Agenda

• Intro to PFAS Technical Group
• Minnesota Biosolids Approach
• Michigan Biosolids Approach
• Conclusions & Next Steps
PFAS Technical Group

- Supplement External Advisory Group – similar default schedule
- Information Sharing - could indirectly inform policy development
- Open Membership – run by OEC & PFAS researchers
- Focus on External Presentations – limited DNR updates
- Potential Ad-Hoc Groups
Example Topics

- Remediation, Disposal & Lab Innovations
- Sampling Results (DNR or others)
- Case Studies
- Research Results & Collaboration Opportunities
- Performance/Safety of Non-Fluorinated Alternatives
- Communication Tools & Concerns
- Standards-Related Info
- Policy Implications?
Wisconsin Biosolids Approach (Proposed)

- Biosolids sampling
- Tiered system
- Source reduction
- Farmer and landowner communication
- Stakeholder engagement

**These will be discussed in more detail during this afternoon’s External Advisory Group meeting**
Minnesota Biosolids Approach for PFAS

• In Progress:
  • MN PFAS BluePrint
  • Legislative-Citizen Commission on Minnesota Resources (LCCMR)
    • Developing Strategies to Manage PFAS in Land-Applied Biosolids
    • 1.5 Million Research Project
  • Legislative Actions
  • EPA Biosolids Risk Assessment
Minnesota’s PFAS Blueprint supports a holistic and systematic approach to address PFAS.

• Acknowledges interconnections between programs, policies, and regulations.

• Proposes strategic path forward.
Minnesota's PFAS Blueprint: Contents

Outline

• **Introduction**: Provide an overview of PFAS, including the history of PFAS response in Minnesota

• **10 Issue Papers**:
  
  • Cover page – 1-page overview of topic
  
  • Introduction – scientific and regulatory context needed to understand the topic
  
  • Past and ongoing activities – what was done, who led the effort, why was it beneficial (what did we learn), challenges, how much time/money
  
  • Gaps and key areas of opportunities – initiatives under consideration that could fill gaps
  
  • Areas of intersection with other topics

• **Appendixes**: Preliminary designation of “2021 legislative priorities,” “short-term,” and “medium to long-term,” acknowledging resource needs and other contingencies

**Goal**: Ground discussion of next steps for managing PFAS in various topic area
Ten topic areas:

- Preventing PFAS pollution
- Measuring PFAS effectively and consistently
- Quantifying PFAS risks to human health
- Limiting PFAS exposure from drinking water
- Ensuring safe consumption of fish and game
- Limiting PFAS exposure from food
- Understanding risks from PFAS air emissions
- Protecting ecosystem health
- Remediating PFAS-contaminated sites
- Managing PFAS in waste
General Approach

1. **Prevent**
   PFAS pollution wherever possible

2. **Manage**
   PFAS pollution when prevention is not feasible or pollution has already occurred

3. **Clean up**
   PFAS contaminated sites
Managing PFAS in waste – gaps and opportunities

Research:
- Understand the fate and transport of PFAS in land-applied biosolids
- Investigate PFAS groundwater contamination at landfills in the Closed Landfill Program

Source reduction:
- Advance pollution prevention (P2) initiatives, up to and including strategies to ban or restrict PFAS uses
- Support WWTPs and other waste facilities in identifying and reducing sources of PFAS to their facilities

Regulation:
- Monitoring at permitted facilities; Water Quality Standards for PFAS
Monitoring considerations in the PFAS Blueprint

The Blueprint included several short-term initiatives related to PFAS monitoring and PFAS emissions reporting:

- Develop a plan for monitoring PFAS at active landfills
- Develop a plan for monitoring PFAS at NPDES permitted facilities
- Add PFAS to Minnesota’s Air Emissions Inventory (ongoing)
- Develop a plan for performance testing for PFAS at permitted air sources
- Update guidance for recommended analyte sampling at clean-up sites to include PFAS

The PFAS Monitoring Plan will coordinate these short-term initiatives related to source discovery and mitigation.

