Environmental Management Division

PFAS Technical Advisory Group

September 20, 2019

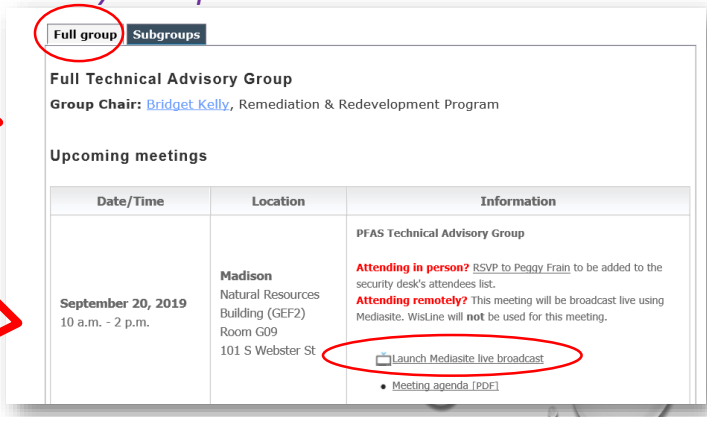
Meeting Logistics

MEETING IS AVAILABLE FOR LIVE BROADCAST

- **Meeting Website**:
  - DNR Home page: Search '*PFAS GROUP*' – click on *PFAS Technical Advisory Group*

Remotely: Type questions in side-bar

GEF II overflow (G27A): get questions to moderator



PFAS Technical Advisory Group

Welcome and Agenda

Bridget Kelly

Purpose and Scope

- DNR will facilitate meetings that will focus on a variety of topics including the what, where, when and how of PFAS assessment.

- Our goal is to:
  - Identify current and proposed practices for assessment and treatment
  - Strategize on issues requiring solutions
  - Share concerns
  - Communicate about PFAS Initiatives
- Stakeholder Spotlight
  - What do you want DNR to know about?

PFAS TAG....Evolving

- Quarterly ***'Full Group' Meetings*** – Environmental Management Division + Others From Agency
  - Remediation and Redevelopment
  - Drinking water and Groundwater
  - Water Quality
  - Waste and Materials Management
  - Air Management
  - Office of Great Waters
- ***Subgroup Meetings*** – in-between quarterly meetings – individual bureaus
- Subscribe for email updates: https://public.govdelivery.com/accounts/WIDNR/subscriber/new?topic_id=WIDNR_922

Agenda

- Introduction and Agency Updates – *Bridget Kelly*
- *PFAS Initiatives in WI – Bridget Kelly + Jenna Soyer*
- Drinking Water and Groundwater – *Steve Elmore*
- Lab Certification – *Steve Geis*
- *Lunch Break*
- Stakeholder Spotlight – *Audience*
- Air Program – *Gail Good*
- Water Quality – *Adrian Stocks (subgroup meeting)*
- Waste and materials Management – *Joe Van Rossum & Kate Strom Hiorns (subgroup meeting)*
- Closing Remarks

Meeting Logistics

Lunch Break 12:00 -12:30pm

Introductions – Who are we?

INTRODUCTIONS – WHO ARE WE?

WHAT IS YOUR INVOLVEMENT WITH PFAS?

ARE YOU A:

•Consultant?	Municipality/Utility?	Environmental Advocacy Group?
•Attorney?	Media Rep?	Responsible Party?
•Regulator?	Other?	Concerned Citizen?

•HAVE YOU BEEN DIRECTLY INVOLVED IN A SITE WHERE PFAS IS PRESENT?

