

MPART PFAS Community Update Cadillac Area of Interest

February 26, 2025

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MICHIGAN PFAS ACTION RESPONSE TEAM



All lines are
muted during
the hearing



Submit your
questions using
the “**Q/A**” box in
zoom tool bar



We are
recording this
hearing

MPART PFAS Community Meeting Cadillac Area of Interest

Abigail Hendershott, MPART Executive Director
Michigan PFAS Action Response Team
(616) 888-0528

HendershottA@Michigan.gov

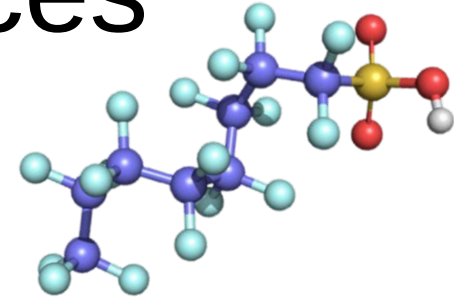
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Agenda

- Introductions – Abigail Hendershott, MPART Executive Director
- Agenda:
 - MPART Overview – Abby Hendershott
 - Health – Chelsea Gary, Michigan Department of Health and Human Services
 - Investigation Area – Brandi Wheeler, Michigan Department of Environment, Great Lakes, and Energy
 - Public Water Supplies – Ian Smith, Michigan Department of Environment, Great Lakes, and Energy
- Q&A

Per- and Polyfluoroalkyl Substances (PFAS)



What are they?

- Strong Carbon-Fluorine Bonds
- Surfactants
- Highly Stable
- Repel Water, Oil, Fat, and Grease
- Began Developing in 1940s
- Thousands of Compounds Today

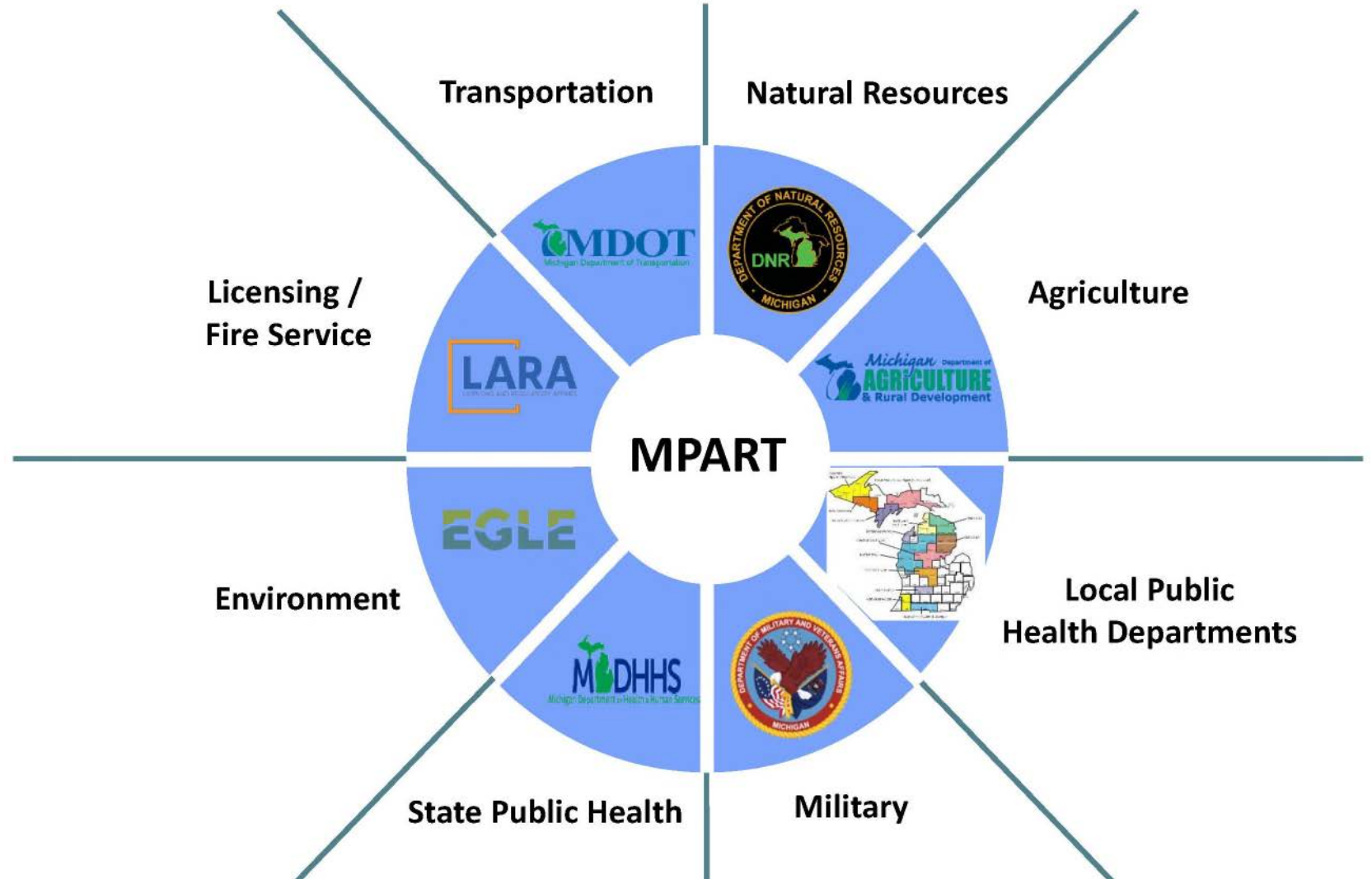
Why the concern?

- Widespread through the ecosystem
- Don't Break Down Easily - Hard to Get Rid of
- Bioaccumulate – Build Up in Our Bodies
- Some PFAS May Affect Health
- Some emerging science/information
- Federal Standards

PFAS Uses



Michigan PFAS Action Response Team (MPART)



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Project Team

EGLE, DHHS, Local Health

(other MPART agencies as needed)

- Review groundwater flow, science/data available, residential wells, and determine drinking water sampling needs

EGLE

Leads Investigation:

- Groundwater
- Residential Well Sampling
- Wastewater Discharge
- Surface Water
- Fish Collection
- Public Drinking Water
- Biosolids

DHHS:

