



Wixom IPP Enforcement Case Study

North Carolina IPP Seminar

Tim Sikma, City of Wixom



Wixom Michigan



WIXOM
• PUBLIC WORKS •

City of Wixom Wastewater Resource Recovery Facility(WRRF)



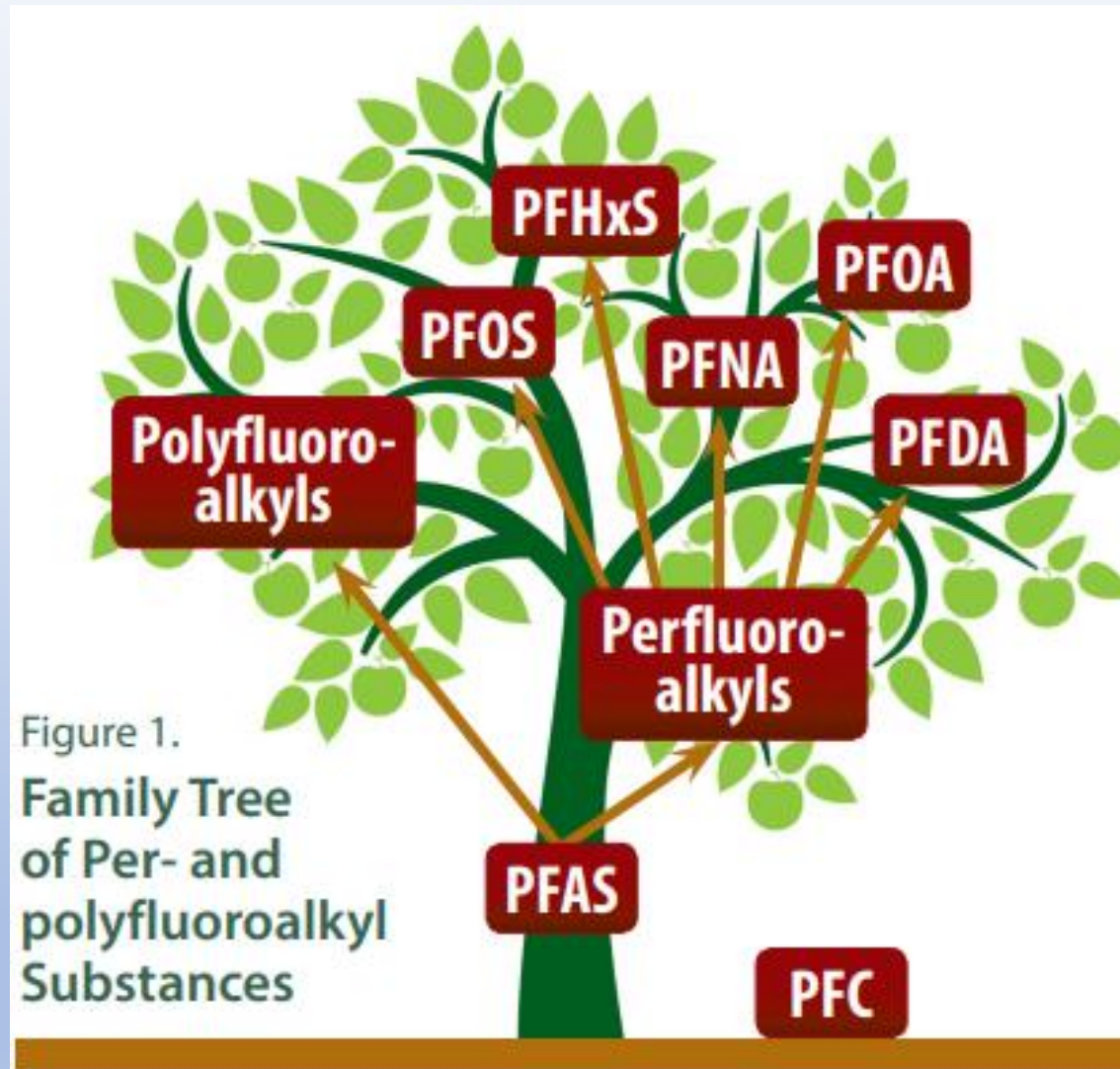
Wixom Water Resource Recovery Story

- PFAS
- Chrome
- Biosolids
- Next Steps

Michigan WRRF STORY -- PFAS

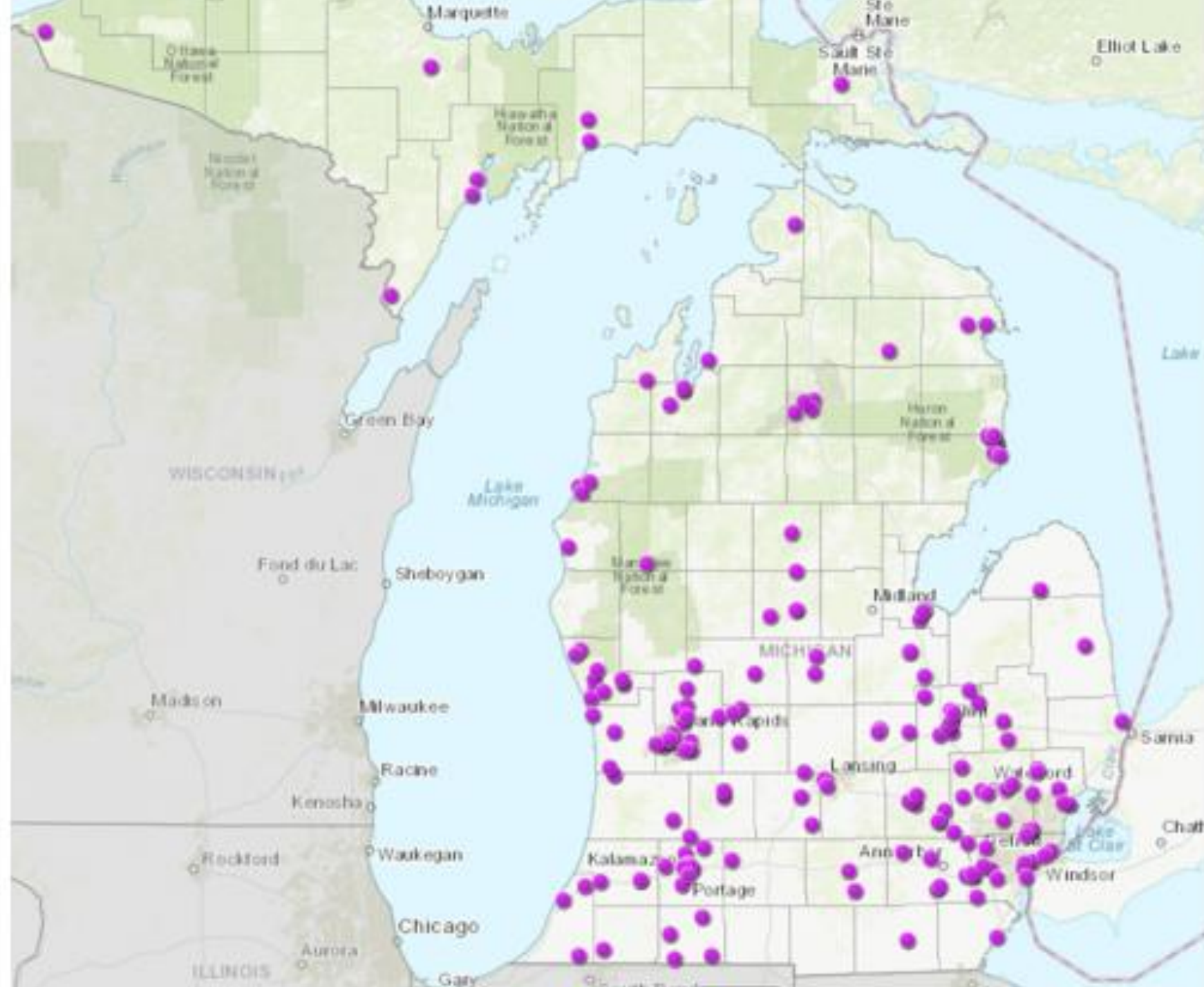
January 2018 – Wastewater
Administrator Conference
with MWEA