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PFAS Technical Advisory Group

State of PFAS in WI

Bridget Kelly + Jenna Soyer

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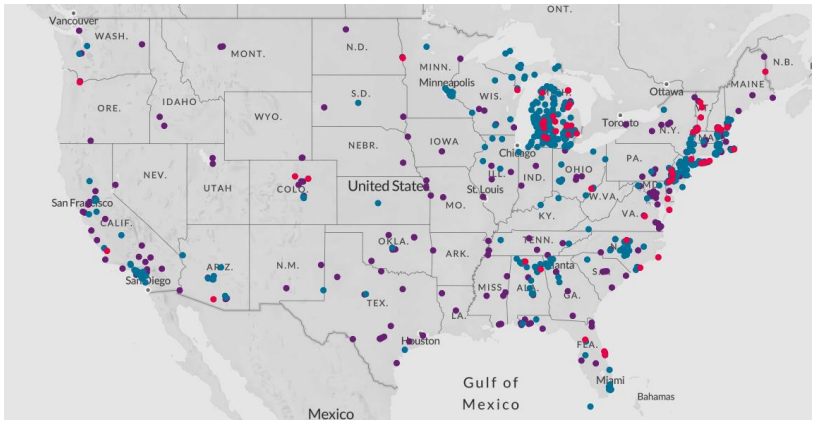
Not just a Wisconsin Issue…



PFAS Contamination Sites In the U.S.
Source: EWG

States Managing PFAS

- EPA's Office of Water still evaluating whether, and at what level, to set a federal maximum contaminant level for PFAS and PFOA….Sept 18th, 2019
- Colorado introduces action plan to combat per- and polyfluoroalkyl substances (PFAS) in drinking water….Sept 12th, 2019
- New Hampshire banning certain use of PFAS chemicals in furniture, carpeting, and firefighting foams - signed into law….Sept 4th, 2019
- Massachusetts proposes $8.4 million to test drinking water for PFAS contamination, and another $20 million to support PFAS remediation projects….Sept 6th, 2019

State of PFAS in WI

- DNR working closely with impacted communities: Marinette and Peshtigo – Listening Session 1 and Foam Sampling this week; Madison Well study
- Governors Budget - $$ allocated for PFAS projects (will hear from project coordinators today)
- NR 140 (groundwater standards), NR 809 (drinking water standard) and NR 105 (surface water quality standard) standards to go to NRB in October 2019 (will hear from these programs today)

State of PFAS in WI

Governor's Executive Order #40 – Directed PFAS Action in State

i. Develop interagency coordinating council by DNR, DHS and DATCP, including other state agencies.
ii. Develop a public information website for PFAS.
iii. Expand monitoring of fish and wildlife.
iv. Develop regulatory standards.
v. Modify the Voluntary Party Liability Exemption to protect state tax payers.
vi. Assess opportunities for using natural resources damage claims for PFAS.

State of PFAS in WI

- Convened a number of internal workgroups to develop program areas for the DNR
  - Survey and Voluntary Testing of WPDES Facilities
  - Biosolids and Landspreading
  - Effective Disposal (Incineration, Landfill efficacy)
  - PFAS Research
  - Foam on waterways
  - Fish and Wildlife
  - AFFF
  - Screening, Prioritizing, and Geolocating PFAS Sources
  - More to come…..

Department PFAS Initiatives

AFFF: Fire Depts and Airport Surveys; BMPs; and Possible Clean Sweep

- Purpose
  - Determine where PFAS containing foams have been used, stored, trained with – State Survey
  - Develop protocols to help in reducing use of PFAS-containing foams – BMPs + Fire Responder Health and Safety
  - Coordinate collection and disposal of PFAS-containing foams across the state
- Resources
  - Allocated $50,000 in FY19 for projects

Department PFAS Initiatives

AFFF: Fire Depts and Airport Surveys; BMPs; and Possible Clean Sweep

- State Survey
  - Working closely with fire fighting organizations to determine which entities across the state will participate in the survey
  - Targeting survey delivery in 2019