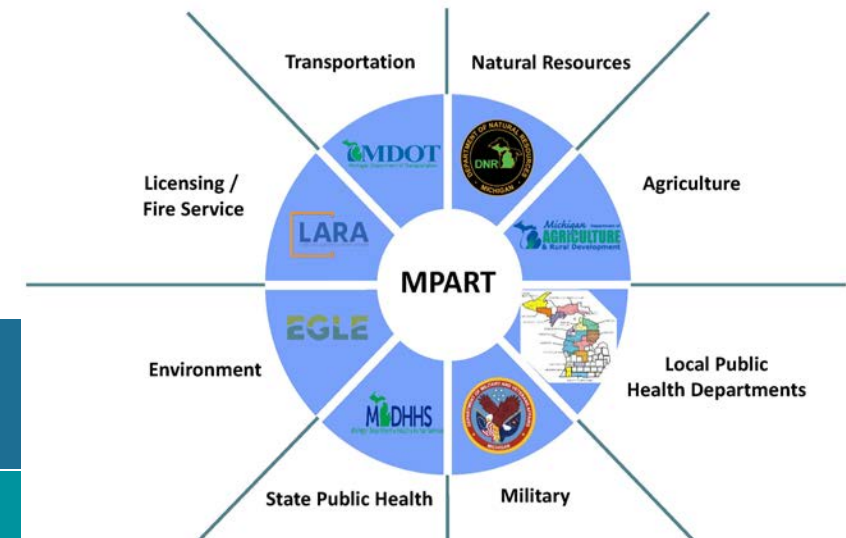
- Toxicologist
- Geologist
- Epidemiologist
- Health Educator
- Community Engagement
- Fish Eating Guidelines

Local Health:

- Filter deployment (if recommended)
- Community Outreach

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The Investigation Process

- Typical ways the process starts
 - When MPART becomes aware of a site where groundwater is over criteria
 - Elevated results from a private drinking water self-sample
 - When surface water sampling results indicate a potential source
 - Other routine monitoring data indicates a potential concern
- The project team forms to evaluate potential public health exposures (i.e., drinking water)
 - Investigations continue to delineate affected homes

Michigan's Drinking Water and Groundwater Cleanup Standards

Compound	Standards
PFNA	6 ppt
PFOA	8 ppt
PFOS	16 ppt
PFHxS	51 ppt
GenX (HFPO-DA)	370 ppt
PFBS	420 ppt
PFHxA	400,000 ppt

Michigan Surface Water Quality Values

Compound	Water Quality Value
PFOA	170 ppt
<i>If Drinking Water Source</i>	<i>66 ppt</i>
PFOS	12 ppt
<i>If Drinking Water Source</i>	<i>11 ppt</i>
PFBS	670,000 ppt
<i>If Drinking Water Source</i>	<i>8,300 ppt</i>
PFHxS	210 ppt
<i>If Drinking Water Source</i>	<i>59 ppt</i>
PFNA	30 ppt
<i>If Drinking Water Source</i>	<i>19 ppt</i>

Michigan's Rule 57 Water Quality Values
apply to NPDES discharges

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PFAS and Health

Chelsea Gary, Toxicologist

Michigan Department of Health and Human Services

Phone: 517-582-1657

Email: garyc2@michigan.gov

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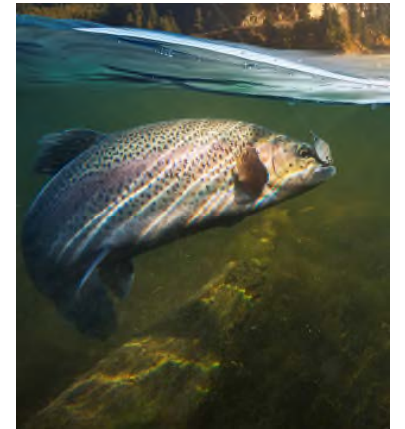
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The Role of MDHHS/ Local Health Department (LHD)

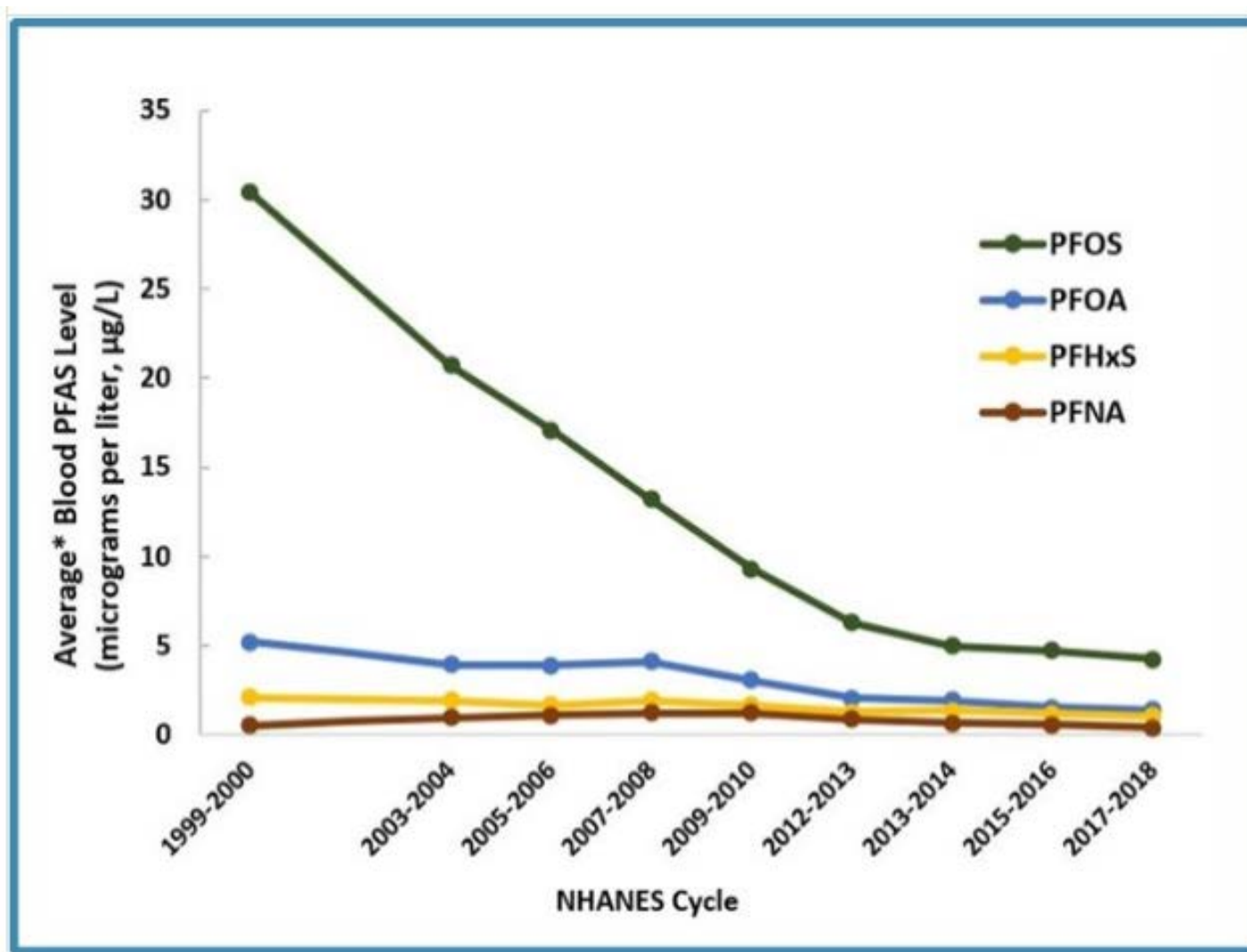
- Understand the health concerns facing your community
- Develop a plan to investigate and address health risks
 - EGLE leads the site investigation
 - MDHHS and the Local Health Department lead the public health planning and response
- Evaluate PFAS exposures to residents in the community
 - Recommend public health actions as needed