Translating the Blueprint to policy actions
Multi-sector PFAS Monitoring Plan

• Different approaches being discussed with our NPDES/SDS facilities
  • All facilities
  • Facilities with industrial inputs
  • Major facilities

• Stakeholder meetings

• Proposed plans this fall
LCCMR Project: Developing Strategies to Manage PFAS in Land-Applied Biosolids

• Analyze alternative disposal and treatment options and develop tools for managing PFAS-contaminated land applied substances like biosolids

• Evaluate how PFAS moves from land applied substances, like biosolids, into soils, water, and crops

• Contact information:
  • Carl Rosen, U of M Department of Soil, Water, Climate
    • 612-625-8114
    • crosen@umn.edu; rosen006@umn.edu
  • Summer Streets, MPCA
    • 651-757-2761
    • summer.streets@state.mn.us
• $600,000 for developing and implementing a plan to reduce PFAS to WWTF
• Working with a defined advisory committee:
  • Identify sources of PFAS
  • Source reduction strategies
  • Publish and distribute education activities
  • Identify issues of further concern
  • Publish report by Jan 1, 2023
• Food packaging ban

Sec. 105. [325E.075] FOOD PACKAGING; PFAS.

Subdivision 1. Definitions. (a) For purposes of this section, the following terms have the meanings given.

(b) “Food package” means a container applied to or providing a means to market, protect, handle, deliver, serve, contain, or store a food or beverage. Food package includes:

1. a unit package, an intermediate package, and a shipping container;
2. unsold receptacles, such as carrying cases, crates, cupa, plate, bowls, pails, rigid foil and other trays, wrappers and wrapping films, bags, and tubs; and
3. an individual assembled part of a food package, such as any interior or exterior blocking, bracing, cushioning, weatherproofing, exterior wrapping, coatings, closures, inks, and labels.

(c) “Perfluoralkyl and polyfluoralkyl substances” or “PFAS” means a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom.

(d) “Intentionally added” means PFAS deliberately added during the manufacture of a product where the continued presence of PFAS is desired in the final package or packaging component to perform a specific function.

Subdl. 2. Prohibition. No person shall manufacture or knowingly sell, offer for sale, distribute for sale, distribute, or offer for use in Minnesota a food package that contains intentionally added PFAS.

Subdl. 3. Enforcement. (a) The commissioner of the Pollution Control Agency may enforce this section under sections 115.071 and 116.072. The commissioner may coordinate with the commissioners of commerce and health in enforcing this section.

(b) When requested by the commissioner of the Pollution Control Agency, a person must furnish to the commissioner any information that the person may have or may reasonably obtain that is relevant to show compliance with this section.
Overview of EPA PFAS Activity

- EPA PFAS Action Plan
- EPA Council on PFAS
- **Biosolids Risk Assessment**
- PFAS Analytical Methods Development and Sampling Research
- PFAS Innovative Treatment Team
- Drinking Water Health Advisory Limit
• Moving forward with monitoring plan for NPDES/SDS facilities, including biosolids

• Moving forward with research to better understand the fate and transport of biosolids and assess treatment options and costs

• Source reduction work
Questions?

Sherry Bock
sheryl.bock@state.mn.us
218-316-3882
Michigan PFAS & Biosolids Strategy

August 20, 2021

Mike Person, WRD Biosolids Program
Michigan PFAS Action Response Team (MPART)

- Unique multi-agency approach
- Leads coordination and cooperation among all levels of government
- Directs implementation of state’s action strategy
- WRD - Member of Great Lakes PFAS Task Force
Biosolids Regulations

*Currently no established criteria for PFAS for biosolids under 40 CFR Part 503*

40 CFR Part 503 Standards for Land Application – Adopted 1993
- Nutrient/ pollutant/ pathogen limits based on extensive multi-pathway risk assessment.

Michigan Part 24 Administrative Rules

The EPA is currently in the process of conducting a risk assessment for additional pollutants, including PFAS.