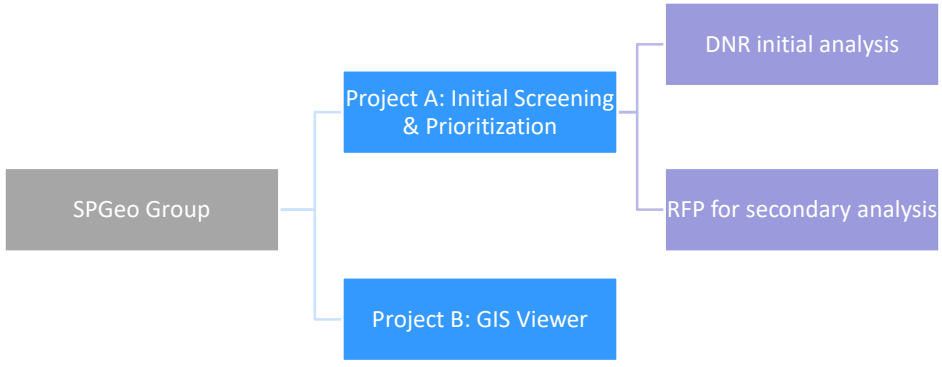
Department PFAS Initiatives

Screening, Prioritization and GIS (SPGeo) Group

- Purpose
  - Develop protocols to help in prioritizing sites
  - Coordinate collection of PFAS sampling data and tools for analysis
  - Develop external GIS viewer for display of data and site information
- Resources
  - Allocated $150,000 in FY19 for projects

Department PFAS Initiatives

Screening, Prioritization and GIS (SPGeo) Group



PFAS Technical Advisory Group

Drinking Water and Groundwater

Steve Elmore – Bruce Rheineck

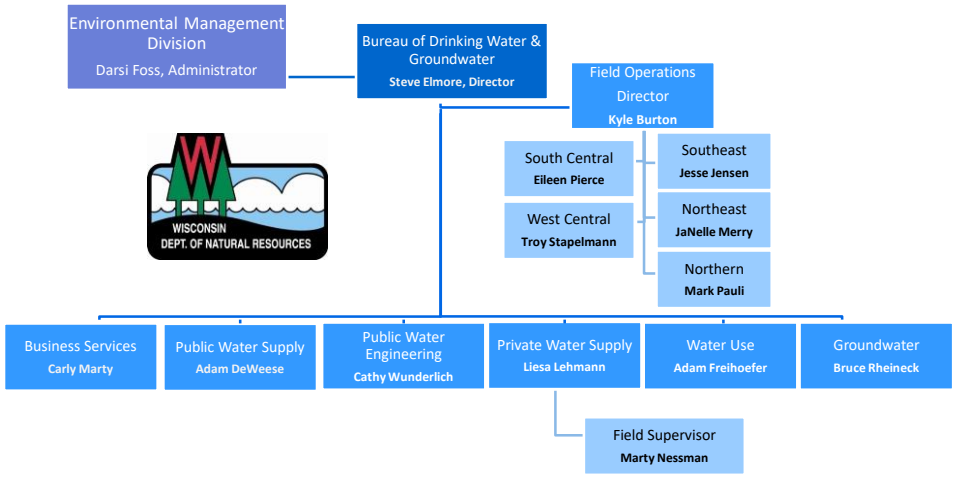
Drinking Water and Groundwater

Outline

- Drinking Water & Groundwater Program
- NR 140 Groundwater Quality
- NR 809 Safe Drinking Water

Drinking Water and Groundwater

Drinking Water & Groundwater Program Supervisors



Drinking Water and Groundwater

Wisconsin's Groundwater Law

- Ch. 160, Wis. Stats.
- Minimize concentration of polluting substances in groundwater
- Protect public health, welfare and environment
- Set numerical standards in NR 140

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Drinking Water and Groundwater

Groundwater Quality

- DHS Public Health Recommendations
  1. Review literature and available scientific information
     - gather all available data, which can mean hundreds of scientific journal articles
     - review specific concentrations set by the U.S. Environmental Protection Agency and other health-based guidelines
  2. Select appropriate science-based standards
     - Wisconsin state law provides the process for selecting the appropriate standard
     - must use the most recent federal number unless there is significant technical and scientifically valid information that was not considered
  3. Write documents explaining findings and recommendations

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Drinking Water and Groundwater

Groundwater Quality

- Standards apply to all state groundwater regulatory programs
  - Solid and Hazardous wastes
  - Spills and Remediation sites
  - Wastewater and Water Quality
  - Septic tanks
  - Salt storage
  - Fertilizer and pesticides, etc.
  - Bottled Drinking water
  - Well Compensation Grant Program