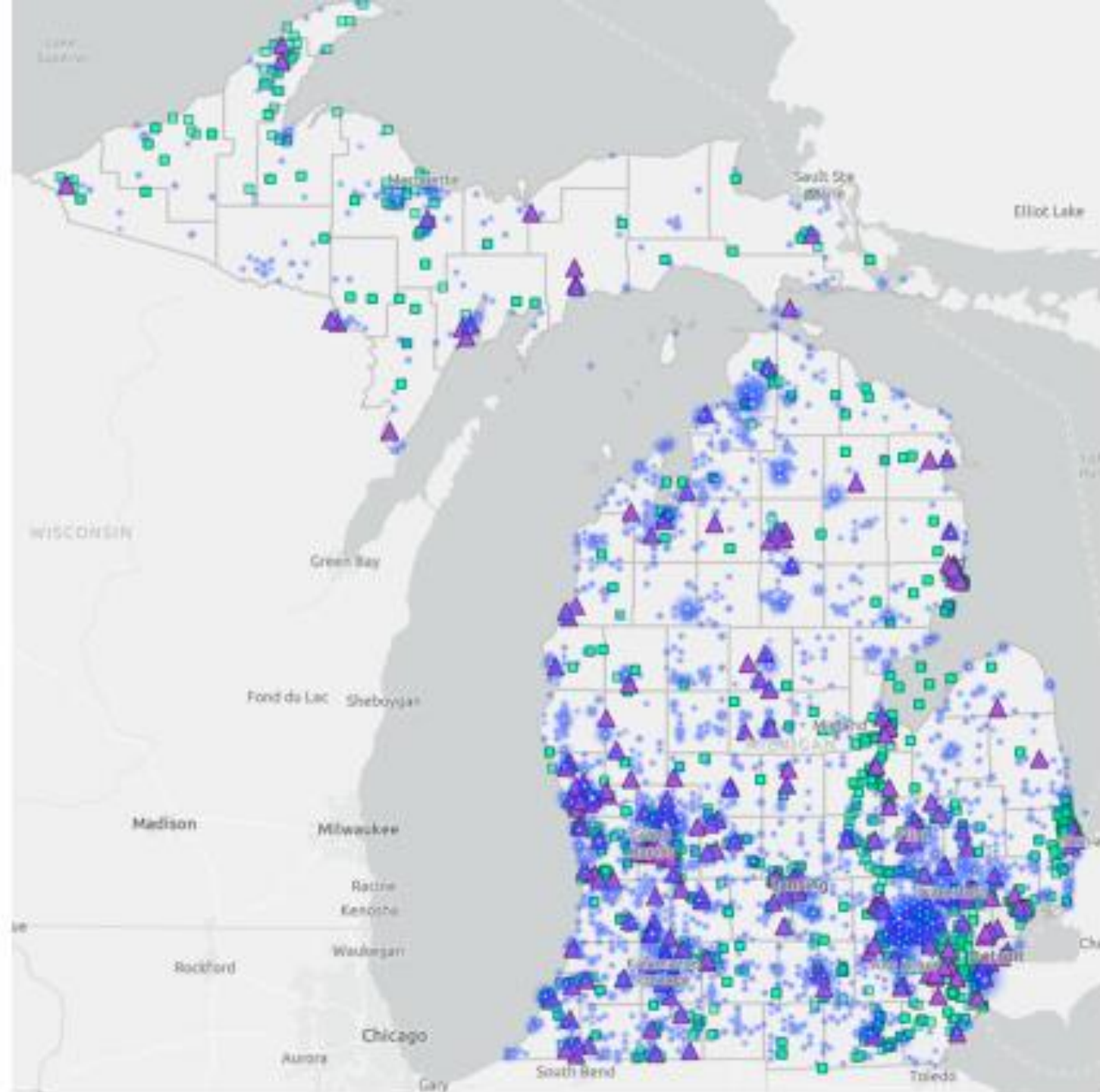
PFAS



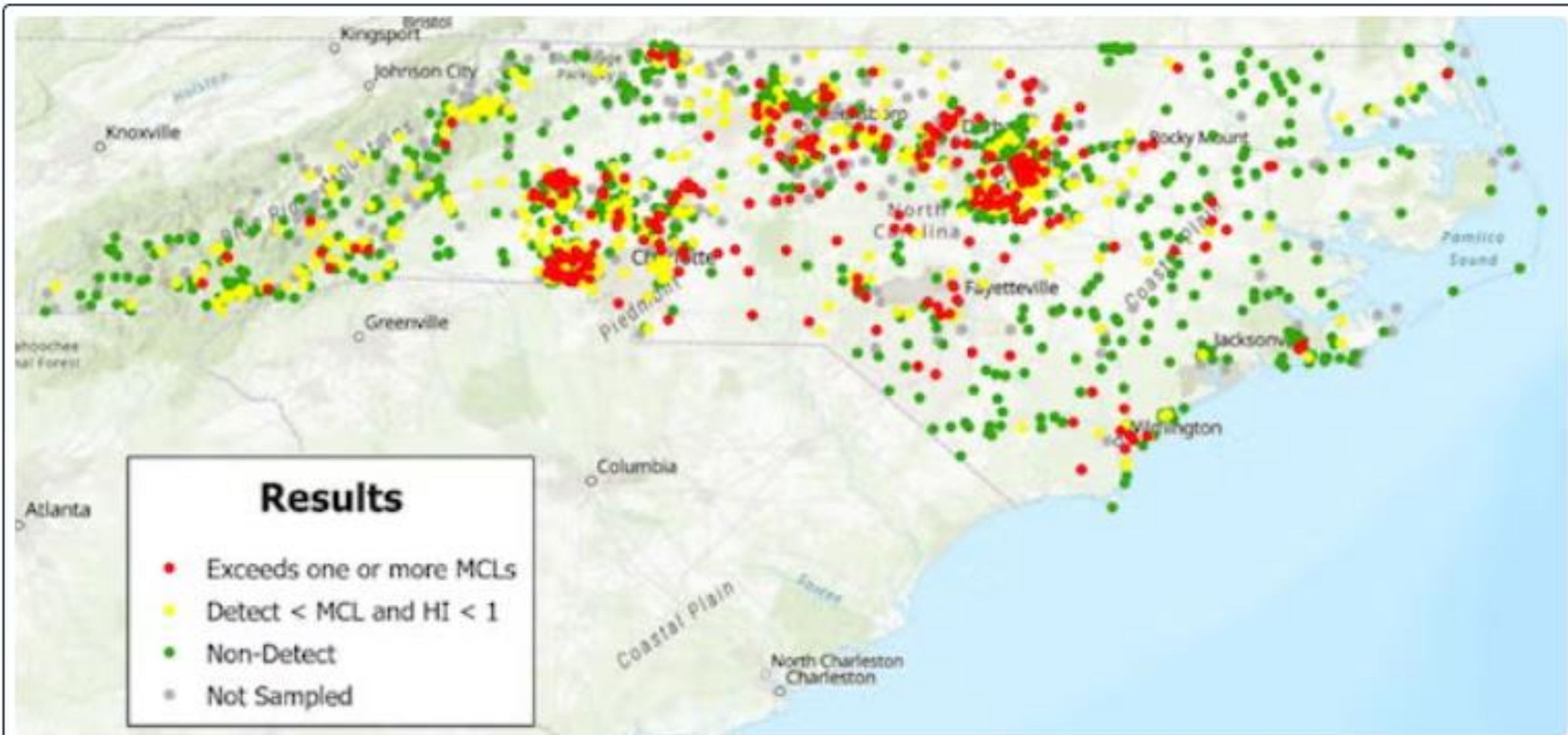
<https://health.hawaii.gov/heer/environmental-health/highlighted-projects/pfas/>