* Will likely take years to complete the evaluation
States under increasing pressure to answer questions about PFAS in Biosolids

Limited Options:

- Do Nothing
- Adopt a standard - may not accurately characterize the fate of the chemical
- Adopt a Strategy that focuses on using sampling to
  - mitigate risks
  - Drive source reduction efforts to continue lowering concentrations in Biosolids
EGLE’s goal for wastewater treatment plants is to continue reducing PFAS concentrations in biosolids to the maximum extent practicable, while achieving or maintaining compliance with Surface Water Quality Standards (WQS) at the WWTP effluent.

Through implementation of this strategy, EGLE strives to prevent further land application of industrially impacted biosolids, mitigate (reduce) risks moving forward, and continue driving PFAS concentrations present in impacted biosolids down as quickly as possible.
## Substantial PFOS Reduction at WWTPs with Exceedances

<table>
<thead>
<tr>
<th>Municipal WWTP</th>
<th>Recent PFOS Effluent* (ng/L)</th>
<th>PFOS Reduction (highest to most recent)</th>
<th>Actions Taken to Reduce PFOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WWTP #14</td>
<td>&lt;1.9</td>
<td>99 percent</td>
<td>Treatment (GAC) at source (1)</td>
</tr>
<tr>
<td>WWTP #49</td>
<td>3.4</td>
<td>97 percent</td>
<td>Treatment (GAC/Resin) at source (1)</td>
</tr>
<tr>
<td>WWTP #50</td>
<td>&lt;7.48</td>
<td>99 percent</td>
<td>Treatment (GAC) at source (1)</td>
</tr>
<tr>
<td>WWTP #53</td>
<td>4.84</td>
<td>90 percent</td>
<td>Treatment (GAC) at sources (2), change water supply</td>
</tr>
<tr>
<td>WWTP #54</td>
<td>5.4</td>
<td>98 percent</td>
<td>Eliminated leak of AFFF, some cleaning</td>
</tr>
<tr>
<td>WWTP #57</td>
<td>4.9</td>
<td>99 percent</td>
<td>Treatment (GAC) at source (1)</td>
</tr>
<tr>
<td>WWTP #92</td>
<td>&lt;47.7</td>
<td>99 percent</td>
<td>Treatment (GAC) at source (1)</td>
</tr>
<tr>
<td>WWTP #38</td>
<td>8.8</td>
<td>68 percent</td>
<td>Treatment (GAC) at source (17)</td>
</tr>
<tr>
<td>WWTP #9</td>
<td>9.4</td>
<td>33 percent</td>
<td>Restricted landfill leachate quantity acceptance</td>
</tr>
<tr>
<td>WWTP #74</td>
<td>10</td>
<td>99 percent</td>
<td>Elimination of source PFOS (2)</td>
</tr>
</tbody>
</table>

*Data received as of June 24, 2021
** Greater than Water Quality Standards
PFOS Reduction After IU Pretreatment

- **GAC Installed at IU**
- **Modified GAC Unit Installed at IU**

**PFOS Biosolids Results (ppb)**

**PFOS Effluent Results (ppt)**
Up / Downstream Surface Water PFOS Concentrations

Flint River Sampling Location

Surface Water PFOS (ng/L)

- 2013
- 2016
- 2017
- 2021
- WQS

Holloway Reservoir - Bass Fillets

![Bar chart showing PFOS levels in bass fillets from Holloway Reservoir in 2016 and 2019.]

- **Fish Length (inches):** 11, 12, 12, 12, 13, 14, 14, 15, 16, 16
- **PFOS (parts per billion):**
  - 2016: Various levels across fish lengths
  - 2019: Lower levels compared to 2016
Statewide Biosolids Study

What we have Learned - how that’s being applied to Interim biosolids strategy

- Selected /Sampled Effluent, Influent, & Biosolids from 42 WWTPs
  - 20 Largest WWTPS
  - Others- Various treatment processes
  - Some with no industrial users
- Conduct Biosolids Site Investigations
  - (soil, gw, sw) of Biosolids Land Application Sites
Sludge/Biosolids PFOS Results Excluding Industrially Impacted

Final Treated Sludge and Biosolids

- Screening Threshold = 150 µg/Kg
- Average = 18 µg/Kg

PFOS (µg/Kg or ppb)

WWTP

Non-Detect
Statewide Study - WWTP Stabilized Sludge/Biosolids PFOS Results
PFAS in Sludge /Biosolids - When is it considered industrially impacted?