WISCONSIN DNR Department of Natural Resources **Drinking Water and Groundwater**

Groundwater Quality

- Applying NR 140 Groundwater Standards
  - Agencies review existing rules regulating facilities, activities and practices
  - Agencies revise rules to achieve compliance with standards
  - If standards exceeded, agencies must take site specific actions from a range of responses
  - Site specific exemptions allowed
    - Based on background conditions
    - Must meet certain criteria and conditions

WISCONSIN DNR Department of Natural Resources **Drinking Water and Groundwater**

"Cycle 10" – Sent to DHS March 2, 2018

Possible Revised Standards	
1	Trichloroethylene (TCE)
2	Tetrachloroethylene (PCE)
3	1,2,3-Trichloropropane (1,2,3-TCP)
4	1,1-Dichloroethane (1,1-DCA)
5	Boron
6	Molybdenum
7	Aluminum
8	Cobalt
9	Barium
10	1,4-Dioxane
11	Bacteria, Total Coliform

Possible New Groundwater Quality Standards	
1	Chromium, Hexavalent
2	Strontium
3	Thiamethoxam
4	Imidacloprid
5	Clothianidin
6	Isoxaflutole
7	Isoxaflutole DKN degradate
8	Isoxaflutole BA degradate
9	Thiencarbazone-methyl
10	Dacthal TPA & MTP degradates
11	Glyphosate
12	Glyphosate AMPA degradate
13	Sulfentrazone
14	Bacteria, Escherichia coli (E. coli)
15	Perfluorooctanoic Acid (PFOA)
16	Perfluorooctane Sulfonate (PFOS)

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Drinking Water and Groundwater

Substance	New or Existing	Enforcement Stannard Recommended Value		Preventive Action Limit Recommended Value	
1,1-Dichloroethane	Existing	No Change	850 µg/L	No Change	85 µg/L
1,2,3-Trichloropropane	Existing	↓	0.3 ng/L	↓	0.03 ng/L
1,4-Dioxane	Existing	↓	0.35 µg/L	↓	0.035 µg/L
Aluminum	Existing	No Change	200 µg/L	No Change	20 µg/L
Bacteria (Total coliform)	Existing	No Change	0	No Change	0
Bacteria (*E. coli*)	New	n/a	0	n/a	0
Barium	Existing	No Change	2 mg/L	No Change	0.4 mg/L
Boron	Existing	↑	2,000 µg/L	↑	400 µg/L
Clothianidin	New	n/a	1,000 µg/L	n/a	200 µg/L
Cobalt	Existing	No Change	40 µg/L	↓	4 µg/L*
Dacthal MTP and TPA degradates	New	Combine with dacthal	70 µg/L	↓	7 µg/L*
Glyphosate	New	n/a	10 mg/L	n/a	1 mg/L
Glyphosate AMPA degradate	New	n/a	10 mg/L	n/a	2 mg/L
Hexavalent chromium	New	n/a	70 ng/L	n/a	7 ng/L
Imidacloprid	New	n/a	0.2 µg/L	n/a	0.02 µg/L
Isoxaflutole & Isoxaflutole Diketonitrile (DKN)	New	n/a	3 µg/L	n/a	0.3 µg/L
Isoxaflutole Benzoic Acid (BA)	New	n/a	800 µg/L	n/a	160 µg/L
Molybdenum	Existing	No Change	40 µg/L	↓	4 µg/L*
PFOA & PFOS	New	n/a	20 ng/L	n/a	2 ng/L
Strontium	New	n/a	1,500 µg/L	n/a	150 µg/L
Sulfentrazone	New	n/a	1,000 µg/L	n/a	100 µg/L
Tetrachloroethylene (PCE)	Existing	↑	20 µg/L	↑	2 µg/L
Thiamethoxam	New	n/a	100 µg/L	n/a	10 µg/L
Thiencarbazone-methyl	New	n/a	10 mg/L	n/a	2 mg/L
Trichloroethylene (TCE)	Existing	↓	0.5 µg/L	↓	0.05 µg/L

* Although DHS is not recommending a change in the enforcement standard for this substance, we are recommending a change in the preventive action limit. Please refer to the specific science support documents for each of the substances for more detail.