Exposure to PFAS Chemicals

- Drinking contaminated water
- Eating fish caught from water contaminated by PFAS
 - “Eat Safe Fish” Guidelines
- Incidental swallowing of contaminated soil or dust
- Eating food packaged in materials containing PFAS
- Using some consumer products
- PFAS absorption through skin is typically not a concern



Blood levels of the most common PFAS in people in the United States 2000-2018



Associated Human Health Outcomes PFOA and/or PFOS

- Reduced fertility
- High blood pressure or pre-eclampsia in pregnant women
- Small decreases in infant birth weight
- Higher cholesterol
 - Especially total cholesterol and LDL cholesterol

Associated Human Health Outcomes PFOA and/or PFOS

- Thyroid disease
- Liver damage
- Decreased immune system response to vaccines
- Developing certain types of cancer
 - In particular, kidney and testicular cancers*

* PFOA only

Multiple Lines of Consideration for Determining Public Health Response Actions

- MDHHS Comparison Values
- Residential Well Results (individually and collectively)
- Site–specific information (e.g., known source, geology, etc.)

MDHHS Comparison Values

- MDHHS Comparison Values are the lowest of:
 - MDHHS Public Health Drinking Water Screening Level
 - MPART Health-Based Value or Maximum Contaminant Level (MCL)
- Both the MDHHS screening levels and the MCL were set to protect everyone
 - including those most at risk of harm to their health: fetuses and breastfed babies

MDHHS Comparison Values

PFAS	Comparison Values
PFOS	8 ppt ^A
PFOA	8 ppt ^B
PFNA	6 ppt ^B
PFHxS	51 ppt ^B
PFBS	420 ppt ^B
PFHxA	400,000 ppt ^B
GenX	370 ppt ^B

A. MDHHS Public Health Drinking Water Screening Level

B. MPART Health-Based Value or Maximum Contaminant Level (MCL)

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Residential Well Results (individually and collectively)



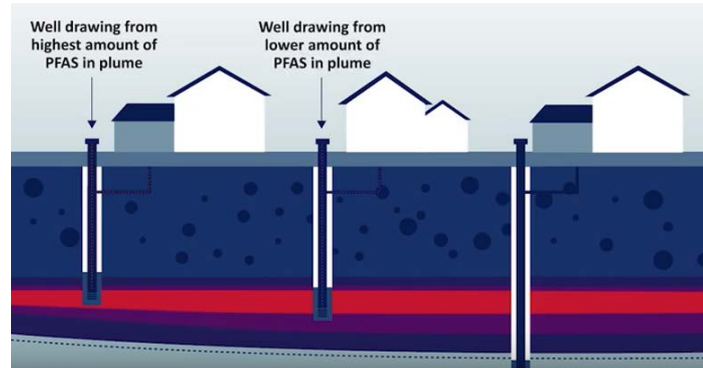
-  No Detection
-  Detected but less than the comparison value
-  Exceedance

Site-Specific Information

Known Source



Geology



Plume



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What to Look for When Selecting a Filter



<http://bit.ly/PFASHomeFilter>

- Make sure the filter has a NSF/ANSI Standard 53 for PFOA and PFOS reduction.
- Follow all manufacturing instructions to make sure it is reducing the PFAS as expected.

MDHHS/LHD

Public Health Response Actions

- No public health actions necessary
- Recommend filter or use of alternate water
 - Need time to conduct investigation
 - Provides residents with protection from potential fluctuations in PFAS levels, if any, while investigation is ongoing
- Education
 - Provide information on PFAS in drinking water

Fish Collection Data



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Eating Fish from Michigan's Lakes & Rivers

[Michigan.gov/eatsafefish](https://michigan.gov/eatsafefish)



Lake Cadillac

Type of Fish	Chemicals of Concern	Size of Fish (length in inches)	MI Servings per Month*
Largemouth Bass	Mercury	Under 18"	2
		Over 18"	1
Northern Pike	Mercury	Under 30"	4
		Over 30"	2
Smallmouth Bass	Mercury	Under 18"	2
		Over 18"	1

Lake Mitchell

Type of Fish	Chemicals of Concern	Size of Fish (length in inches)	MI Servings per Month*
Largemouth Bass	Mercury	Under 18"	2
		Over 18"	1
Smallmouth Bass	Mercury	Under 18"	2
		Over 18"	1
Walleye	Mercury	Any	1

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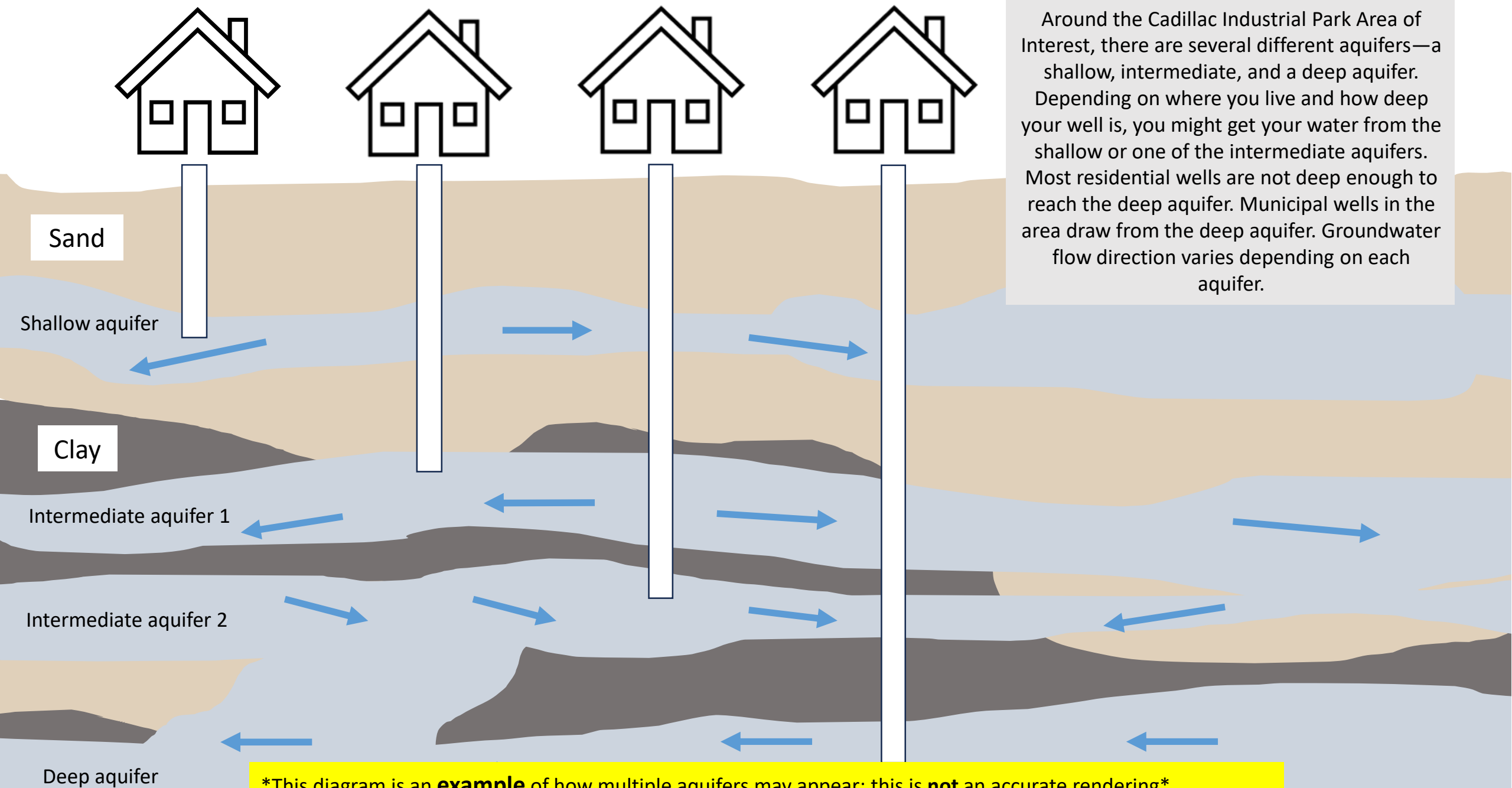
AS ACTION RESPONSE TEAM