No Regulatory Limit - Looking to EPA to lead

- Threshold level of 150 ppb is being used at the point at which biosolids is considered industrially impacted.
  
  • Determination of “industrially impacted” is based on a number of factors including
    – Review of literature and land application studies with high PFAS concentrations (Results of Statewide Biosolids Study
    – Results of soil /gw sampling of land application sites in Michigan
    – Natural Break Point in results

**This is not a risk-based number. As more information about fate and transport of these chemicals becomes available, including the field study results, this level will be reevaluated as necessary**
Statewide Biosolids Study

Land Application Field Screening
22 Fields Screened from 8 WWTPS
- 11 Sites from WWTPs w/ PFOS > 1000 ppb
- 11 sites w/ PFOS < 50 ppb
- Sampled: Soils, groundwater, tile drains, swales, ponding/perched waters and surface waters
- Developed field prioritization process to screen "worst case scenarios" for each facility
Statewide Biosolids Study

**Summary of Results**

- Generally found higher concentrations on historic sites of WWTPs deemed industrially impacted.
- Did not find significant wide scale groundwater impacts at the historic sites. Still have more work to do to investigate potential legacy sites.
- Did find some elevated concentrations in surface water, i.e., ponded water, etc.
- Source reduction efforts have been highly successful in significantly decreasing PFOS concentrations in the influent, effluent, and biosolids/sludge.
Detailed Report Document

*Detailed Report finalized April 2021*
Field Reports

EGLE Field Report Summary

- 6 Technical Field Reports
- Posted on EGLE Biosolids Page

STATEWIDE WASTEWATER TREATMENT PLANT AND BIOSOLIDS PFAS STUDY
Field Reports Summary

April 2021
Interim Strategy
– Land Application of Biosolids Containing PFAS

*Finalized March 2021
Interim Strategy
– Land
Application of Biosols
Containing PFAS

Mass mailing
letters to all
WWTPs with
approved RMPs
Michigan Part 24 Administrative Rules

Rule 2404. (1) On a case-by-case basis, the permitting authority may impose requirements for the use of biosolids in addition to, or more stringent than, the requirements in these rules if necessary, to protect the public health and the environment from any adverse effect of a pollutant in the biosolids.
Strategy Components - Land Application of Biosolids Containing PFAS

*** Depending on results and sources, additional sampling may be required

**Sampling** - Additional monitoring for PFAS of land applied biosolids. 
For land application occurring after July 1, 2021

One Sample Per Year – All USEPA Majors/All IPPs that intend to land apply.
• Collect/analyze a minimum of one representative biosolids sample each year.

One Sample Each Permit Cycle (five years) – All other WWTPs that intend to land apply biosolids.
• Collect a minimum of one representative prior to land application. Thereafter, 1 additional samples based on permit cycle. One-time RMP approvals (ie lagoons) one representative sample per cell for PFAS analysis prior.
Strategy Components - Land Application of Biosolids Containing PFAS

Schedule of Compliance through Miwaters –

Submit Analytical Results at least 2 weeks prior to land application. Plan for over 4 week turn around time

PFOS at or above 150 μg/kg.
- Biosolids are deemed Industrially Impacted and cannot be land applied. Arrange alternate disposal.
- Sample effluent and investigate /develop a source reduction program.

PFOS at or above 50 μg/kg but below 150 μg/kg.
- Immediately notify EGLE, WRD Staff.
- Sample effluent and investigate /develop source reduction program. Non –majors collect yearly biosolids sample
- Reduced application rates to 1.5 dry tons acre (or alternative risk mitigation strategy).

PFOS below 50 μg/kg.
- If results are over 20 μg/kg PFOS - Consider investigating sources and sampling effluent for PFAS. Guidance can be obtained from the WRD IPP PFAS staff.
Biosolids Strategy - Preliminary wwtp sampling results

* As of 8/18/21
Communications / Transparency - Dialogue between WWTPS / Contractors with landowners / farmers on PFAS in biosolids

Prior to application, analytical results of PFOS and additional PFAS in biosolids information will be shared with landowners and/or farmers.