DHS Recommendations – Received June 21, 2019

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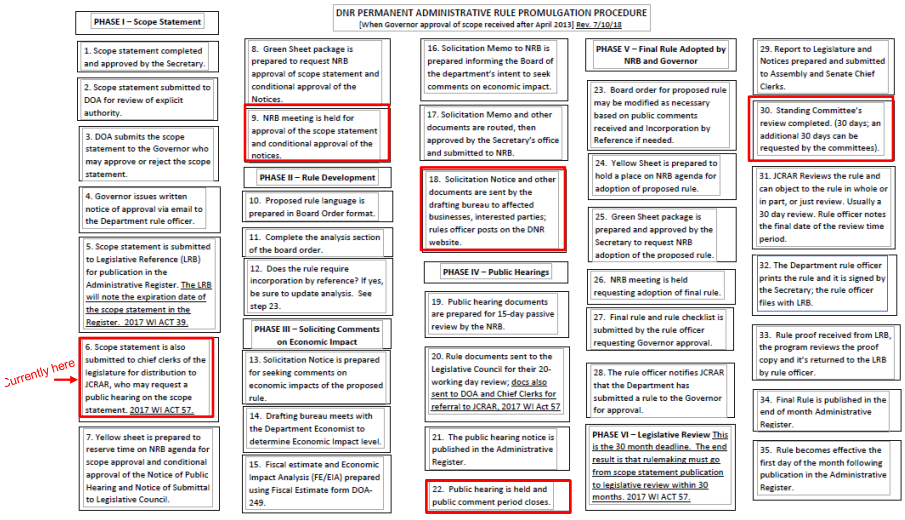
How we compare to other States?

		Groundwater (all values in ppt)				
		PFOA	PFOS	PFHxS	PFNA	*Groundwater Standard/Guideline Policy Type*
Colorado	*Singular or combined*	70	70			*Site-specific Groundwater Quality Standard (proposed)*
Delaware	*Singular or combined*	70	70			*Reporting Level (not promulgated)*
Massachusetts		20	20	20	20	*Groundwater Standard (proposed)*
Michigan	*Singular or combined*	8	16			*Clean-up Standard (proposed)*
Minnesota		35	15	47		*Guidance Level*
New Hampshire		12	15	18	11	*Ambient Groundwater Quality Standard (proposed)*
New Jersey		10	10		10	*Groundwater Quality Standard*
Vermont	*Singular or combined*	20	20	20	20	*Cleanup Level (enforceable)*
Wisconsin	*Singular or combined*	20	20			*Groundwater Standard (proposed)*

Developing Standards:

Rulemaking Today



Rulemaking: Public Input & Transparency

- Each rule will have formal public input points.
- DNR will host advisory meetings with stakeholders.

WISCONSIN DNR Drinking Water and Groundwater

Cycle 10 Rulemaking Timeline

Spring 2018
- DNR letter sent to DHS [PDF] - March 2, 2018

↓

Summer 2019
- DHS response to letter from DNR [PDF] - June 21, 2019

↓

Fall 2019
- Statement of Scope [PDF exit DNR] approved by DNR secretary, governor

← (We are here)

WISCONSIN DNR Drinking Water and Groundwater

"Cycle 11"

- Cycle 11 list sent to DHS …
  - 6 Agricultural chemicals
    - 4 herbicides, 1 insecticide, 1 fungicide
    - Detected in WI groundwater
  - 34 PFAS compounds
    - Some detected in WI groundwater, some not yet tested for
- DHS estimated recommendations – Fall 2020

WISCONSIN DNR Department of Natural Resources **Drinking Water and Groundwater**

Drinking Water Standards

- NR 809, Safe Drinking Water
- Maximum Contaminant Level (MCL)
- Scope statement for establishing a state MCL for PFAS

WISCONSIN DNR Department of Natural Resources **Drinking Water and Groundwater**

Questions?

