
Senior Environmental Quality Analyst
Grand Rapids District Office
616-356-0212
BerdinskiT@michigan.gov
- Anne Tavalire
Senior Environmental Quality Analyst
Southeast District Office
248-508-1102
TavalireA@michigan.gov