Purpose of DNR’s PFAS Monitoring Request Letter

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Wastewater Section Chief
Wisconsin DNR
Recipients

- 125 POTWs
  - 27 Authorized Pretreatment Programs
  - 87 Other POTWs with SIUs
  - 10 found by query of permit fact sheets
  - 1 community with PFAS in water supply
Content

• PFAS Background
• Known Industrial Sources
• Statement that POTWs are not original sources of PFAS, but PFAS pass through them
• Requested Actions
• Invitation to participate in the State Lab of Hygiene Study
• Statement of Department’s Intent in sending letter
• Additional Resources
Requested Actions

• Voluntary sampling of influent and effluent
  • 36 PFAS compounds
  • Please use isotope dilution method
  • Within 90 days of receipt of letter

• Source Identification and Reduction
  • If PFOA+PFOS > 20 ng/L
  • Invitation to work with DNR to develop plan to sample potential sources
  • Invitation to work with DNR and sources to eliminate PFAS
    • Product substitution
    • Operational Controls
    • Cleanup of historical contamination
    • Pretreatment
Intended Outcomes

• Primary Goal: Avoid effluent limitations at POTWs
  • Address sources before standards take affect
  • Avoid back-end treatment at POTWs

• Parallel Michigan’s demonstrated approach

• Scope extent of PFAS contamination in Wisconsin

• Inform Economic Impact Analysis for standards rulemaking
  • Make informed decisions based upon data
MI EGLE’s 2018 Industrial Pretreatment Program PFAS Initiative

- 95 Wastewater Treatment Plants with IPPs
- Screen industrial users for PFAS
- Sample users and effluent
- Control/reduce discharges
- Monitoring

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
IPP PFAS Initiative Status
Update 4-11-2019

95 POTWs with IPPs:
• 94 IRs* Submitted
• 1 IR Overdue

*IR = Interim Report

Bin 1: **43**
No sources PFOS/PFOA found

Bin 2: **26**
Sources found but POTW Effluent ≤WQS¹

Bin 3: **22**
Sources found and POTW Effluent >WQS¹

IPP PFAS Requirements Complete
• Source reduction recommended
• Semi-annual PFAS monitoring required
• Local limits and PMP recommended

3a: **14**
Effluent concentrations of **moderate priority**²
• Source reduction required
• Quarterly POTW effluent monitoring required
• Local limits recommended
• Pollutant Min Plan SUO provisions recommended

3b: **8**
Effluent concentrations at **highest priority**³
• Source reduction required
• Monthly POTW effluent monitoring required
• Biosolids monitoring required
• Local limits recommended
• Pollutant Min Plan SUO provisions recommended

Bin TBD: **3**
Interim Report submitted but a bin determination cannot be made as staff have not yet reviewed the report, the report was determined to be incomplete, or sample results (from IUUs and/or POTW effluent) are still pending

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
Sources PFAS to WWTPs found (so far)

**Metal Finishers:** Significant sources 16 - 240,000 ppt PFOS

Of ~248 Metal Finishers in Michigan,
- **53** with PFOS > WQS
- Of these, **39** with PFOS ≥ 50 ppt

- Primarily Decorative & Hard Chrome Platers using fume suppressants (Cr +6)
- Some Anodizing (Chrome conversion coatings, fume suppression (sulfuric acid), Teflon coating?)
- Also, groundwater from former plating sites (infiltrating to sanitary sewers or groundwater cleanup sites)

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
Sources PFAS to WWTPs found (cont’d)

- Sites where AFFF used (Air Force Bases, refineries, fire stations, etc.): PFOS 240 - 45,000 ppt
- Paint manufacturers/former sites: PFOS 6,047 ppt
- Landfill leachate: PFOS non-detect - 4000 ppt
- Paper Mfg/former sites: PFOS 20 - 150+ ppt
- Centralized Waste Treaters (CWTs): PFOS 13 - 650 ppt
- Industrial Laundry facilities: PFOS 29 - 50 ppt
- Medical Products (implants, patches, tubing): 25 ppt

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
Source Control

• Product Substitution
• Cleaning & Replacing tanks/equipment/scrubbers
  • Some reductions
• Treatment – Granular Activated Carbon
  • Significant Reductions
  • Maintenance Concerns/Issues
    • High costs
    • Sample results lag – miss breakthrough?
    • Metals such as iron interfere with GAC
    • Use of PFOS replacement products (PFAS) – burn through carbon quicker?
• Pollutant Minimization Plans and local limit development

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
PFOS Reduction After IU Pretreatment

Wixom WWTP Effluent Results

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
PFOS Reduction After IU Pretreatment

Lapeer WWTP Effluent Results

GAC Installed at IU

Modified GAC Unit Installed at IU

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
PFOS Reduction After IU Pretreatment

Bronson WWTP Effluent Results

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
PFOS Reduction After IU Clean/Replace

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
PFOS Reduction After IU Pretreatment

Howell WWTP Effluent Results

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
Statewide Biosolids Study

- Sample Effluent, Influent, & Biosolids from 41 WWTPs
  - Oct – Nov 2018
  - 20 Largest
    - 3.0 – 9.0 MGD (8 WWTPs)
    - 0.5 – 3.0 MGD (8 WWTPs)
    - 0.2 – 0.4 MGD (5 WWTPs)
  - Various treatment processes
  - Some w/ no industrial users

- Screen select fields from WWTPs with high conc. of PFOS in biosolids
  - Spring 2019
    - Wixom, Ionia and Bronson
    - Revisit City owned field in Lapeer (complete)
    - Follow-up based on results

- Sample fields from WWTPs with “typical/low” PFOS concentrations in biosolids

- Identify data gaps

- In lieu of criteria, develop guidance to assist with biosolids management decisions

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
2018 Statewide Study
WWTP Influent and Effluent Data

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
Statewide Study - WWTP Stabilized Sludge/Biosolids PFOS Results

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
Statewide Study - WWTP Stabilized Sludge/Biosolids PFOS Results

Source: Michigan EGLE, “Michigan’s IPP PFAS Initiative” (May 2019)
Review

• Michigan’s Differences:
  • All POTWs participating have Industrial Pretreatment Programs
  • Required Participation

• Success in reducing PFAS in effluent via source reduction
  • Elimination of PFAS use
  • Tank/equipment cleaning
  • Pretreatment

• Biosolids study/guidance to be complete Spring 2020
Intended Outcomes in Wisconsin

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