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Adam DeWeese, Public Water Supply Section Chief
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Drinking Water and Groundwater

WISCONSIN DNR Department of Natural Resources

PFAS Technical Advisory Group

Lab Certification

Steve Geis

Lab Certification

- **Lab Cert sets standards to ensure high quality data**
- **Ensure that the data is comparable**
- **So how does Lab Cert set standards for PFAS analysis when there is no EPA published method for non-potable waters?**

Lab Certification

- **The DoD is arguably the entity with the largest environmental liability in the country**
- **The DoD QSM 5.2 is widely recognized as the gold standard for PFAS analysis**

Lab Certification

- **QSM 5.2 was established to ensure that data is high quality and comparable**
- **DoD has overseen validation of thousands of PFAS results**
- **DoD has been accrediting labs for PFAS for over 5 years**

Lab Certification

- **DoD QSM 5.2 is a set of performance-based requirements**
- **Labs are allowed to develop their own method and use it as long as the requirements in QSM 5.2 are met**

Lab Certification

- The EPA has also published performance-based methods
- Already published are EPA 1690, 1668, 1638, 1636, 1631, 1630 and 1613
- The future EPA PFAS isotope dilution will also be a 1600 performance-based method

Lab Certification

- DoD is leading the effort to write EPA's PFAS method for non-drinking water matrices
- The new method will most likely look very similar to DoD 5.2

Lab Certification

- **Lab Cert has taken DoD QSM 5.2 and removed some of the overly prescriptive requirements which results in the WI PFAS Method Requirements document**
- **Labs will need to meet the requirements of this document to be WI certified for PFAS**

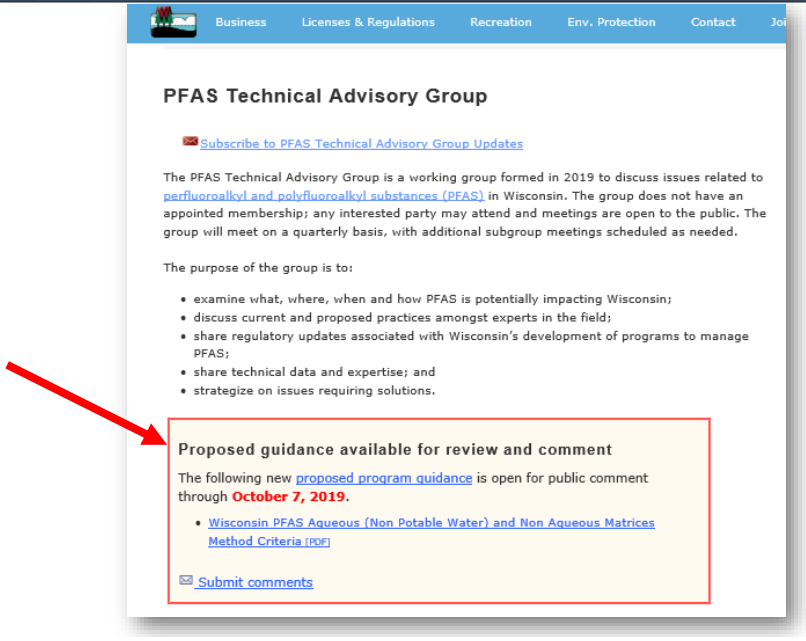
Lab Certification

- **WI method criteria bridges the gap until EPA's non-potable method is published**
- **36 compound list selected based on most likely to be present**

Lab Certification

- **Our partners:**
  - **Vista Analytical (CA)**
  - **Eurofins TestAmerica (CA)**
  - **SGS AXYS (Canada), also (FL)**
  - **Wisconsin State Laboratory of Hygiene**
  - **OTIE (TX)**
  - **US Navy (SC) & EPA**

Lab Certification



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Stakeholder Spotlight

What should DNR Know – Audience Led Discussion

Stakeholder Spotlight

Audience Share: What should DNR Know about ?

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Air Program

Gail Good

PFAS Plan - Air

- FY20 chartered project
- Intended benefit: The air program will develop a plan to address and meet current PFAS needs, including development of an understanding of air fate and transport, sources that may be air emissions of PFAS, and strategies to address the issue, utilizing developing science.