Cadillac Area of Interest Investigation

Brandi Wheeler, PFAS Site Lead & District Geologist
Michigan Department of Environment, Great Lakes, and Energy
231-878-8066
wheelerb5@michigan.gov

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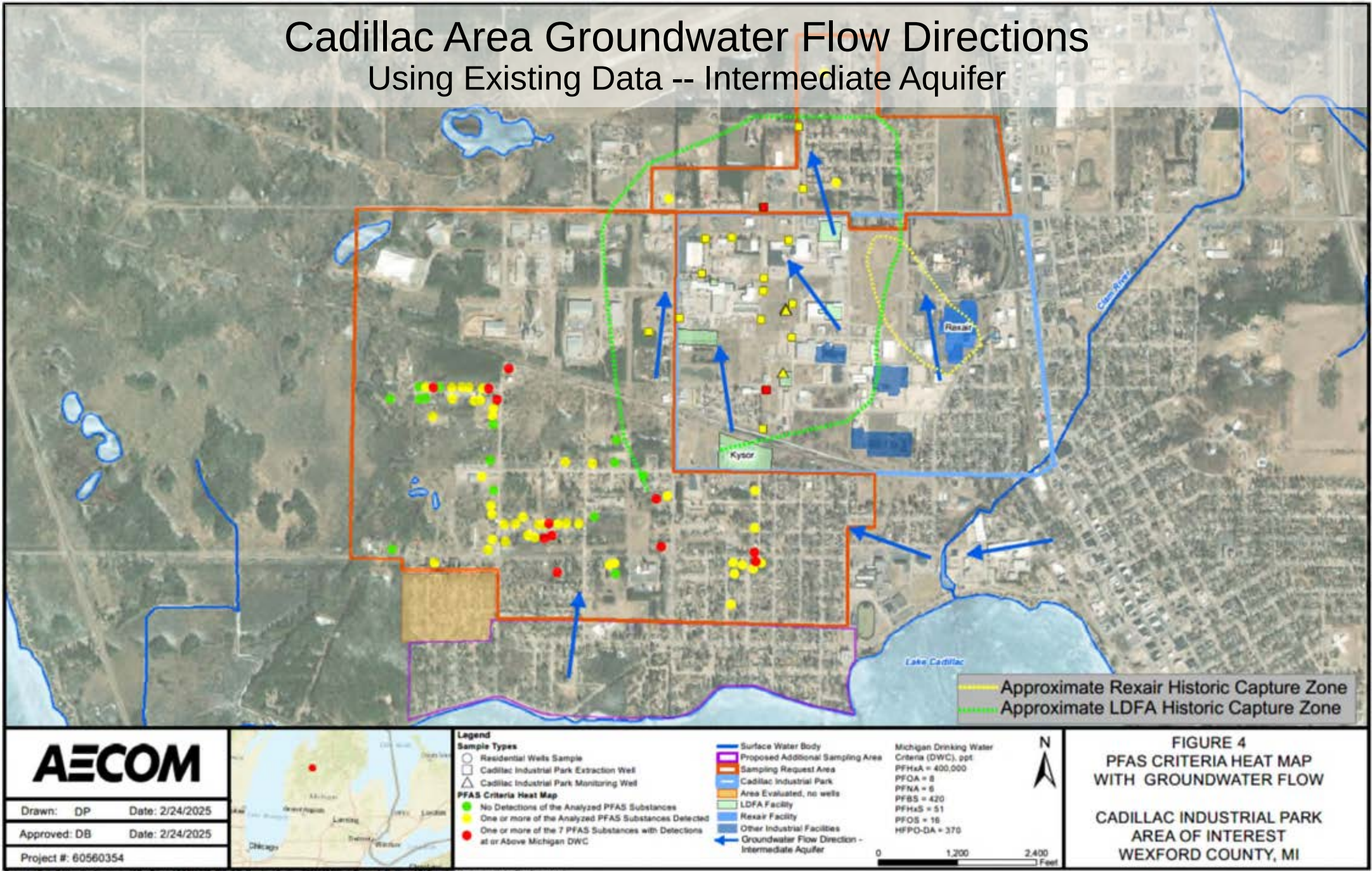
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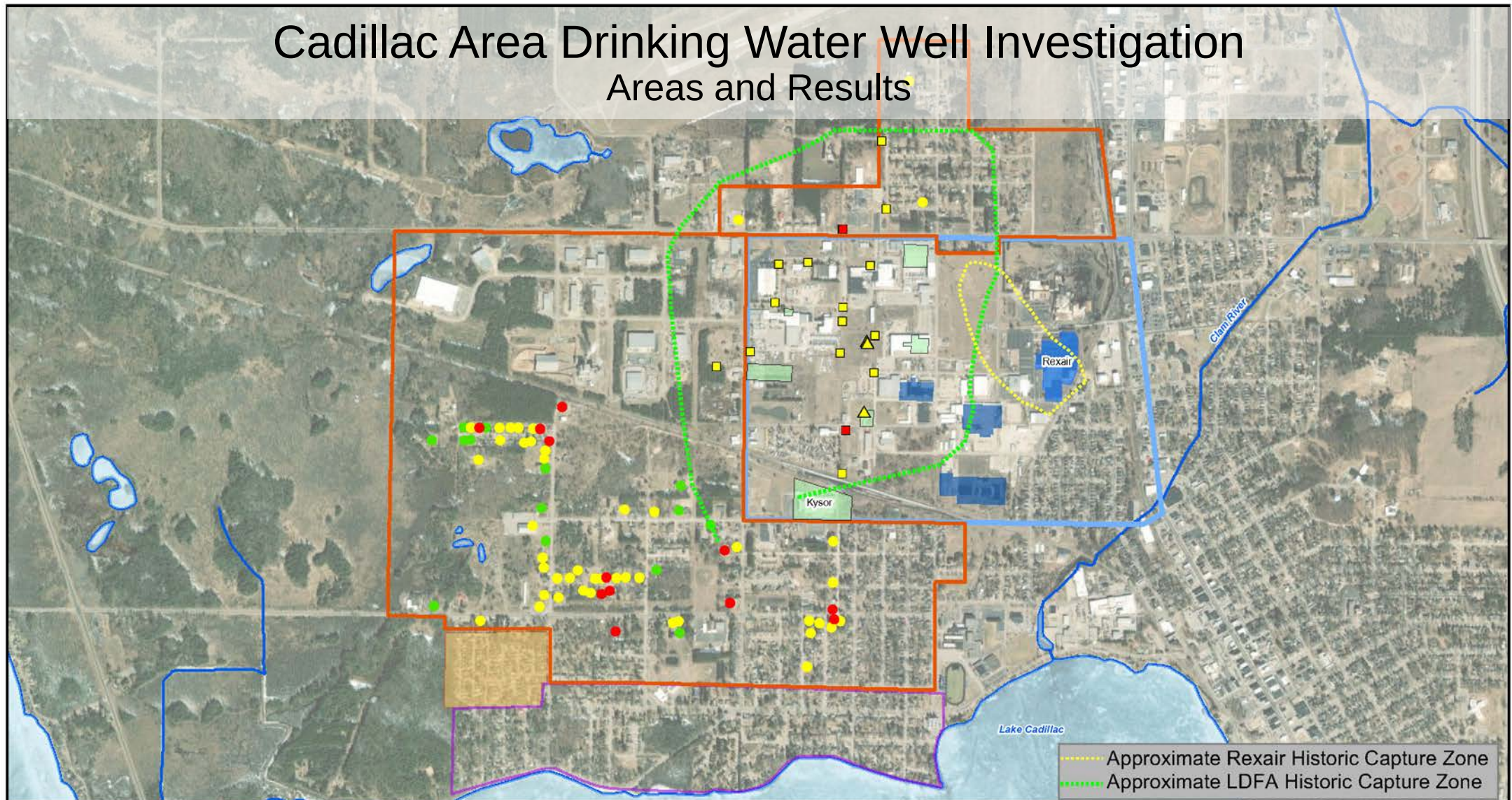
Around the Cadillac Industrial Park Area of Interest, there are several different aquifers—a shallow, intermediate, and a deep aquifer. Depending on where you live and how deep your well is, you might get your water from the shallow or one of the intermediate aquifers. Most residential wells are not deep enough to reach the deep aquifer. Municipal wells in the area draw from the deep aquifer. Groundwater flow direction varies depending on each aquifer.