Michigan PFAS Sites



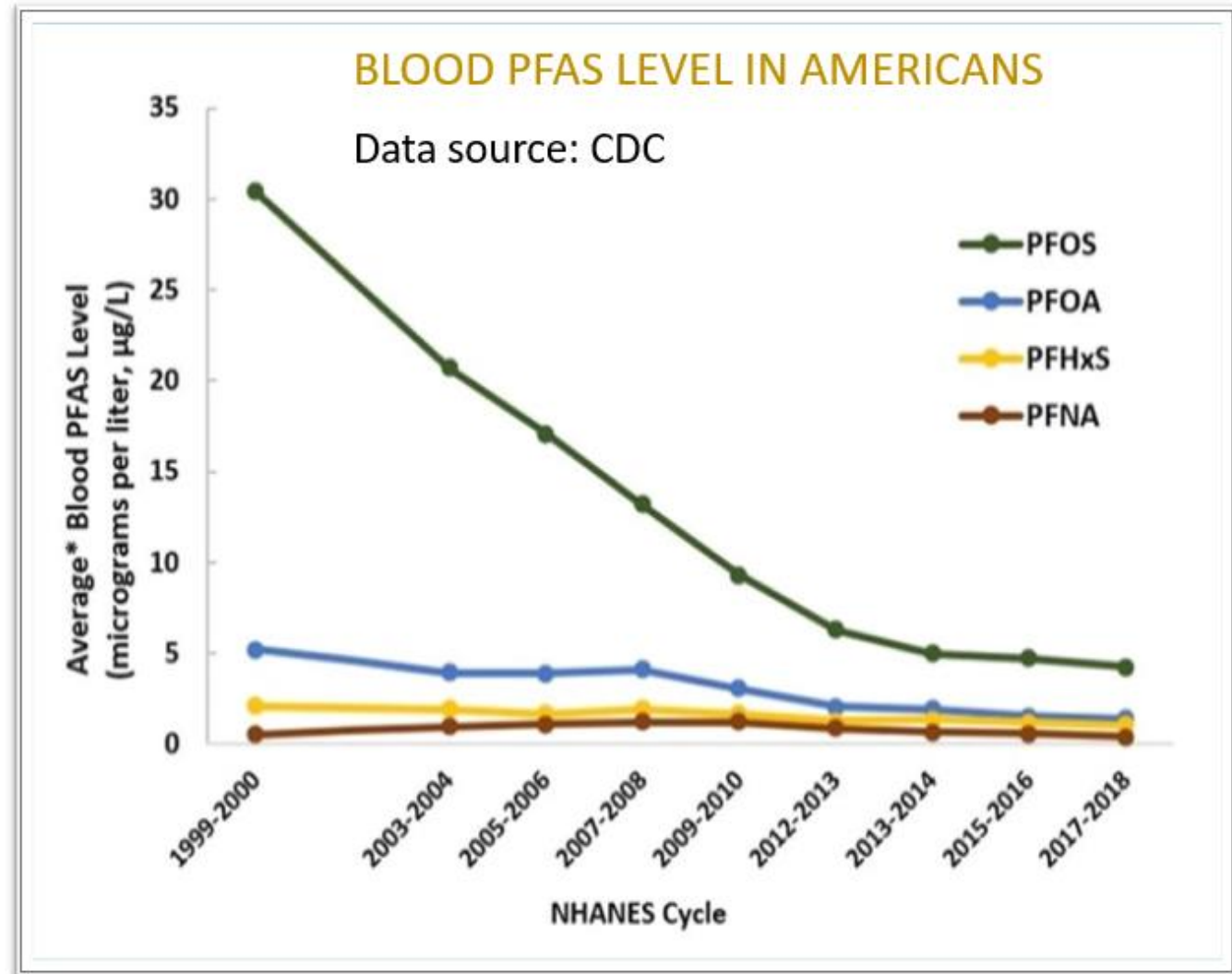


Michigan PFAS Sites Now



Map of PFAS in North Carolina (courtesy of NC Department of Environmental Quality).

- Decrease in blood PFAS level could be due to voluntary phase out of some substances by the manufacturers and public education.
- Michigan began a statewide drinking water sampling program in 2018
- Public outreach is essential in protecting public health and reducing the PFAS levels in wastewater



DO NOT EAT THE FISH

This area is part of the
Do Not Eat Fish
Advisory issued by
the State of Michigan
due to high amounts
of PFAS found in fish.



Enjoy swimming,
boating, and catch
and release fishing.
Touching the water is
not a health concern.

For more information, call MDHHS at 1-800-648-6942
or visit www.michigan.gov/pfasresponse

MDHHS

Map of the City of Wrentham, Massachusetts, showing the proposed sewer system.

Legend:

- Pump Station Pump Station
- Sanitary Pipes
- City Force Main
- Private Force Main
- City Boundary City Boundary
- Lakes and Streams Lakes and Streams
- WWTP
- Manholes
- Midford Tap Master

Example Manholes 2

- Complete City
- Complete Admitted City
- Existing City

Table: Proposed Sewer Lines

Proposed Sewer Line	Location
Residential 1	Residential 1
Residential 2	Residential 2
Commercial & Retail	Commercial & Retail
Commercial & Industrial	Commercial & Industrial

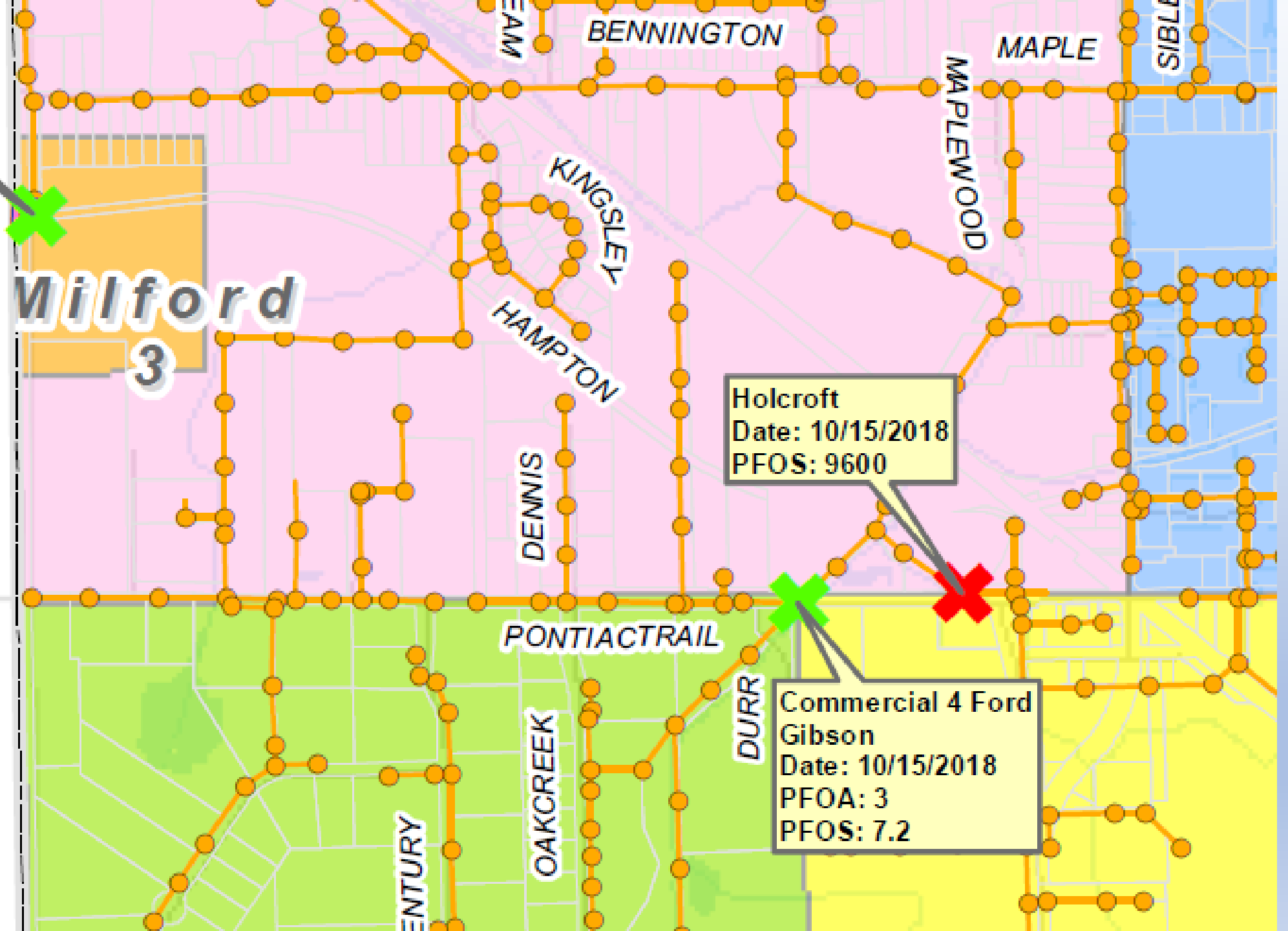
Map Labels: Wrentham, Midford, Commercial & Retail, Commercial & Industrial, Residential 1, Residential 2, Lakes and Streams, City Boundary, City of Wrentham, Massachusetts.