- Provide State Contacts for PFAS in Biosolids Map (EGLE and MDARD Biosolids Staff).
- Provide a link to Landowner / Farmer PFAS Resources webpage within the MPART Land Application Writeup.
Landowner / Farmer Template Letter

[Date]

[Farmer Name / Landowner: Name]
[Address]

Subject: Biosolids Application Notification

[Please add generation name] is preparing to apply biosolids on land you own and/or farm.
Recently there has been a lot of information in the news about Per- and polyfluoroalkyl substances (PFAS) in our environment. The intent of this letter is to provide a brief update on what is being done to control these substances in biosolids, our recent biosolids sample results, and where additional information can be obtained.

PFAS are a large group of chemicals used for decades in some industrial, commercial, and domestic settings and are found worldwide. Typical materials or processes that use or contain PFAS include firefighting foam, chrome plating, cookware coatings, waterproofing on clothing and shoes, and even food wrappers. Some PFAS, including Perfluorooctanoic acid (PFOA) which is commonly found in biosolids, have been phased out of production in the United States and are no longer approved for use. Even though they have not been used for years, their legacy remains.

Wastewater Treatment Plants (WWTPs) do not generate PFAS chemicals, though they may receive discharges from certain industrial or commercial sources who have used PFAS. As a result, PFAS may be found in treated wastewater and biosolids. Some of those PFAS are known to travel through water; can linger in the environment; and have the potential to impact the soil, water, and crops. PFAS has been found to build up in the tissue of fish and deer in Michigan and in some areas led to consumption advisories. Studies are underway to determine the impact of PFAS on animals, animal products, and crops.

Currently, the United States Environmental Protection Agency is conducting a risk-based evaluation of PFAS in biosolids. Until that is completed, Michigan’s Department of Environment, Great Lakes, and Energy (EGLE)’s Water Resources Division (which regulates the land application of biosolids) has developed a strategy working with WWTPs to implement an approach, focusing on identifying and reducing, significant sources of PFAS entering a WWTP and preventing industrially impacted biosolids from being applied. As a result of these efforts, several WWTPs have already seen significant reductions of PFAS concentrations in their biosolids.

Should you have additional questions concerning Michigan’s strategy to monitor and reduce sources of PFAS in biosolids, please do not hesitate to reach out to one of the EGLE Biosolids staff or the Michigan Department of Agriculture and Rural Development (MDARD) contact provided on the attached page. More information about the work being done on PFAS in biosolids in Michigan can be obtained by visiting the Landowner/Farmer PFAS section of the PFAS Land Application Workgroup Web page: Michigan.gov/EGLELandApplication.

Our most recent PFOS testing result is [Result number]; [Date]. Presently EGLE’s threshold concentration for PFOS in biosolids to be considered industrially impacted is 150 ppb.

Enclosure: Statewide Biosolids and PFAS Contacts Map
Landowner / Farmer Quick Facts Doc
Collaborative effort with MWEA

**Biosolids and PFAS: Quick Facts for Landowners/Farmers**

**What are Biosolids?** Biosolids are the treated materials produced during the processing of wastewater at a wastewater treatment plant (WWTP) (also known as a water resource recovery facility). Biosolids are rich in nutrients and organic matter and may be used as fertilizer or soil amendments to benefit crops. A biosolid’s quality and their proper use are regulated by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the U.S. Environmental Protection Agency (USEPA). The Michigan Department of Environment, Great Lakes, and Energy (EGLE) and the USEPA require biosolids to undergo a treatment process and be tested for certain pollutants to protect human health and the environment. Those processes refine the biosolids so that they can be applied at agronomic rates, providing a stable and valuable source of plant nutrients and soil structural enhancements.

**What are PFAS and how do they get in wastewater?** Per- and Polyfluoroalkyl substances (PFAS) are a large group of chemicals used for decades in industrial, commercial, and domestic settings and are found worldwide. Typical materials or processes that use or contain PFAS include firefighting foam, oleoresistant coatings, water-repellent clothing, and carpet, and even food wrappers. Some PFAS, including Perfluorooctane Sulfonate (PFOS), which are most commonly found in biosolids, have been phased out of production in the United States and are no longer approved for use. Even though they have not been used for years, their legacy remains.