*This diagram is an **example** of how multiple aquifers may appear; this is **not** an accurate rendering*

Cadillac Area Groundwater Flow Directions Using Existing Data -- Intermediate Aquifer



Cadillac Area Drinking Water Well Investigation Areas and Results



AECOM

Drawn: DP Date: 2/24/2025

Approved: DB Date: 2/24/2025

Project #: 60560354



Legend

- Sample Types**
- Residential Wells Sample
 - Cadillac Industrial Park Extraction Well
 - △ Cadillac Industrial Park Monitoring Well

PFAS Criteria Heat Map

- No Detections of the Analyzed PFAS Substances
- One or more of the Analyzed PFAS Substances Detected
- One or more of the 7 PFAS Substances with Detections at or Above Michigan DWC

- Surface Water Body
- Proposed Additional Sampling Area
- Sampling Request Area
- Cadillac Industrial Park
- Area Evaluated, no wells
- LDFA Facility
- Rexair Facility
- Other Industrial Facilities

Michigan Drinking Water Criteria (DWC), ppt:

- PFHxA = 400,000
- PFOA = 8
- PFNA = 6
- PFBS = 420
- PFHxS = 51
- PFOS = 16
- HFPO-DA = 370



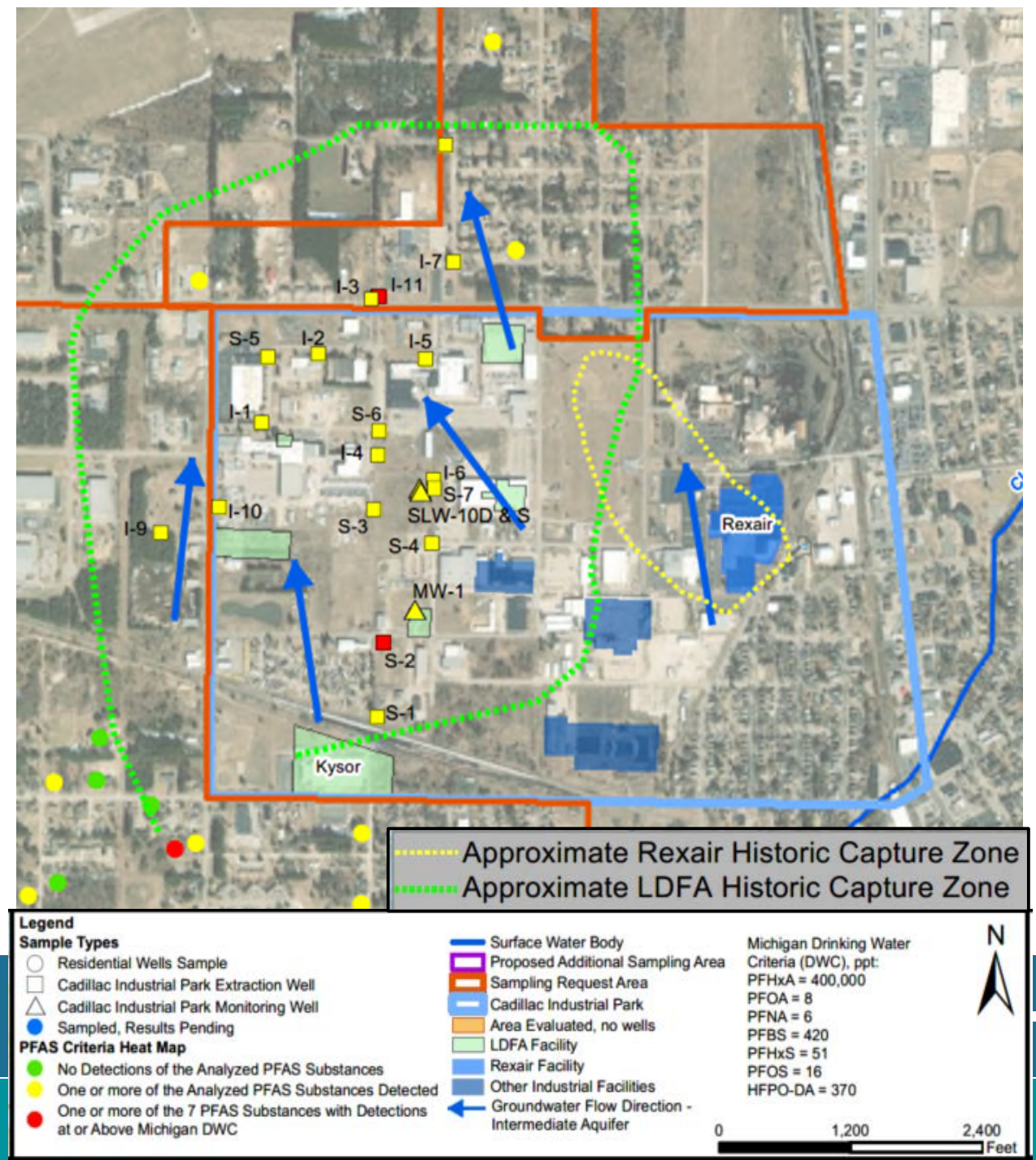
0 1,600 3,200 Feet

FIGURE 3
PFAS CRITERIA HEAT MAP

CADILLAC INDUSTRIAL PARK
AREA OF INTEREST
WEXFORD COUNTY, MI

LDFA 2024-2025 PFAS Sampling

- Sampled I-5 Influent and I-5 effluent prior to and after the granular activated carbon was changed out.
- Sampled all shallow aquifer extraction wells.
- Sampled remaining intermediate aquifer extraction wells.