IPP Collection System Sampling Map

Residential 2 Partridge
Date: 10/15/2018
PFOA: 4



Milford 3
Date: 10/15/2018
PFOA: 3.3



Below WQS	PFOS/PFOA DIVISIONS
X	Residential 1
X	Residential 2
X	Milford 3
X	Commercial 4 (FORD)
	Commercial 5 (Tribar)

Wixom IPP Background

- 2 CIU and 3 SIU
- Michigan IPP PFAS initiative 2018
 - CIU (2 Locations) had high PFOS
 - City required the CIU to install PFOS pretreatment
 - CIU installed a GAC following the metal treatment
 - PFOS levels drastically declined

Photo of the GAC
system installed at one
of the sites

Everything seemed
good

Right?



08/01/2022 – at approximately 4:00 PM, CIU notified the City of the discharge of up to 10,000 gallons of wastewater containing approximately 8,000 pounds of hexavalent chromium to the City's WWTP with the discharge beginning sometime over the *preceding weekend* (CIU notified EGLE at 3:21 PM)















What do you do?

- Protect the plant -
Maintain discharge
compliance
- Investigate Event
- Respond to Event

IMMEDIATE RESPONSE

- 08/01/2022 – the City begins mitigation/containment efforts at the WWTP immediately and then over the next few days, including:
 - » Diversion of WWTP discharge to a holding tank and ditch until such storage was filled



08/01/2022 – the City
immediately issued a verbal
Cease & Desist Order, requiring
that they halt any further
discharges from their
industrial
operations

ORDER TO IMMEDIATELY CEASE & DESIST DISCHARGE
City of Wixom Industrial Pretreatment Program
August 2, 2022



IMMEDIATE RESPONSE

- » Borrowed a 6 inch trash pump loan from a neighboring community and began double treating the WWTP discharge
- » Reached out to Clean Harbors (through the company) for tanks to hold contaminated solids if needed







IMMEDIATE RESPONSE

- 08/01/2022 – City operations staff / engineering support formulate sampling/analysis plan – seek guidance from State (EGLE)
- 08/02/2022 – the City begins submitting samples to outside testing agencies to determine contamination of the samples collected

IMMEDIATE RESPONSE

- 08/02/2022 – EGLE and the Michigan Department of Health and Human Services (DHHS) publish a notice for Huron River water between N. Wixom Road and Kensington Road with instructions to, until further notice:
 - » Avoid contact with Huron River water
 - » Avoid using Huron River water on plants or lawns
 - » Avoid eating fish from Huron River waters (this was already in place)

IMMEDIATE RESPONSE CONT'D



Department of Environment, Great Lakes, and Energy

About Us ▾

For the Public ▾

Regulatory Assistance ▾

Maps and Data ▾

Newsroom

Outreach ▾

FAQs

Contact Us ▾

State, local officials recommend residents avoid contact with the Huron River between North Wixom and Kensington roads

August 02, 2022

Testing, monitoring underway after chemical release in Huron River watershed

LANSING, Mich. – The Michigan departments of Health and Human Services (MDHHS) and Environment, Great Lakes, and Energy (EGLE) and local officials are working together to protect residents in Monroe, Oakland, Livingston, Wayne, and Washtenaw counties following a release of hexavalent chromium to the Wixom Sewage Treatment Facility from Tribar Manufacturing in Wixom. The sewer feeds the Wixom wastewater treatment plant, which discharges to the Huron River system.

Author:

Lynn Sutfin

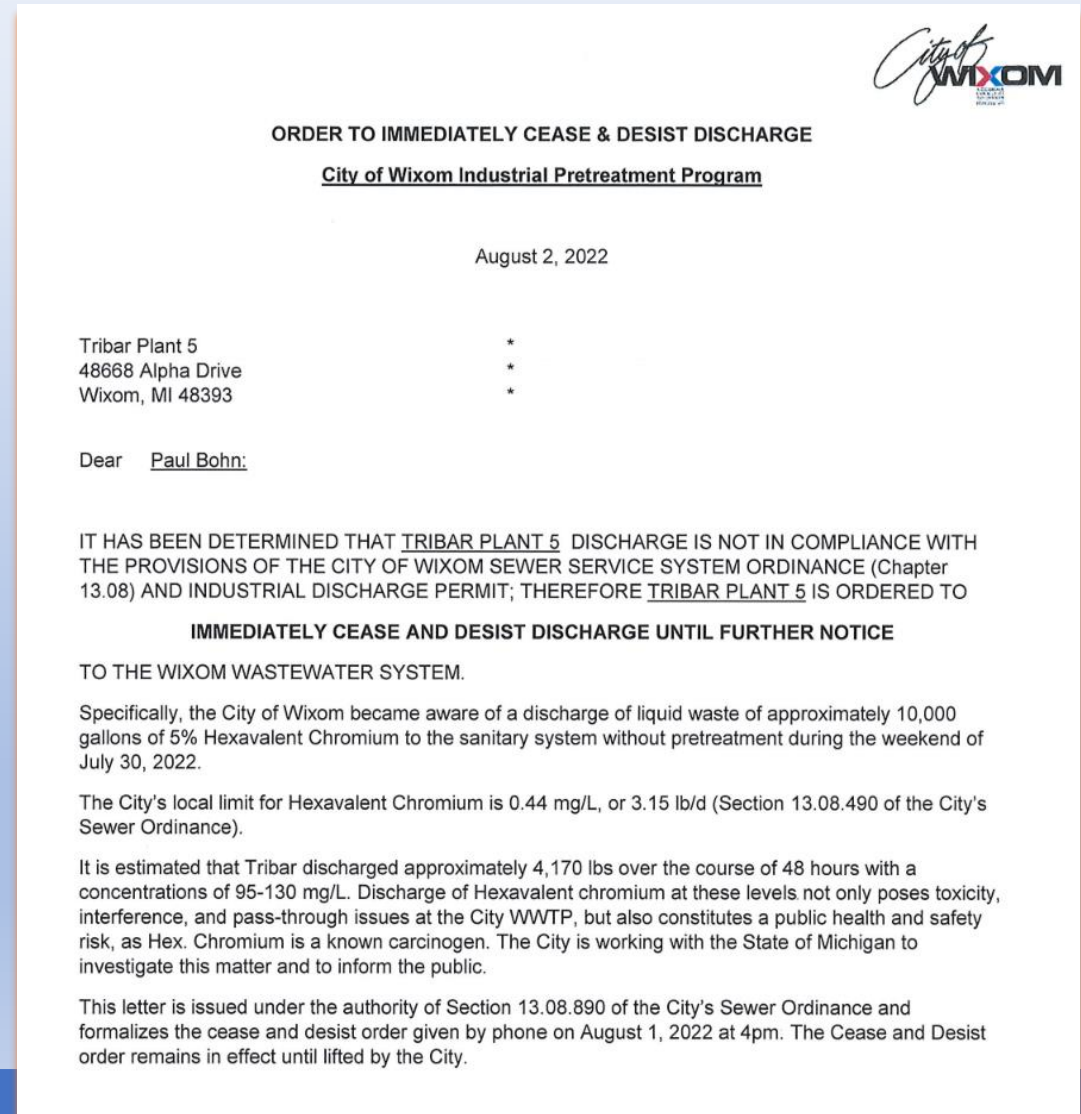
517-241-2112

The News



IMMEDIATE RESPONSE CONT'D

- 08/02/2022 – City issued written Cease & Desist order as follow up to the verbal order given the day before
- 08/02/2022 – City initiated a Police Dept. inquiry with Tribar as to the cause of the discharge



IMMEDIATE RESPONSE CONT'D

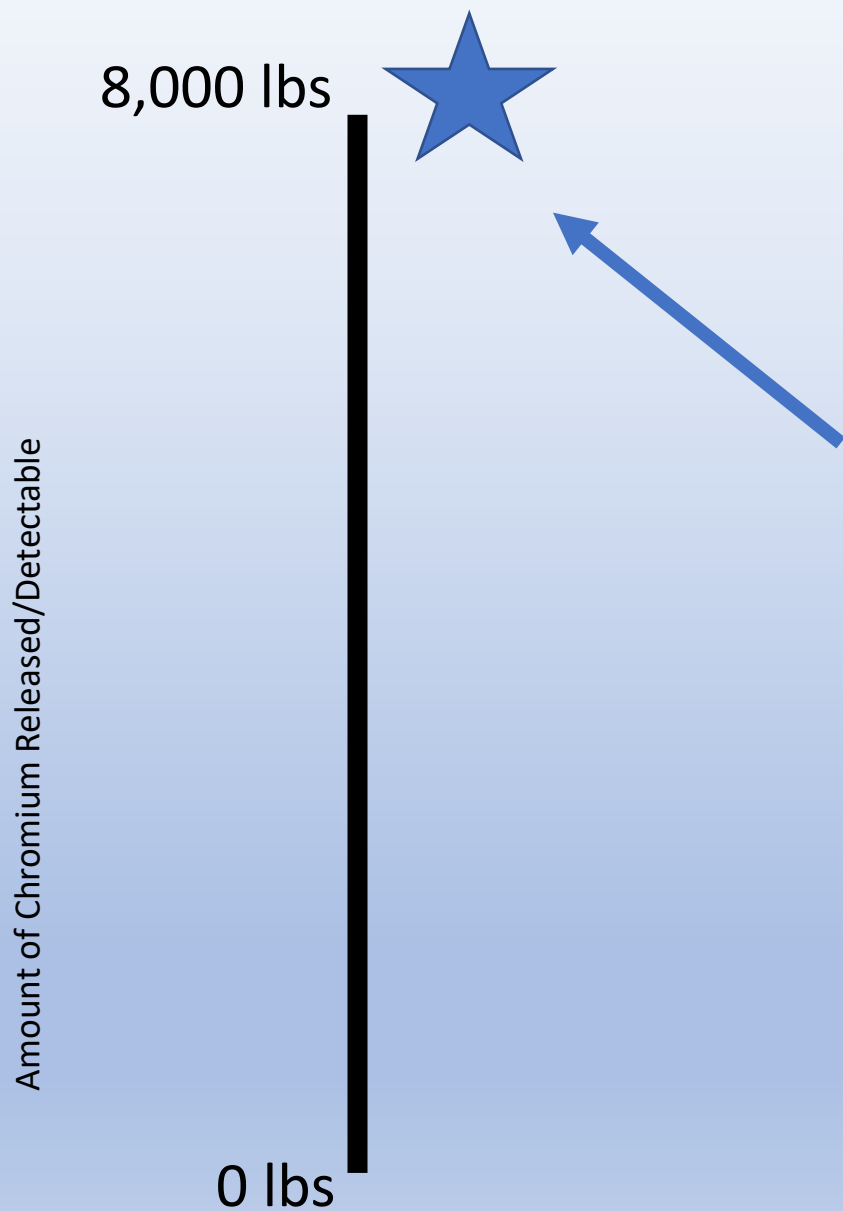
- 08/03/2022 – After being contacted by State of Michigan investigators, the City agreed to transfer the Tribar investigation to the State and EPA
- 08/03/2022 – The first two samples processed by EGLE, one each from Norton Creek and the Huron River, tested as “Non-Detect” for hexavalent chromium