**WWTPs do not generate PFAS chemicals, though they may receive discharges from certain industrial or commercial sources who have used PFAS. As a result, PFAS may be found in treated wastewater and biosolids. Some of those PFAS are known to travel through water, enter the environment, and have the potential to impact the soil, water, and crops. PFAS have been found to be present in the tissue of fish and deer in Michigan and in some areas lead to consumption advisories. Studies by EGLE and USEPA are underway to determine the impact of PFAS on animal products and crops. Some studies have shown that certain PFAS may harm human health, therefore, it is important to minimize exposure to all sources of PFAS in drinking water and food. For more information and referencing, please go to the websites listed below.**

**The WWTP you are receiving biosolids from is [name].**

You can reach the facility at:

**Phone:** [number]  **Email:** [email]

**Most recent PFOS testing result is:**

[levels per ppb on site]

Currently, EGLE’s threshold concentration for PFOS in biosolids is 150 ppb.

In 2018, EGLE launched the Industrial Pretreatment Program (IPP). IPP, PFAS Initiative which has been successful in working with WWTPs to identify, reduce, and monitor sources of PFOS. Below is a percent (by weight) of the 25 WWTPs sampled at the beginning of this initiative have already met water quality standards.

Since the initial work in 2018, through aggressive source reduction efforts, the remaining facilities have continued to demonstrate effective PFOS concentration reductions in treated wastewater by 60 to 90 percent compared to pre-2018 levels. For more information and referencing, please go to the website listed below.

Additionally, EGLE has established a protocol for WWTPs that may have biosolids impacted by PFAS industrial discharges. This includes a threshold concentration level (maximum of 150 parts per billion [ppb] for PFOS in biosolids) and monitoring requirements. Any WWTP that exceeds the threshold will not be allowed to apply biosolids until they establish long-term measures for pre-treatment, eliminate their industrial sources of PFOS, and demonstrate that PFOS concentrations in their biosolids are consistently testing below the threshold concentration.

If you, your neighbors, or your customers have questions, you can find more information on PFAS in biosolids by visiting the Michigan PFAS Action Response Team (PFAS) and Application Workgroup page [Michigan and PFAS application workgroup](https://www.michigan.gov/documents/egle/michigan-pfas-action-response-team-pfas-and-application-workgroup-7b423fde-7f9577_7.pdf)

You may also reach out to the staff people listed on the [Statewide Biosolids and PFAS Contact list](https://www.michigan.gov/documents/egle/statewide-biosolids-and-pfas-contact-list-792027_7.pdf).
State PFAS in Biosolids Contact Map
Land Application Workgroup

MISSION:

- Expand leverage of PFAS and cost of its within wastewater collection and treatment systems to develop guidance to municipal wastewater treatment plants (WWTPs), land application contractors, and farmers/landowners regarding the application of materials containing PFAS.
- Establish a durable process to evaluate potential land application sites.
- In conjunction with the Industrial Pretreatment Program (ICP) initiative efforts, reach agreement in program status that allows the majority of WWTPs to maintain the option to safely land apply biosolids. This is contingent on identifying and controlling sources within wastewater treatment systems and utilizing existing guidance.

This workgroup is led by the Department of Environment, Great Lakes, and Energy (EGLE) and is created of representatives from Michigan Department of Agriculture and Rural Development (MDARD) and Michigan Department of Health and Human Services (MDHHS).

LANDOWNERS / FARMERS: BIO SOLIDS

WHAT ARE BIO SOLIDS?

