



# Emerging Contaminants: Reactions to PFAS

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# Overview

- What is an “Emerging” Contaminant?
- Issues with “Emerging” Contaminants
- What is (are) PFAS?
- PFAS Sources
- How are Environmental Agencies Addressing PFAS Emerging Contaminants?
- Sampling & Analysis QA/QC Challenges
- Remedial Action Planning
- Michigan PFAS-Related Legislative Proposals
- Emerging Contaminants in the Courts
- Environmental Diligence Considerations

# What is an “Emerging” Contaminant?

- An “emerging contaminant” could be considered a substance or compound about which toxicity to human health or the environment has recently been determined or recognized.
- Thus greater awareness that the substance or compound is or can be a “contaminant” and potentially regulated as such is “emerging.”
- Other examples: PCBs, Chromium, Mercury, 1,4-Dioxane, VOCs, Methylene Chloride, etc. ?
- Distinguish TSCA/REACH: regulating emerging *chemicals*

# Issues with “Emerging” Contaminants

Issues to consider when faced with an “emerging” contaminant:

- Use history
- Health effects
- Environmental effects
- Routes of exposure
- Fate and transport
- State of the science
  - Who to look to? Agencies? NGOs? Universities?
- Is it regulated?
  - States
  - Federal
  - Other countries
- Lawsuit potential (tort, property damage, statutory)

# What is (are) PFAS?

- The latest emerging contaminants that have been literally everywhere are perfluorinated chemicals collectively referred to as “PFAS.”
- “PFAS” means a perfluoroalkyl or polyfluoroalkyl substance; over 3,000 related compounds!
- PFAS includes, but is not limited to, PFOA and PFOS:
  - “PFOA” means perfluorooctanoic acid (CAS no. 335-6t-1).
  - “PFOS” means perfluorooctane sulfonate (CAS no. 1763-23-1).

# PFAS Sources

- PFAS have been used extensively and in wide-spread applications mostly because of their surfactant properties:
  - Carpets
  - Leather products
  - Textiles
  - Paper/cardboard packaging
  - Firefighting foams
  - Cookware non-stick coating
  - Electroplating (fume suppressant, de-mister, wetting agent)
- Therefore PFAS are found in humans and the environment at “background” levels ranging from 2.5-10 ppt.

# How are Environmental Agencies Addressing PFAS Emerging Contaminants?

- U.S. EPA
- Michigan DEQ/HHS/Fire Marshal
- Facilities: Wastewater treatment plants (IPP), landfills (leachate), airports (military, commercial), electroplaters, textile, clothing and carpet manufacturers, etc.

# U.S. EPA

- U.S. EPA lifetime (not acute) health advisory *guideline*:  
70 parts per TRILLION (ppt) for combined PFAS
- U.S. EPA PFAS National Summit (5/22-23/2018) four steps announced:
  - Evaluate need for MCL for PFOA/PFOS;
  - Designate PFOA/PFOS as CERCLA hazardous substances;
  - Develop groundwater cleanup recommendations for PFOA/PFOS;
  - Develop toxicity values for GenX & PFBS (short-chain replacements).
- ATSDR Study (Fed. Reg. 6/21/2018)
  - Adverse health effects may include liver damage, high cholesterol, thyroid disease, asthma, decreased fertility, etc.;
  - Major exposure pathways include food and water ingestion, dust/particulate inhalation, etc.;
  - Bioaccumulative and persistent;
  - ATSDR findings are not health effects standards or cleanup criteria



# Michigan DEQ

- MDEQ Part 201 Cleanup Criteria
  - Groundwater: PFAS 70 ppt (PFOA + PFOS)
  - Surface water quality/GSI: PFOS (12 ppt or 11 ppt if drinking water source); PFOA (12,000 ppt or 430 ppt if drinking water source)
  - Soil (proposed) direct contact: 2,100 ppb for PFOS or PFOA; drinking water protection 1.4 ppb PFOS, 59 ppb PFOA

# Michigan DEQ, *cont.*

- “MPART” – Michigan PFAS Action Response Team (Executive Directive 2017-4)
  - Review public health and environmental science information
  - Prepare recommendations for acceptable PFAS levels

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FAQS NEWS AND EDUCATION CONTACT MPART Q SEARCH

PFAS RESPONSE

## TAKING ACTION, PROTECTING MICHIGAN

HEALTH

HOME WATER TREATMENT

MICHIGAN PFAS SITES

WILDLIFE

FIREFIGHTING FOAM

ABOUT MPART



# Sampling & Analysis QA/QC Challenges

- Because PFAS are literally everywhere, sampling must be conducted very carefully:
  - Multiple field/equipment blanks
  - SOP: Rinseate water; Teflon tubing, containers and tools; water resistant clothing; fast food wrapping; sunscreen/lotion/cosmetics; field books/clipboards

## Sampling & Analysis QA/QC Challenges, *cont.*

- Laboratory analysis need to consider for Part Per Trillion accuracy:
  - Laboratory qualifications
  - Analytical methodology (*e.g.*, EPA Method 537, ASTM D 7979)
  - Which PFAS compounds (14 versus 24 PFAS compounds)
  - Which media? (*e.g.*, EPA Method 537 for drinking water; but what for Soils? Sludges? Air emissions?)
  - What will be accepted by regulator, court, etc.?

# Remedial Action Planning

- Groundwater
- Soils/Solids
- Air Emissions

# Michigan PFAS-Related Legislative Proposals

- Legislative Resolution Directing State Agencies' Responses
  - A resolution to propose a framework to guide agencies and ensure the most impactful and relevant decisions in the use of the funds contained in the supplemental budget for PFAS-related activities.
- Bipartisan Resolution Calling for Federal Study and National Coordination
  - A concurrent resolution to request the federal government release the draft toxicological profile on PFAS, develop a national environmental limit for PFAS, and increase coordination and funding support.
- House Democrat Legislation to Set PFOS/PFOA Levels at 5ppt
  - Legislation to set PFOS/PFOA drinking water standards to 5ppt each.

# Michigan PFAS-Related Legislative Proposals (*cont.*)

- House Democrat Resolution Calling for Federal Study
  - Calls on the Trump Administration to immediately release the draft toxicological profile on the dangers of PFAS to human health.
- Bipartisan Legislation to Regulate Use of AFFF Containing PFAS
  - Legislation to prohibit the use of AFFF containing long-chain PFAS for purposes of training exercises; requires training for proper use, storage, containment, and disposal of AFFF containing PFAS.

# Emerging Contaminants in the Courts

- Claims/Causes of Action
  - NREPA Part 201 (remediation); NREPA Part 31 (water resources); RCRA public nuisance; wrongful death; property damage (diminution in property value); trespass; products liability (failure to warn); natural resources damages
- Cases
  - *MDEQ v Wolverine Worldwide*, No. 1:18-CV-00039 (WD Mich)
  - *Zimmerman, et al. v 3M Company, et al.*, No. 1:17-CV-01062 (WD Mich)
  - *MPCA v 3M Company* (Hennepin County, 2010)
  - *NY v 3M, et al.* (Albany County, 2018)



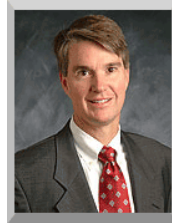
# Environmental Diligence Considerations

- How to address emerging contaminants in environmental diligence:
  - Environmental site assessments
  - Environmental compliance audits
- Insurance coverage implications

# CONCLUSION

- Focus on Current and Proposed Regulations (State and Federal)
- Self-Audits (privileged and confidential)
- Media/Public/Employee/Investor Relations
- Best Management Practices
- Stay Tuned!

# QUESTIONS?



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