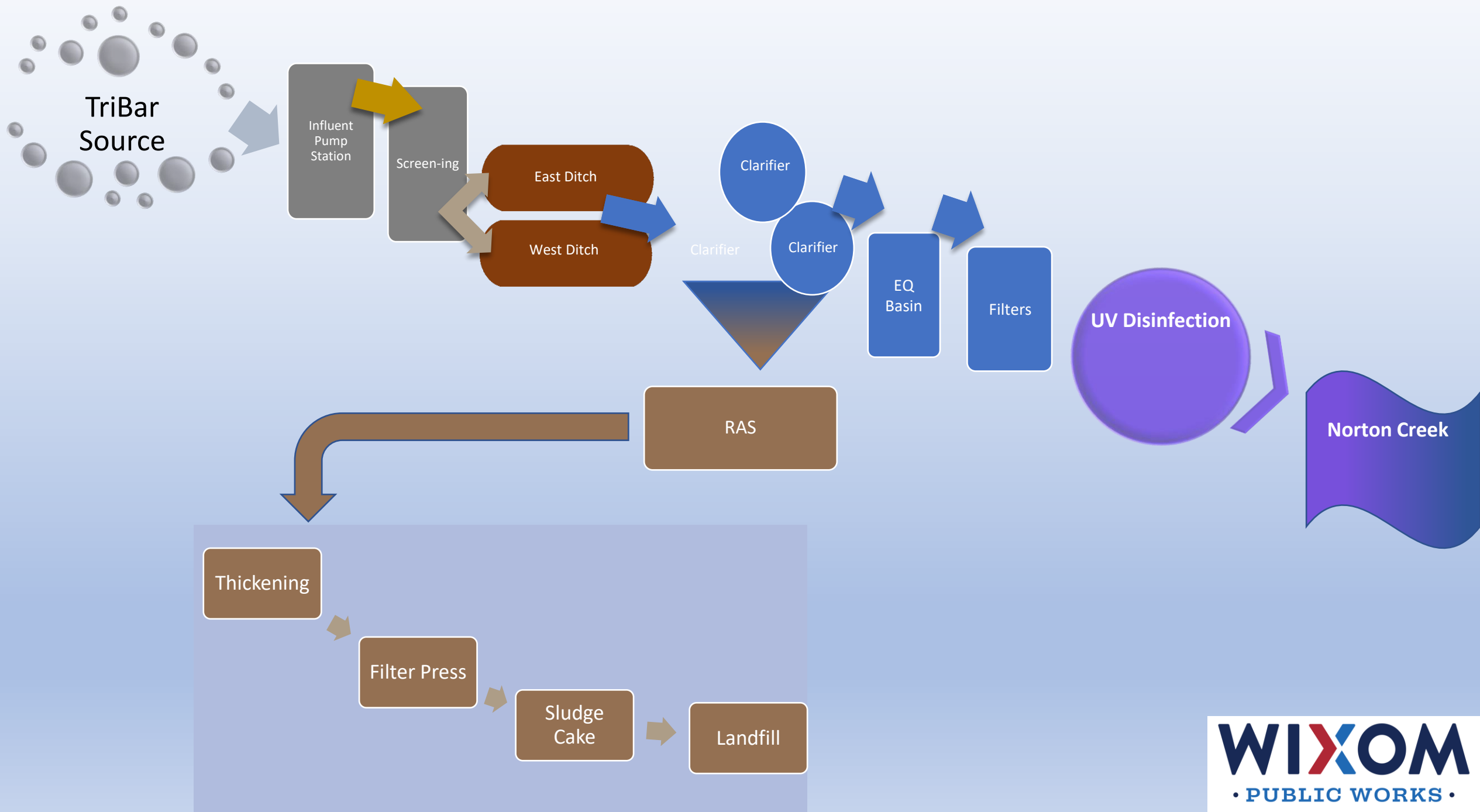
INTERMEDIATE FOLLOW-UP

- Once the immediate response occurred, City and EGLE shifted into an intermediate follow-up phase
- EGLE requests City provide a recovery plan for the POTW
- Continued sampling to determine extent of contamination:
 - » Continued WWTP influent, effluent, biosolids sampling
 - » Continued watershed sampling
 - » Collection system sediment sampling

EGLE website: [EGLE Tribar Release Sampling Results Interactive Map](#)



- 8/1/2022 - release into internal drain leading to Wixom Wastewater Treatment Plant is initially detected by Tribar.
- Estimated 8,000 lbs of hexavalent chromium (~15% concentration)

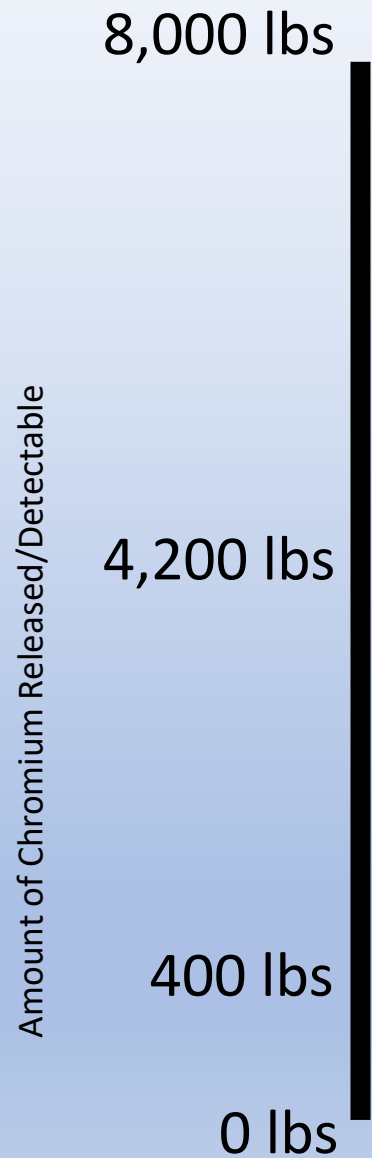




- After investigation, Tribar & EGLE revise their estimated amount of released materials to only ~4,200 lbs of hexavalent chromium (5% concentration)
- 52.5% of initial reports



- Of the 4,200 lbs of hexavalent chromium, Tribar's internal treatment system is estimated to have collected at least 3,800 lbs
 - 90% of released amount captured
- Remaining ~400 lbs are released to Wixom Wastewater Treatment Facility



- The ~400 lbs of hexavalent chromium mixes with ordinary sewage materials, settles within plant processes and/or is treated at Wixom Wastewater Treatment Facility
- Based on initial 144 tests throughout the watershed, samples reflected “Non-Detectable” levels of chromium or were well within water quality standards.
- No detectable results for hexavalent chromium were found in the watershed sampling.

The estimate is that 99% of possible total chromium was contained prior to reaching the watershed.

INTERMEDIATE FOLLOW-UP

- More information about the chromium release and fate can be found at EGLE's website:

<https://www.michigan.gov/egle/about/organization/water-resources/assessment-michigan-waters/tribar-release-response>

[EGLE Document - Fate of Chromium from Tribar Plant 5](#)

INTERMEDIATE FOLLOW-UP CONT'D

- EGLE issues NOV to City
- EGLE requests City provide a recovery work plan
- CIU requests Cease & Desist order be lifted following reactivation of their production and sampling of collected pretreatment wastewater:
 - » City works with CIU on requirements to be completed prior to lifting Cease & Desist Order
 - » CIU provides a work plan to address deficiencies and prevent slug discharges in the future