Biosolids are the solid biologic and organic materials resulting from the treatment of domestic sewage in a wastewater treatment plant (WWTP) (often our EQP). Biosolids contain essential plant nutrients and organic matter. When untreated and processed, biosolids can be recycled and applied to crops as fertilizer to improve and maintain productive soils and stimulate plant growth. For more information on biosolids, go to the Michigan Department of Environmental Quality (MDEQ) Biosolids Program Web Page Michigan.gov/biosolids

In Michigan, biosolids use is currently subject to requirements set forth in the Michigan’s Part 20, Administrative Rules, Land Application of Biosolids, promulgated under Part 25, Water Resources Protection, of the Natural Resources and Environmental Protection Act (NREPA), as amended, and the federal requirements contained in Title 40 of the Code of Federal Regulations, Part 503 Standards for the Use of Sewage Sludge on Land. These laws, standards, and rules limit the quality and quantity of biosolids that can be applied to land.

In control, sludge from WWTPs that does not meet these quality standards is typically disposed of in a landfill or processed. Sludge from industrial processes and modern water treatment systems are not considered “biosolids,” but under certain circumstances these wastes can be applied to land.

Beneficial use of biosolids as fertilizer is a rewarding practice recommended in the Michigan 21st Century Infrastructure Commission Final Report.

For more information on PFAS and biosolids are MPART’s Frequently Asked Questions document.

RECENT ACCOMPLISHMENTS:

After the Upper THURS study found a significant source of PFAS contamination in the Riverfront area, a new PFAS study was conducted by the City of Lansing. This study focused on PFAS concentrations in the Riverfront area, which confirmed the presence of PFAS in the soil. This information helped to better understand and manage PFAS contamination in the area.

In response to PFAS contamination, the state of Michigan has taken significant steps to address the issue. The Michigan Department of Environmental Quality (MDEQ) has been working closely with local governments and community members to develop and implement strategies to mitigate PFAS contamination.
Landowner / Farmer
PFAs in Biosolids
Web Page

Linked to at:
Michigan.gov/PFASLandApplication

or search

• MPART Land Application Workgroup

Landowners / Farmers Biosolids

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PFAS has been found to build up in the tissue of fish and deer in Michigan and in some areas led to consumption advisories. Studies by EGLE and USEPA are underway to determine the impact of PFAS on animals, animal products, and crops. Some studies have shown that certain PFAS may harm human health, therefore, it is important to minimize exposure to all sources of PFAS in drinking water and food. For more information and referencing, please go to the website (or link) listed below.

Michigan’s response to reducing PFAS in biosolids. Currently, USEPA is working to complete a risk-based evaluation of PFAS in biosolids. In the interim, EGLE’s strategy is a deliberative, disciplined approach which focuses on identifying and reducing significant sources of PFAS entering WWTPs and preventing industrially impacted biosolids from being land applied. These efforts have helped WWTPs reduce PFAS concentrations in their biosolids.

Additional Resources:
State Biosolids and PFAS Contact Map
MPART Human Health Workgroup
MPART Animal Health and Food Safety Workgroup
EGLE Biosolids Program
MDARD Biosolids Program
USEPA Biosolids
Michigan Biosolids PFAS-related information and links

In early 2018, E.G.E.’s Water Resources Division (WRD) developed the Industrial Pretreatment Program (IPP) PFAS Initiative Study of 55 municipal Wastewater Treatment Plants (WWTPs) to help identify and systematically reduce and eliminate sources of PFAS (PFCOS/PFOA) entering wastewater collection systems. During this study, some WWTPs were found to have elevated PFAS in their effluent and associated residuals (sludge/biosolids). Through this study, WRD identified 5 WWTPs with industrially impacted biosolids. WRD temporarily restricted their land application program until elevated sources of the PFOS were eliminated and residual PFOA concentrations were decreased.

Expanding upon the information collected during the IPP PFAS Initiative, in the fall of 2018, WRD launched a study to evaluate the presence of PFAS in Municipal Wastewater and Associated Residuals. Through this study, 42 municipal WWTPs were sampled to evaluate the presence of PFAS in influent, effluent, and residuals. As part of this initiative, 29 land application sites (associated with 10 municipal WWTPs) were evaluated to further understand the potential impact land-applied biosolids has on the environment. AECOM Technical Services, Inc. (a consulting firm) was contracted by WRD to perform all the sampling in this study. All samples were analyzed for 24 PFAS compounds.