PFAS Plan – Air

- **Deliverables:**
  - Understanding of the types of sources that have the potential to be air emitters of PFAS.
  - Process to coordinate with WSLH to address monitoring questions and participate, where applicable, in study related to PFAS deposition activities.
  - Process to coordinate with EPA and other organizations on stack testing, emissions inventory, and monitoring goals.
  - Program understanding of incineration and other potential air control technologies relative to PFAS, developed in coordination with the WMM program and other relevant external partners.
  - Communication materials that describe the air program's work, understanding, and approach to PFAS in Wisconsin.

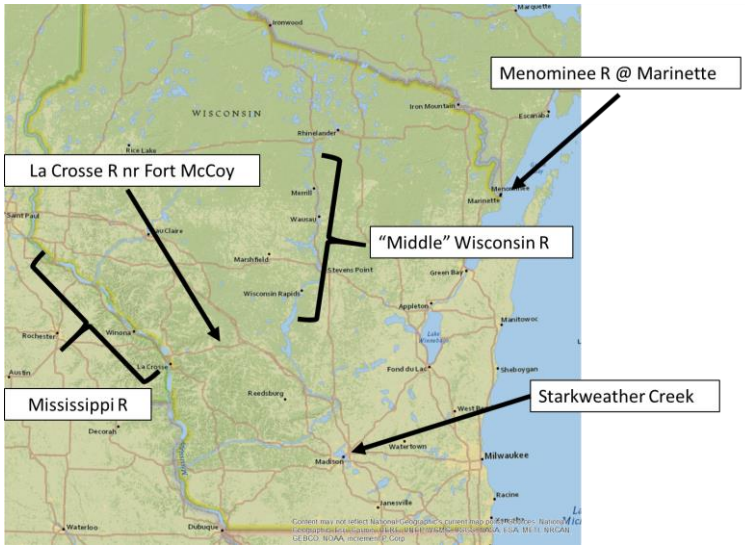
PFAS Technical Advisory Group

Water Quality Program Updates

Adrian Stocks

Water Quality Program

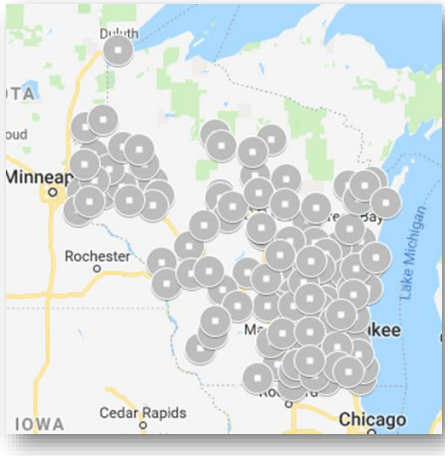
- Sampling surface water and fish tissue at select locations for PFAS in 2019.



POTW Screening Initiative

- Recipients chosen based on a number of factors.

- 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



POTW Screening Initiative

- Letter to the facilities had a background explanation and a series of requested actions.

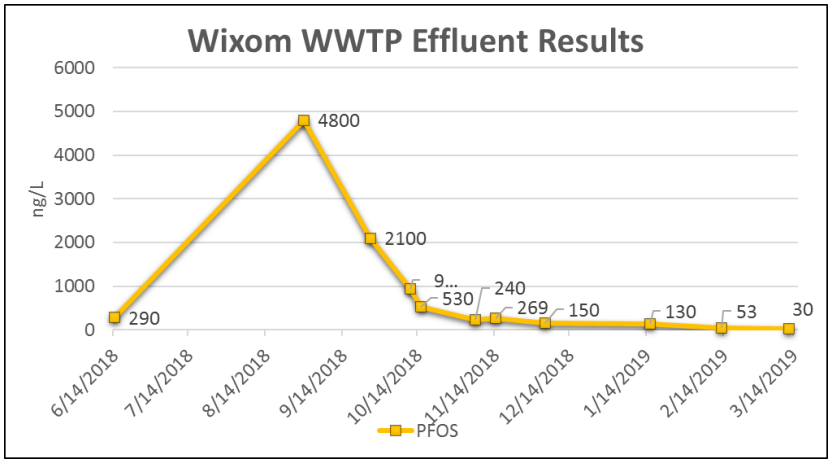
POTW Screening Initiative

Requested Actions

- Voluntary sampling of influent and effluent
  - 36 PFAS compounds
  - Use isotope dilution method
  - Within 90 days of receipt of letter
- Source Identification and Reduction
  - 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

POTW Screening Initiative

- Intended outcome: scope the extent of the PFAS problem in Wisconsin and take source reductions measures.