- Sampled Treatment Plant Discharge to Clam River.
- Two of the extraction wells sampled exceeded Michigan Drinking Water Maximum Contaminant Levels (MCLs) for PFOA.
- All PFAS less than Michigan's Surface Water Quality Values and Drinking Water MCLs in Treatment Plant Discharge.



What's Next?

- The LDFA is developing quality assurance, PFAS sampling, and groundwater monitoring plans.
- The LDFA will sample groundwater for contaminants, including PFAS.
- The LDFA is evaluating the potential rearrangement of plant piping to allow more extraction well capture to be directed to carbon treatment.
- The EPA is in the process of drafting the EPA Five-Year Review.
- EGLE, DHHS and local health will continue to review residential well needs and results to determine:
 - The appropriate health response
 - If additional sampling is needed based on data

Cadillac Area of Interest Investigation Public Water Supply

Ian Smith, Unit Manager, Emerging Contaminants Unit
Michigan Department of Environment, Great Lakes, and Energy

517-256-2474

smithi@michigan.gov

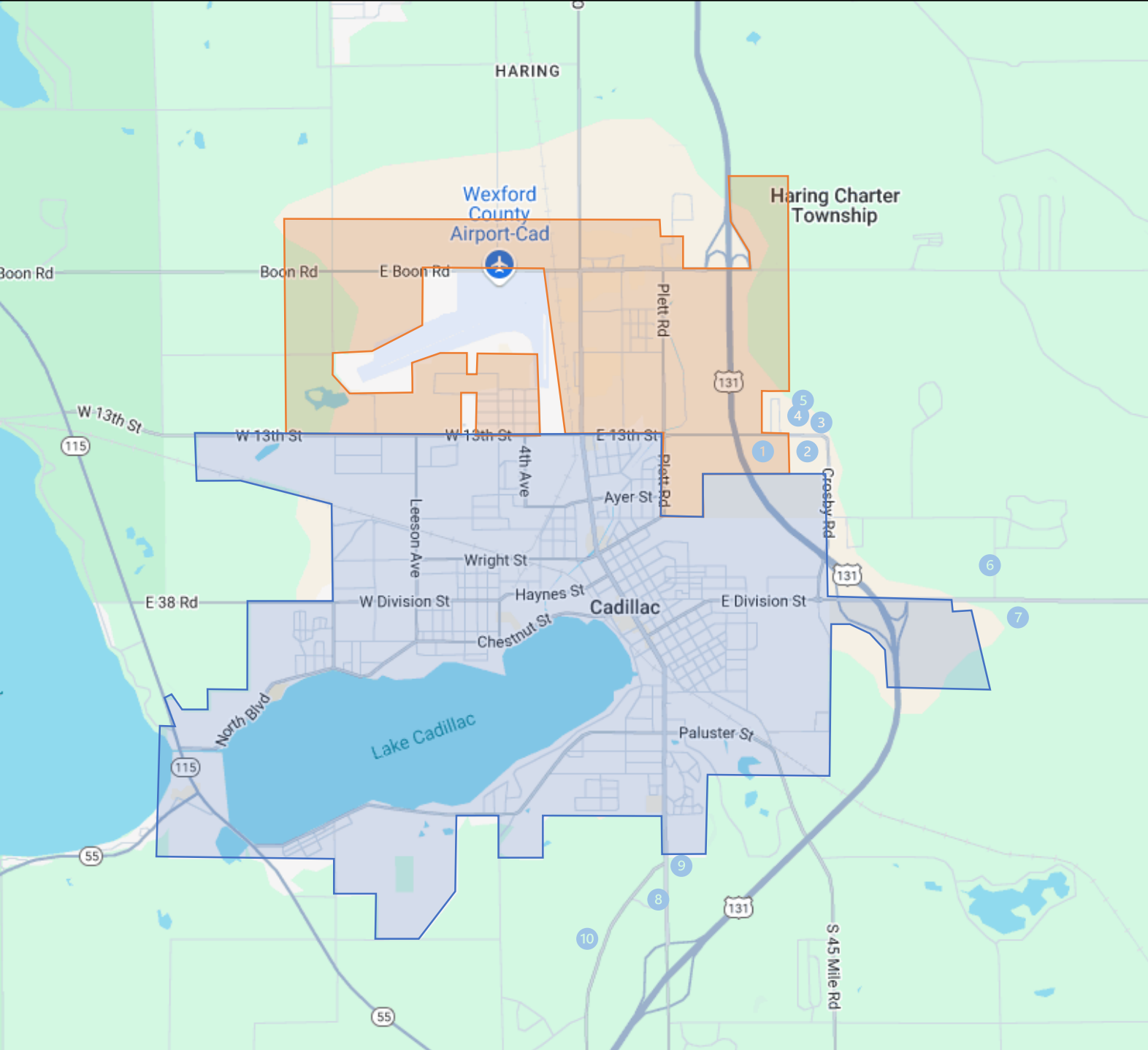
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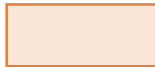
Public Water Supply

The Cadillac Industrial Area of Interest (AOI), MI is served by two municipal community water supplies (CWS). These include the City of Cadillac CWS (central to the AOI) and Haring Charter Township CWS (immediately to the north).