For a summary of the study and initial findings of the IPP PFAS Initiative, see the Summary Report, PFAS in Municipal Wastewater and Associated Residuals (Biosolids). For the complete detailed report covering the IPP PFAS Initiative and the Statewide Study of 42 municipal WWTPs, see Evaluation of PFAS in Influent, Effluent, and Residuals of Wastewater Treatment Plants (WWTPs) in Michigan.

For a summary of the land application site screening results, see Statewide Wastewater Treatment Plant and Biosolids PFAS Study: Field Reports Summary. See the below attachments for detailed field reports covering the screening results for individual land application sites.

- Attachment A – Delta Twp. WWTP Field Report
- Attachment B – Gaylord, Jackson, Midland, and SHUVA WWTPs Field Report
- Attachment C – Port Huron WWTP (Fort Gratiot) Field Report
- Attachment D – Bronson WWTP Field Report
- Attachment E – Ionia WWTP Field Report
- Attachment F – Vicksburg WWTP Field Report
- Attachment G – Lapeer WWTP Field Report

Interim Strategy – Land Application of Biosolids Containing PFAS (2021)

EGLE is implementing the following interim strategy/requirements to guide WWTPs and landowners/farmers who make decisions on land applying biosolids with detectable concentrations of PFAS. The following documents describe this strategy and requirements:

- Interim Strategy – Land Application of Biosolids Containing PFAS (2021)
- RMP Notification Letter - NPDES (2021)
- RMP Notification Letter – Groundwater (2021)
- Landowner/Farmer Notification Template Letter
- Statewide Biosolids and PFAS Contacts Map

Additional Biosolids and PFAS information can be located at the following links.

- Biosolids PFAS FAQs
Biosolids Sampling /Analysis Considerations

• Methods of Analysis
• Sample Collection
• QA/QC
Biosolids/Sludge Sampling Guidance

Introduction

This guidance document contains the processes, decontamination procedures, and acceptable materials for sampling biosolids and sludge for Per- and Polyfluoroalkyl Substances (PFAS). In addition, this guidance will be used to support the sampling objectives and procedures based on the Quality Assurance Project Plan (QAPP) developed prior to sampling activities.

The Michigan Department of Environment, Great Lakes, and Energy (EGLE) intends to update the information contained within this PFAS sampling guidance document as new information becomes available. Users of this guidance are encouraged to visit the Michigan PFAS Response website (Michigan.gov/PFASResponse) to access the current version of this document.

In Michigan, the term “biosolids” is commonly used to describe the residuals created in a Wastewater Treatment Plant (WWTP) and land applied in accordance with the Part 24 Rules. Land Application of Biosolids, promulgated pursuant to Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. The term “sludge” is typically used to describe the solids that have been disposed through methods other than land application.

Any Michigan WWTP that land applies biosolids in Michigan must have an approved Residuals Management Program that includes a sampling plan describing the methodology representative of the biosolids samples to be collected. The individual responsible for overseeing the collection of the biosolids for PFAS sampling should use this guidance document in conjunction with their facility’s approved Residuals Management Program to obtain a representative biosolids sample. Special considerations should be followed as described in the project QAPP based on project objectives.

Wastewater flows through two treatment processes at a WWTP: a liquid stream and a solid stream. The liquid stream is treated by primary and secondary treatment processes at a minimum and sometimes with a tertiary treatment process. Sampling for the liquid stream of the wastewater is covered in EGLE’s Wastewater PFAS Sampling Guidance. This sampling guidance will address the analysis of biosolids and sludge, the solids portion of the wastewater that is treated through the stream. The solids content of the sludge from the primary, secondary, and possibly tertiary treatment is highly aqueous and is sometimes thickened/dewatered prior to storage for eventual land or landfilling. Biosolids and sludge samples can be obtained from many points along the WWTP solids stream.

Additional information about Michigan’s Biosolids Program, including program staff map at Michigan.gov/Biosolids.
Michigan Department of Environment, Great Lakes, and Energy

800-662-9278
Michigan.gov/EGLE

Questions?

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General Questions
Wrap-up and Next Steps