INTERMEDIATE FOLLOW-UP CONT'D

CIU Work Plan

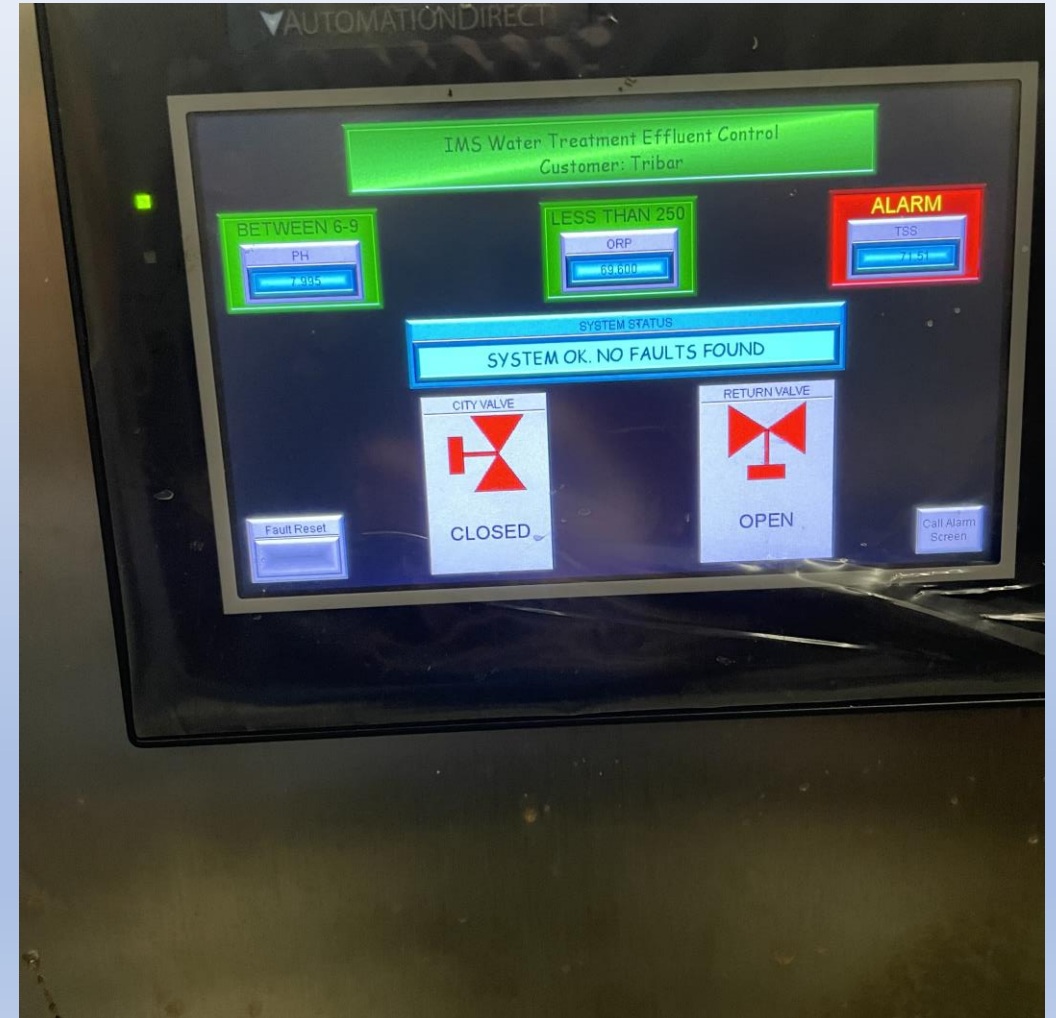
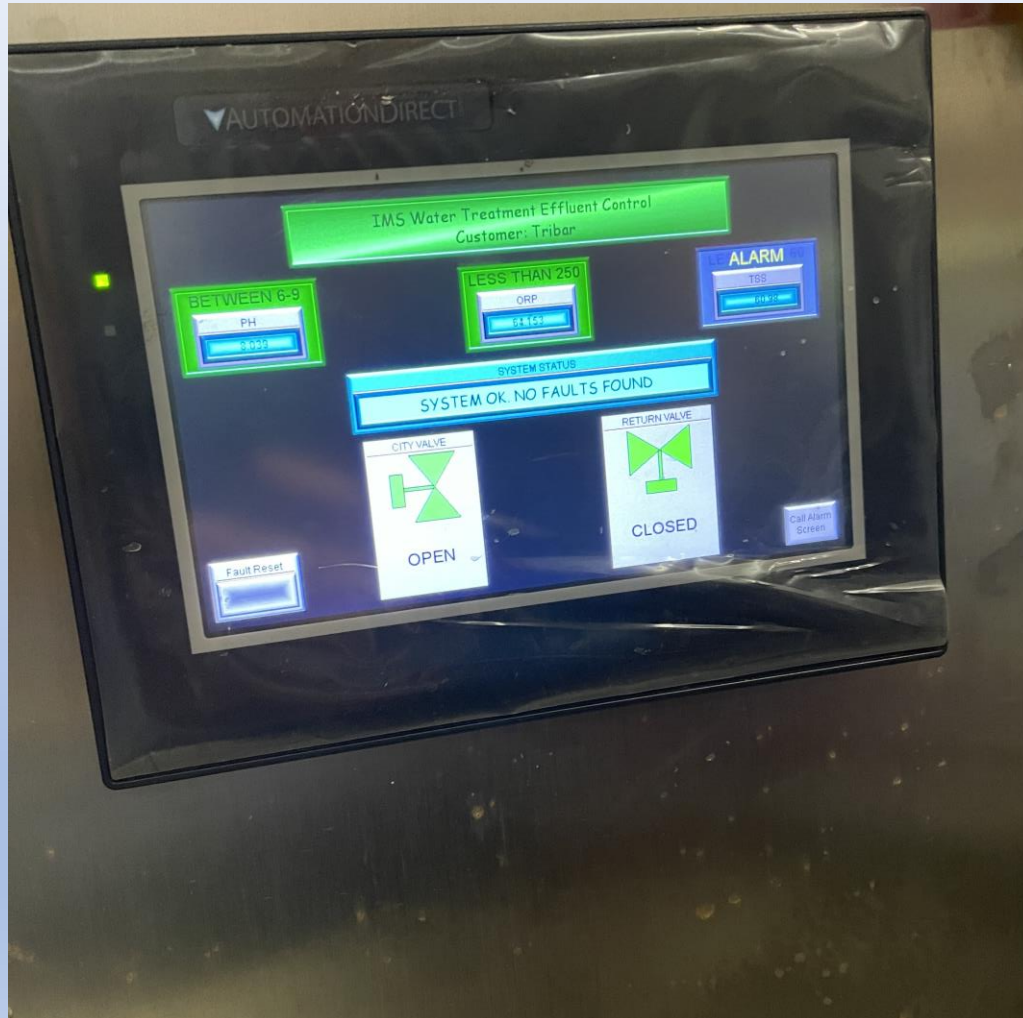
- CIU to provide additional training of their wastewater operators, update O&M manual and SOPs
- CIU temporarily increased sampling to demonstrate that pretreated wastewater was in compliance
- CIU additional safeguards include:
 - » pH, TSS, and ORP probes on discharge
 - » If any of the probes register beyond set point, alarm goes off, and control valve will close to City discharge; wastewater will be sent back to Tribar pretreatment system



INTERMEDIATE RESPONSE CONT'D



INTERMEDIATE RESPONSE CONT'D



INTERMEDIATE FOLLOW-UP CONT'D

- City lifted Cease & Desist on August 31, 2022, with conditions
- City reissued permit with Schedule of Compliance section



CEASE AND DESIST ORDER - CONDITIONAL APPROVAL TO DISCHARGE

August 31, 2022

Wayne Ferris:
Tribar Plant 5
48868 Alpha Drive
Wixom, MI 48393

Re: Cease and Desist Order - Conditional Approval to Discharge

Dear Mr. Ferris:

The City of Wixom has received Tribar's (revised) request to lift the Cease and Desist Order for Tribar Plant No. 5. The request, dated August 30, 2022 (attached), includes Tribar's proposed plan to begin discharge of pretreated process wastewater with additional testing and safeguards as detailed in the Tribar letter.

The City has reviewed the request and after discussion with Tribar personnel about specific items in the letter, we feel that the discharge can be reinstated conditioned on Tribar conformance to the completion of the actions outlined in the August 30 letter and agreement to complete the following:

LONGER TERM IMPACTS

- Chromium slug discharge made local, state, and even national news
- Wixom NPDES permit reissuance draft was out for public notice shortly after the event
- EGLE received public comment on the NPDES permit, resulting in additional conditions added to final permit:
 - » 5x weekly effluent chromium monitoring for at least 2 years

i. Monitoring Frequency Reduction for Total Chromium

After the submittal of 24 months of data, the permittee may request, in writing, Department approval for a reduction in monitoring frequency for Total Chromium. This request shall contain an explanation as to why the reduced monitoring is appropriate. Upon receipt of written approval and consistent with such approval, the permittee may reduce the monitoring frequency indicated in Part I.A.1. of this permit. The monitoring frequency for Total Chromium shall not be reduced to less than monthly. The Department may revoke the approval for reduced monitoring at any time upon notification to the permittee.

LONGER TERM IMPACTS

- Additional EGLE scrutiny of City's IPP program
- Loss of trust between City and CIU
- Additional scrutiny of CIU by City
- Loss of trust of the City and CIU from Huron River watershed residents downstream of Wixom
- Gained some repour with the State

LONGER TERM IMPACTS

[Residents & Visitors](#) [Businesses](#) [Government](#) [Services](#) [Events](#)



[Jobs](#) [News](#) [English](#)

Chromium Release in Huron River Update



[Home](#) » [Departments](#) » [Water Treatment](#) » Chromium Release in Huron River Update

Water Treatment

[About the Water Treatment Plant](#)

