MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY

Prioritizing Investigations

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Potential Sites and Sources

- Landfills
- Industrial sites
- Military installations
- Chrome platers
- Fire training areas
- Commercial dry cleaners
- Land application sites
- ...

- Historic dumps
- State cleanup sites
- Federal cleanup sites
- Wastewater treatment plants
- Industrial dischargers
- Chemical manufacturers
- Paper mills

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Programs

- Solid Waste
- Hazardous Waste
- CERCLA
- Superfund
- Environmental Remediation
- Liquid Industrial Byproducts
- Clean Water
- Clean Air
- Drinking Water
- Underground Storage Tank
- Brownfields Redevelopment
- …

Challenges

- Statewide scope
- Can't do it all at once
- Multiple programs
- Dedicated resources
- Limited resources
- Lack of data
- Time for analytical
- Evolving science
- Evolving standards
- Responsible parties
- Synchronizing state programs
- Coordinating with federal led actions
- Dealing with what we discover

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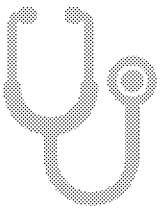
Priority



#1 Public health – identify and reduce exposure

Environment and natural resources

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Remediation and Redevelopment Division

Finds Sites Systematically

- Maps suspected users (platers, airports, military, etc.)
- 5-year reviews at CERCLA sites
- Adding PFAS sampling to current sites in investigation or remediation phases
- Identifies through MPART Initiatives
  - IPP
  - Drinking Water
  - Landfill

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Remediation and Redevelopment Division

Finds Sites Organically

- Baseline Environmental Assessments
- Citizen Complaints
- Private well sample results
- Results of investigation pointing to a new source

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Remediation and Redevelopment Division

Prioritizes

- Human Health
  - Immediate and ongoing effects
  - Potential threats
- Ecological Concerns
- Community Awareness
- Interactions with other Programs

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Remediation and Redevelopment Division

Checklists and Questionnaires Help to determine Program Priorities

PFAS?

Already sampled for PFAS at your site, but have new results? Unsure who all needs to know?
(Examples 1, 2, 3, 4, 8 – see pg. 2)

Think you need to sample for PFAS at your site **for the first time**? STOP! Complete everything below:

1. Complete a MDEQ PFAS Investigation Priority Questionnaire
   a. Submit to District/Assistant District (FM) Supervisor
      i. FM will submit to Kathy Shirey, MDEQ PFAS Executive Team, PFAS Regional Lead, RRD FOS Section Manager
2. If site is approved begin coordinating and involve other agencies. *(If site is evaluated to be 'addressed as resources become available', then no further action will be taken at this time)*
   a. Coordinate and create Project Team with all relevant MDEQ divisions prior to sampling
      1. Check if there is a Superfund related possibility with your site.
      2. Coordinate with MDEQ or C&E if possible.
   b. Coordinate with other relevant MPART partners (MDHHS, DNR, MDARD, MDOT, DMVA, and/or LARA) as well as the Local Health Department (LHD) prior to sampling.
      1. MDHHS/LHD will coordinate Public Health Action Plan.
      2. MDHHS/LHD will coordinate response to residential and noncommunity drinking

Michigan EGLE PFAS Investigation Priority Questionnaire

Date: [illegible]

Location Name (if unknown, road or street, followed by a #):	Click or tap here to enter text
Location Description (Address, TRS, Lat/long):	Click or tap here to enter text
When Did Release Occur (or is it ongoing?):	Click or tap here to enter text

Division Directors will route site up to the Executive Team to determine if any action will be taken.

Time Sensitive Action Necessary

01. DW results above the LHA (PFOA & PFOS > 70 ppt)? Choose an item.
    a. DW results with Total PFAS > 70 ppt? Choose an item.

Comments. Click or tap here to enter text.

If any of the following criteria apply to a site, it will automatically make the site a high priority.

02. Surface Water result of PFAS **greater than or equal to** criteria (GSI, Rule 57 Values, PFOA and PFOS > 2000 ppt)? Choose an item.
03. Fish sample result of PFAS **greater than or equal to** (PFOS > 300 ppb)? Choose an item.
04. Groundwater result of PFAS **greater than or equal to** criteria (LHA, PFOA & PFOS ≥ 70 ppt, Total PFAS > 70 ppt, ATSDR EMEGs, GSI)? Choose an item.
05. Site with **known** (documented) large scale/major disposal of PFAS containing waste, or products and in close proximity to receptors? (SW, aquifers, wells, well head protection zones)? Choose an item.
06. Known area of contamination being investigated due to past releases of other substances which are known to contain or use PFAS and in close proximity to receptors? Choose an item.
07. Sites for which EGLE received concerns documented **with data** (e.g. fish consumption advisory, health cluster study, Drinking Water data, etc.)? Choose an item.

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Note that these are screenshots to show a portion—but not the entirety—of each document.

Materials Management Division

Solid Waste Program

- Has a "Landfill Playbook" with an explicit prioritization scheme
- District staff ranked the landfills they inspect/oversee based on several PFAS-related factors
- High ranking landfills are being sampled (leachate and groundwater) in 2019/early 2020 to determine what, if any, additional PFAS related work needs to be done to protect public health.