Source: Michigan EGLE, "Michigan's IPP PFAS Initiative" (May 2019)

POTW Screening Initiative

- Source control methods have been proven to work.

Other WQ Initiatives

Assessment of the Impacts of PFAS in Municipal Wastewater Effluents and Land-Spread Biosolids on Wisconsin Ground- and Surface Waters

Study Component A: Determine the TYPE and QUANTITIES of PFAS Associated with POTWs and Streams Receiving POTW Effluents

(a) Quantify PFAS within the POTW – dual emphasis **(a) retention** (influent – effluent); **(b) cycling**/**processing** of PFAS within the facility. Samples of influent and effluent streams as well as selected locations within the treatment facility, including sludges and biosolids slurries

(b) Quantify PFAS in the Stream Receiving the POTW Effluent. **Stream water** and **sediment** samples upstream of discharge, in the mixing zone, and downstream of mixing zone

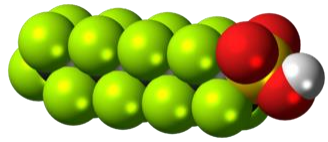
POTW Screening Initiatives

Assessment of the Impacts of PFAS in Municipal Wastewater Effluents and Land-Spread Biosolids on Wisconsin Ground- and Surface Waters

Study Component B: Determine the Impacts to Soils, Surface- and Ground Waters of PFAS-Containing Municipal Biosolids Spread on Agricultural Fields

(a) Quantify PFAS within the fields receiving biosolids. Samples of **soils** and **soil-water**

(b) Quantify PFAS in groundwater samples near the agricultural field study sites and in regional deeper groundwater



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Biosolids

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Biosolids

Land application of municipal sludge or biosolids for beneficial reuse is a common practice.

Biosolids

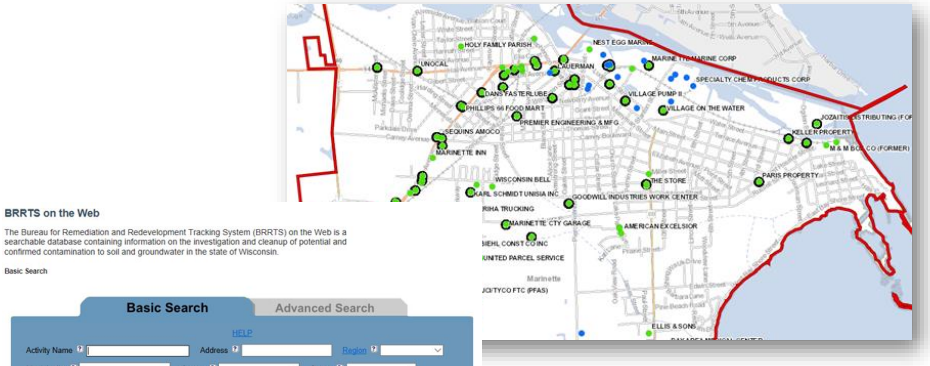
- Land application of biosolids may be a significant dispersal mechanism of PFAS compounds.

Biosolids

Reducing sources of PFAS to WWTP will result in lower concentrations in biosolids.

Dewatering Projects

- Interim strategy for dewatering projects.



PFAS Technical Advisory Group

Waste-Materials Management Updates

Joe Van Rossum + Kate Strom-Hiorns

PFAS Technical Advisory Group

Closing Remarks

Bridget Kelly

Review of Meeting

- What was helpful
- What was not helpful
- Recommendations for improvement

Next Quarterly Meeting

December 13th: 10am – 2pm

Thanks For Participating