- The City of Cadillac CWS is currently on an annual sampling schedule with all past compliance monitoring results non-detect for all tested PFAS.
- The Haring Charter Township CWS is currently on a quarterly sampling schedule, with past compliance monitoring results for tested PFAS either at or below the corresponding Michigan MCLs or non-detect. The supply has had no exceedances to date.



Approximate Area of Service:

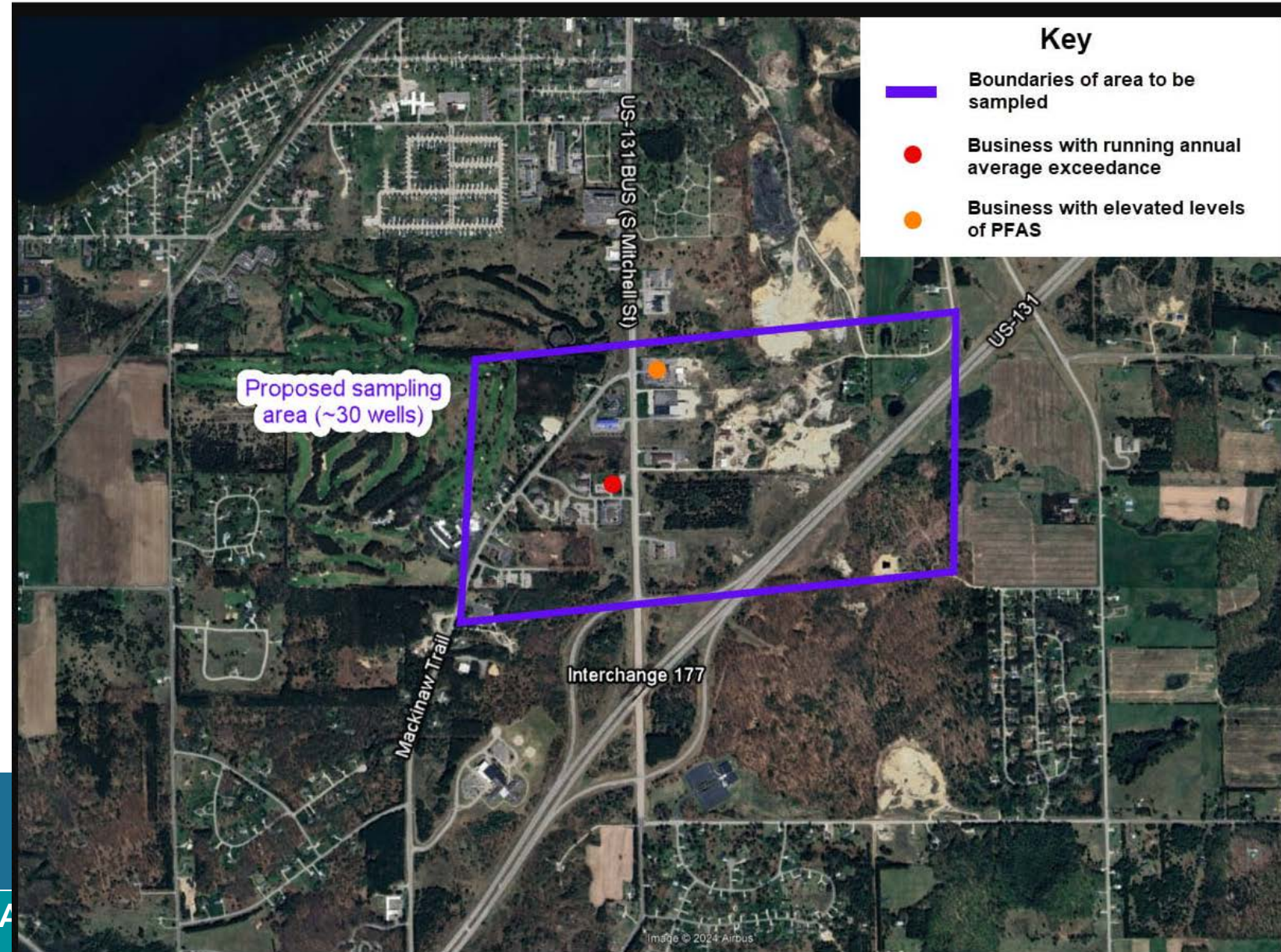
-  City of Cadillac Community Water Supply
-  Haring Township Community Water Supply

Approximate Locations of Other Public Water Supplies:

-  Baker College
-  Cadillac Area YMCA
-  Wexford-Missaukee ISD
-  Wexford-Missaukee Spec Svcs/Admin
-  Wexford-Missaukee Career Tech Ctr
-  Curry House Assisted Living Center
-  Emmanuel Lutheran Church
-  Dental Health Professionals
-  Betten Baker Buick GMC
-  Evergreen Resort

US 131 & Mackinaw Trail Area of Interest

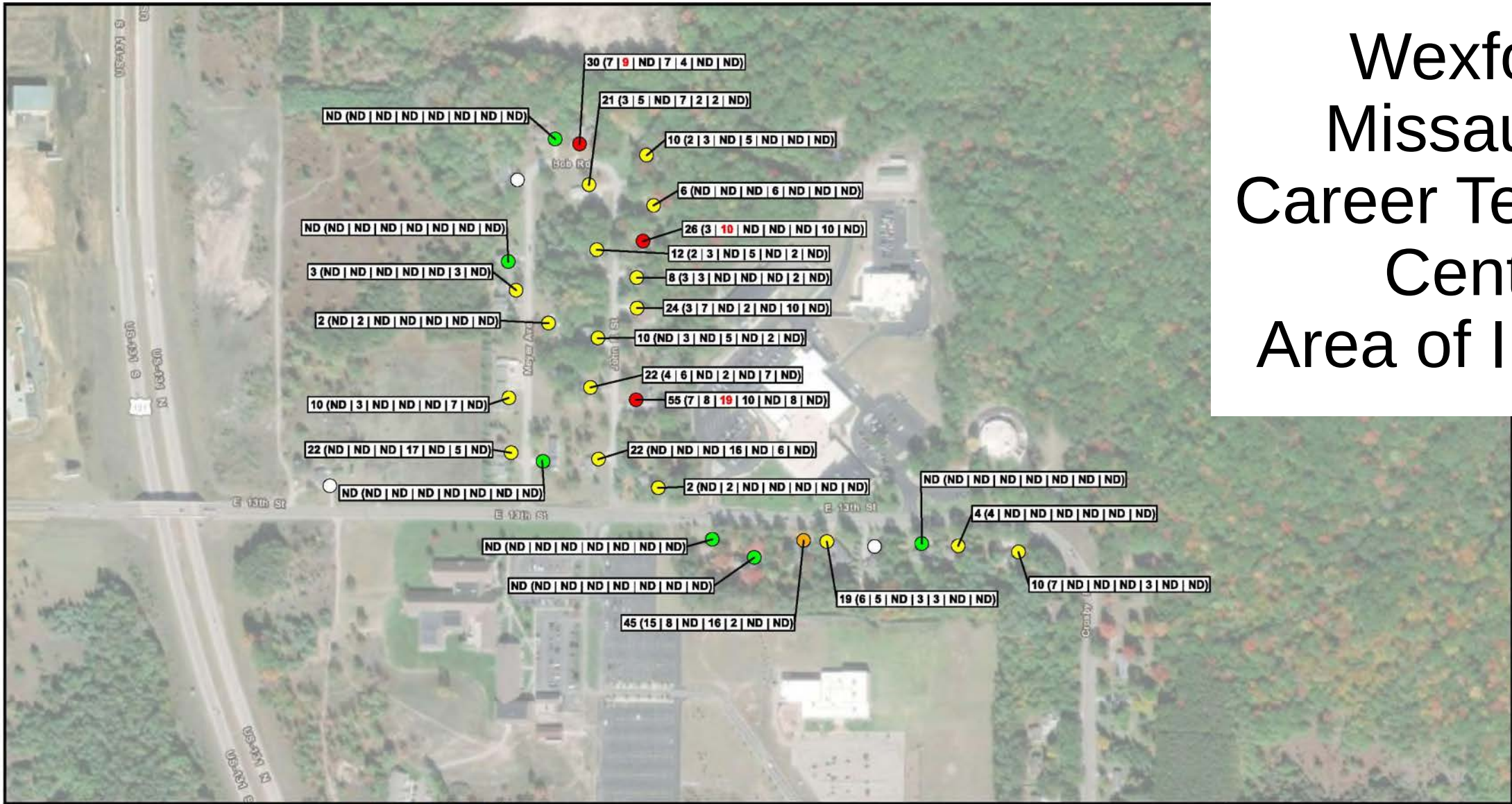
- Being investigated because of a drinking water exceedance at a business
- February 7th, AECOM sampled 8 wells
 - 7 wells were non-detect
 - 1 well had 2 ppt PFOA (compared to 8 ppt)