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For bullet two: district staff rank the landfills based on: the concentration of PFAS compounds in leachate, known contaminant releases from the landfill, presence of downgradient drinking water receptors, etc..

Materials Management Division

Hazardous Waste Program

- Prioritized PFAS work at Part 111 regulated Hazardous Waste Treatment, Storage and Disposal facilities that have handled specific kinds of waste (plating wastes, pigments, etc.) and have used specific processes (e.g. settling lagoons, pits, etc.).
- Sensitive receptors are also considered
- Sites identified as high priorities are handled through the Part 111 Corrective Action process, with an immediate focus on eliminating actual or potential drinking water exposures.

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For bullet 2: sensitive receptors include down-gradient drinking water supplies and water bodies

Water Resources Division

Monitoring and Sampling

- Targeted fish tissue and ambient sampling to support public health advisories
- Point source monitoring and ambient sampling for source identification
- Emphasizes coordination with other EGLE Divisions and partner departments (DHHS and MDARD)

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Water Resources Division

Source Reduction Strategy

- Industrial Pretreatment Program (IPP) Initiative to identify sources within publicly wastewater treatment works (POTW) and minimize or eliminate them
- Requires treatment of discharges at non-POTW direct discharges thorough Administrative Consent Orders (ACO's)
- NPDES permit requirements for pollution minimization and monitoring

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Water Resources Division

Statewide Biosolids Study

- Sampling influent, effluent and biosolids at POTWs
- Analyzing how wastewater treatment processes affect concentrations of PFAS in solids
- Sampling fields where land application of biosolids has occurred:
  - Soil, surface water, ground water, residential wells
  - Focused on worst case scenarios as well as "typical" land application sites and POTWs
- Biosolids Initiative (fall 2019)
  - Screening guidance development

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Drinking Water and Environmental Health Division

- In selecting public water supplies for its statewide PFAS sampling efforts, DWEHD considered population size and sensitivity.
  - Community Water Supplies with their own source
  - Select Noncommunity Water Supplies serving sensitive populations
  - Drinking water supplies for the 12 Federally Recognized Tribes in Michigan
- Supplies sampled so far serve approximately 7.7 million Michigan residents, or approximately 75% of the total population of our state.

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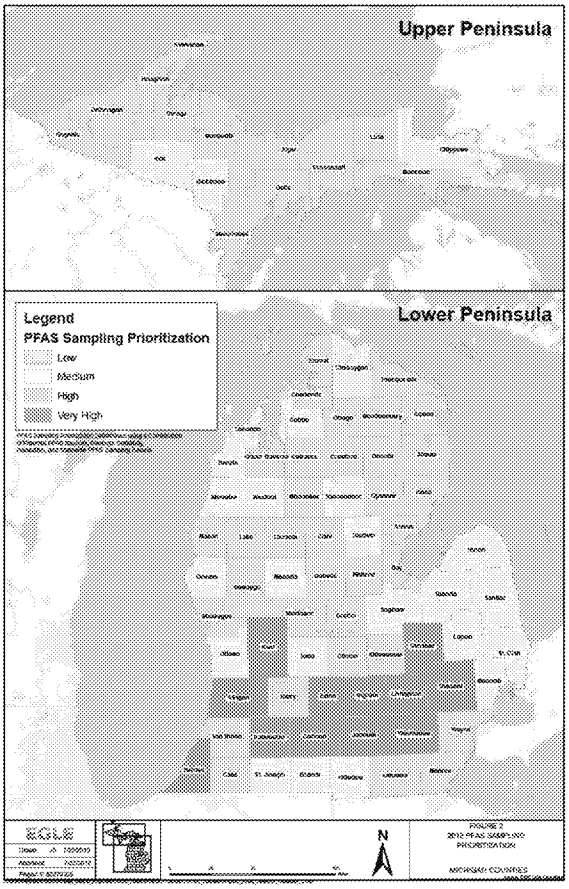
"Own source" refers to Community Water Supplies that DO NOT purchase water from another CWS.

CWS include:
- Municipalities,
- Regional Authorities,
- Apartment Buildings,
- Condominiums,
- Manufactured Housing Communities,
- Nursing Homes,
- Correctional Facilities

Select Noncommunity Water Supplies serving sensitive populations (and addressing worker safety). These include:
- Schools,
- Child Care Providers,
- Adult Foster Care Providers,
- Medical Care Facilities,
- Children's Camps,
- Industry,
- Office Buildings,
- Parks and Recreation,
- Motels/Resorts

Drinking Water and Environmental Health Division

- Sampling schedule priority was assigned using available information, including:
  - Wellhead protection areas
  - Geological sensitivity
  - Potential PFAS sources
  - Regional population density
- This prioritization protocol led to the early identification of contamination in the **Parchment, MI** CWS.



Map is from the report "2018 PFAS Sampling of Drinking Water Supplies in Michigan," prepared by AECOM in July 2019 and published by EGLE on August 16, 2019.

Parchment, MI was identified as a system with "high-tier" results in July 2018, thanks to sampling in June 2018 (early in the sampling schedule).