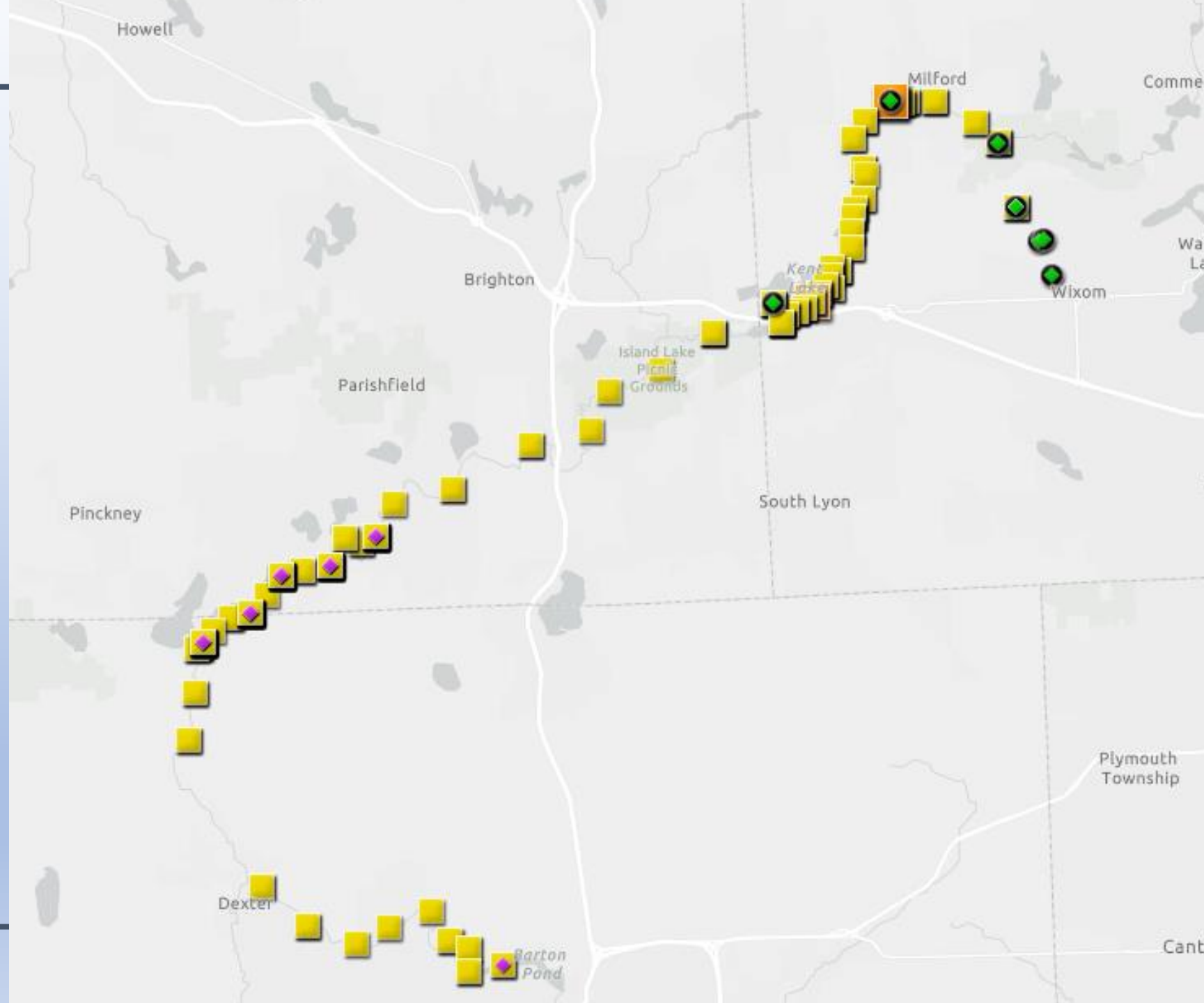
[Changes to Water and Sewer Rates](#)

[Chromium Release in Huron River Update](#)



 [Subscribe to Ann Arbor](#)

[Water-related updates.](#)



OTHER NON-COMPLIANCE

- Before the chromium slug, CIU was discharging phosphorus causing pass through at the POTW
- City has a very stringent phosphorus limit due to TMDL in the Huron River watershed
 - » 1800 lb/yr
 - » 0.4 mg/L monthly average
- In 2021 City conducted investigation into the phosphorus issues
- Discovered that Tribar was source of non-reactive phosphorus

OTHER NON-COMPLIANCE

Source	Measured [mg/L]				Calculated [mg/L]			
	TP	RP	sTP	sRP	pTP	NRP	sNRP	% sNRP
Residential	5.9	3.1	3.5	3.2	2.4	2.8	0.3	5%
Plant 5 Upstream*								
Plant 5 Downstream	21	0.85	19	0.83	2	20.15	18.17	87%
Plant 4 Upstream	14	9.2	8.9	9.5	5.1	4.8		
Plant 4 Downstream	9.9	0.27	9.4	0.27	0.5	9.63	9.13	92%

*A composite sample could not be collected upstream of Tribar Plant 5 due to low flows.

Note: TP = Total Phosphorus, RP = Reactive Phosphorus, sTP = Soluble Total Phosphorus, sRP = Soluble Reactive Phosphorus, pTP = Particulate Total Phosphorus, NRP = Non-Reactive Phosphorus, sNRP = Soluble Non-Reactive Phosphorus

OTHER NON-COMPLIANCE

- Continued investigation and discussions with CIU to address phosphorus issue
- Added soluble non-reactive phosphorus limit to CIU permit
- Discovered phosphite chemical used in electroless nickel process is the source
- Working with CIU to mitigate issue
 - » CIU is hauling electroless nickel process wastewater; not discharging it anymore to the City
 - » Rinse water downstream of electroless nickel has drag out with phosphorus; still a source; but much lower concentrations

ONGOING ITEMS / NEXT STEPS

- Continuing to work with CIU to address phosphorus
- Treatability testing by CIU consultant didn't indicate great results
- Continuing to haul electroless nickel wastewater

Subject: Tribar Plant 4 and Plant 5 Compliance Action Plan

Mr. Sikma:

As requested during a call with Barr Engineering Co. on December 20, 2022, the following provides Tribar's Compliance Action Plan for reducing phosphorus in the Plant 4 and Plant 5 wastewater.

Compliance Plan Action Items

Action Item	Proposed Completion Date
Continue to haul E-Nickel wastewater to Belleville, deep well injection site. While continued efforts are finalized to remove phosphorus from Nickel treatment system with use of alternate chemicals and evaporative system. Nickel transport to deep well has been ongoing for Plants 4 and 5.	Ongoing since October 4 th 2020. And will remain until removal of Phosphorus from the system is complete. Tentative Date 01/15/2023
Install the same safeguards in the Plant 4 wastewater treatment system that were installed in the Plant 5 wastewater treatment system, including a final discharge tank and probes to monitor pH, TSS and ORP.	January 18, 2023
Compile existing bench-testing data completed to date as part of evaluation of potential wastewater treatment options.	January 3, 2023
Retain third-party consulting firm to continue evaluation of potential wastewater treatment and non-treatment alternatives for phosphorus. Preliminary report of the evaluated treatment and non-treatment alternatives to include a comparison of their feasibility, effectiveness and high-level, relative cost, and identify alternatives for further evaluation (e.g., vendor bench and/or pilot testing) and cost estimation.	Preliminary report due March 31, 2023
Develop a Six Sigma program to manage the wastewater treatment system.	March 31, 2023
Lead wastewater treatment operators for Plant 4 and Plant 5 will obtain Michigan industrial wastewater certifications for the following categories: • A-1b - Plain Clarification • A-1d - Impoundment • B-1b - Neutralization • B-2a - Chemical Clarification	February 2023 State of Michigan examination dates are February and August 2023

ONGOING ITEMS / NEXT STEPS

- CIU has made major improvements to procedures, has hired new leadership who takes health, safety, and environmental compliance serious
- CIU continues to implement the remaining Schedule of Compliance items

ONGOING ITEMS / NEXT STEPS

- CIU made improvements to electroless nickel process to be more efficient and produce less waste
- City has been able to meet phosphorus limits and get out of ACO





United States Attorney's Office Eastern District of Michigan

[About](#)

[News](#)

[Meet the U.S.
Attorney](#)

[Divisions](#)

[Programs](#)

[Jobs](#)

[Contact
Us](#)

[Department
Information](#)

[Justice.gov](#) > [U.S. Attorneys](#) > [Eastern District of Michigan](#) > [Press Releases](#) > [Tribar Technologies, Inc. Sentenced For Violation Of](#)

PRESS RELEASE

Tribar Technologies, Inc. Sentenced For Violation Of The Clean Water Act









Questions?

Thank You

Tim Sikma

City of Wixom

tsikma@wixomgov.org