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Wexford-Missaukee Career Technical Center Area of Interest



Drawn: DP Date: 3/16/2022

Approved: DB Date: 3/16/2022

Project #: 60560354

Legend

Residential Well Location

- No Detections of the 18 Analyzed PFAS
- One or more of the 18 Analyzed PFAS Detected
- One or more of the 7 PFAS with Michigan Part 201 Drinking Water Criteria Detected Equal to Criteria
- One or more of the 7 PFAS with Michigan Part 201 Drinking Water Criteria Detected Above Criteria
- Canvassed - No Sample Collected

Michigan Part 201 Residential & Nonresidential Drinking Water Criteria (DWC), ng/L

PFHxA = 400,000	PFHxS = 51
PFOA = 8	PFOS = 16
PFNA = 6	HFPO-DA = 370
PFBS = 420	

red text indicates exceedance of Part 201 DWC
ND = non-detect

Total PFAS (PFHxA | PFOA | PFNA | PFBS | PFHxS | PFOS | HFPO-DA)

0 300 600 Feet

N

WEXFORD-MISSAUKEE
PFAS HEAT MAP

WEXFORD COUNTY, MI

Summary:

- MPART has sampled 70 drinking water wells in the Cadillac Industrial Park area to date.
- Of these, 12 were above current criteria, 44 had detections below criteria and 14 were non-detect.
- MPART has also received 11 self-samples and have mapped them; all were below current criteria
- Data suggests there are multiple sources of PFAS in the area.
- Sources of PFAS are varied. Potential sources could be septic tanks, small manufacturing, fires where AFFF was used....
Definitive sources are unknown.
- Cadillac has a lot of sand; contaminants move down into groundwater quickly

Summary:

- Residents with detections in the MPART sampling area are being offered Point of Use filters
- Point of Use filters are effective at reducing PFAS
- While not an option for everyone on this call today, the best long-term solution in areas like this (with multiple sources) is connection to municipal water
- Cadillac's municipal water is non-detect; Haring Township's municipal water has detections but is in compliance. They are working on installing a new well
- Agencies will continue to work together to address the situation

Summary:

- The best thing a private well owner can do is sample their well; protect their family
- There are 1 million residential wells in Michigan
- MPART appreciates the township deploying Cyclopure test kits
- MPART will review results with the Township from those tests
- The project team will continue to review all results to evaluate if an investigation/additional sampling is needed
 - o Science/data will drive these decisions

Self Testing for PFAS

- The easiest way to address the risk of repeated exposure to PFAS in your drinking water is by **testing your private drinking water well**
 - Contact a [Certified PFAS Laboratory](#) to order a test kit
 - Video - [Homeowner's Guide: Collecting Samples for PFAS Water Analysis](#)
- Once you get your results, contact the MDHHS Drinking Water Hotline at 800-648-6942 to figure out what your results mean, and if you should start filtering your water



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For Questions About...	Contact
The Local Development Finance Authority (LDFA); City of Cadillac municipal water.	• Jeff Dietlin, Director of Utilities, City of Cadillac: 231-779-7346, jdietlin@cadillac-mi.net
EGLE's residential well sampling efforts in the Cadillac Industrial Area of Interest	• Brandi Wheeler, EGLE's district project manager: 231-878-8066, WheelerB5@Michigan.gov • Megan Cynar, EGLE's Superfund project manager: 517-256-2681, CynarM@Michigan.gov • Mike Jury, EGLE, PFAS Specialist: 517-242-9578, JuryM1@Michigan.gov • Miranda Triolet, EGLE, analyst: 517-290-2201, TrioletM@Michigan.gov
What your drinking water result means; health concerns related to PFAS.	• Chelsea Gary, DHHS toxicologist: 517-582-1657, GaryC2@Michigan.gov
Home filters and replacement cartridges; sampling wells for other contaminants; well permitting or abandonment.	• Robert Crane, District Health Department #10: 231-519-7541, rcrane@dhd10.org
Background information about the Superfund sites, and the PFAS investigation in the Cadillac Industrial Park Area.	• Catherine Nield, EPA: 312-353-6318, nield.catherine@epa.gov
Questions about the Haring Township municipal water, including municipal connections project involving the Wexford Tech Center and homes near there.	• Bob Scarbrough, Haring Township Supervisor: 237-775-0048, caroscar@netonecom.net
The US 131 & Mackinaw Trail investigation.	• Dave Maynard, EGLE site lead: 231-429-1656, MaynardD@Michigan.gov
Community engagement or health education materials.	• Madelyn Slamka 517-243-7563, SlamkaM@Michigan.gov

MICHIGAN PFAS ACTION RESPONSE TEAM (MPART)

www.Michigan.gov/PfasResponse



MICHIGAN DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY



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How to ask a question?



Submit your questions using the “**Q/A**” box in at the bottom of your screen.



Click the “hand” icon at the bottom of your screen.



Type #2 to raise your hand.

#2

Questions ?

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