The regions of the state where detections occurred correspond largely to the orange and red regions of this map.

Drinking Water and Environmental Health Division

- Supplies are selected for ongoing monitoring and additional sampling based on:
  - Elevated PFAS levels (Quarterly Monitoring Program)
  - Susceptibility to seasonal variability in PFAS levels (Monthly Monitoring Program)
  - Proximity to PFAS areas of interest, identified by MPART personnel
  - Identification of additional sensitive populations.

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The Quarterly Monitoring Program applies to systems where total PFAS levels were detected at or above 10 ppt during the 2018 Statewide PFAS Survey.
This program came about based on the "MPART Public Water Supply PFAS Notification Protocol" and EGLE's recommendations for systems in the "Middle Tier" of results.
Quarterly Monitoring was recommended but deemed a financially significant burden for many systems. EGLE identified funds to conduct this sampling for the supplies.
Data will be utilized to identify any seasonal trends in PFAS levels within these systems.

The Monthly Monitoring Program applies to all Community Water Supplies in Michigan which use surface water as a source.

Supplies have been revisited in areas near new, ongoing, and potential future PFAS investigations. (Examples: Hartford, Mendon, Jackson)

Additional funding in 2019 was applied to an expansion of the statewide survey, addressing noncommunity water supplies serving additional sensitive populations.

Air Quality Division

Identifies Sources

- AQD started with chrome platers because of the NESHAP limiting PFOS use
- Permit program identifies when facilities are known to use/release PFAS

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Steve, Additional notes for you:

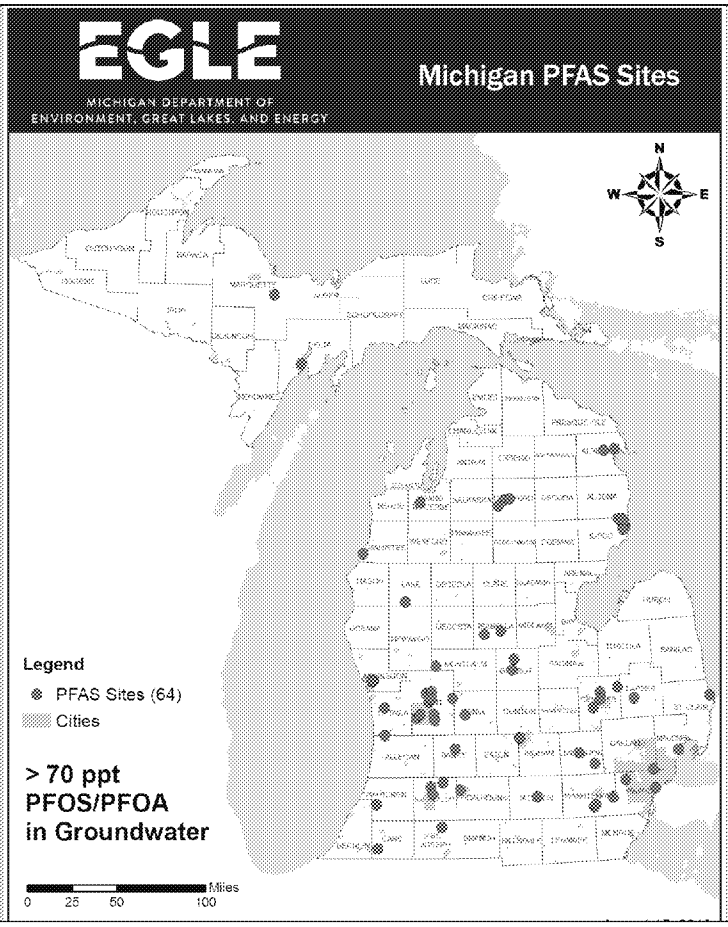
First bullet: NESHAP stands for the National Emission Standards for Hazardous Air Pollutants and chromium is a hazardous air pollutant. Cr VI is a carcinogen and the NESHAP is to address emissions of Cr VI. To control these emissions industry asked EPA to use mist suppressants (surfactants) to control these emissions and EPA allowed this. Other controls do exist such as scrubbers & hoods. Under EPA's risk and technology review (RTR) they limited PFOS use by 9/15/2015 to 1% PFOS (= 10 billion ppt)
We found that all of the 58 inspected Cr platers subject to the NESHAP were in compliance (none used PFOS) however 28 continue to use PFAS.

AQD has identified about a dozen sources that we think use and potentially emit PFAS. Examples include: Cr platers, textile coater/s, chemical companies, burn off ovens, etc.

Second bullet: AQD Permitting and toxics rules (T-BACT; Best Available Control for Toxics) apply only to new and modified sources. We have reviewed several potential sources for PFAS, however we have several exemptions in the rules that have exempted PFAS emissions from permitting or required control. We are considering revising our Part 2 rules to better address these chemicals so they are not exempt from the air permitting process.

Making Great Progress Statewide

- Identified and reduced exposures
- Still looking



Ideas for Engaging Local Health on Prioritizing Investigations

- Local inventory of known and suspected sources
- Periodic dialogue with district staff
- Other ideas?