

Oscoda Area and Former Wurtsmith Air Force Base PFAS Townhall Meeting

July 21, 2020

Agenda

6:35 pm	Webinar Instructions
6:40 pm	EGLE Update
7:10 pm	MDHHS Update
7:20 pm	DNR Update
7:30 pm	Question and Answer Session
8:00 pm	Meeting Conclusion

Webinar Housekeeping



All lines are muted during the webinar.

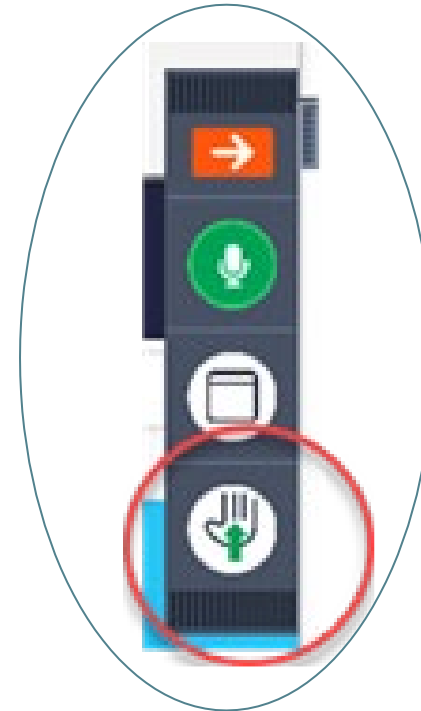


Submit your questions using the “**Question**” box in your Go To Webinar tool bar.



We are recording this webinar

How to ask a question



Raise your hand



Lower your hand

PFAS Introduction

Beth Place, Project Manager
EGLE Remediation and Redevelopment Division
(517) 899-7524

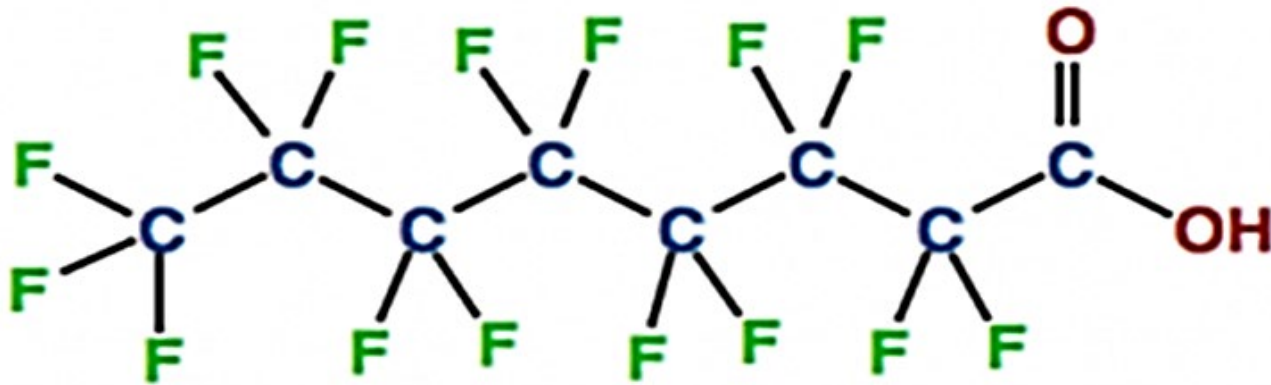
PlaceB1@Michigan.gov

Michigan PFAS Action Response Team (MPART)



- Executive Order 2019-03
- Unique Multi-Agency Approach
- Leads Coordination and Cooperation Among All Levels of Government
- Directs Implementation of State's Action Strategy

Per- and Polyfluoroalkyl Substances (PFAS)



PFOA - perfluorooctanoic acid

- **Strong Carbon-Fluorine Bonds**
- Surfactants
- Highly Stable
- Repel Water, Oil, Fat, and Grease
- Began Developing in 1940s
- 5,000+ Compounds Today

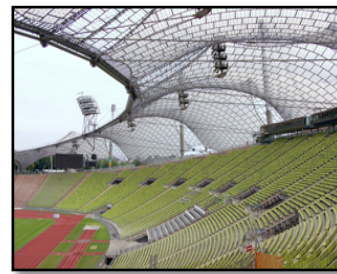
PFAS Uses



Aerospace



Apparel



Building and Construction



Chemicals and Pharmaceuticals



Electronics



Oil & Gas



Energy



Healthcare and Hospitals



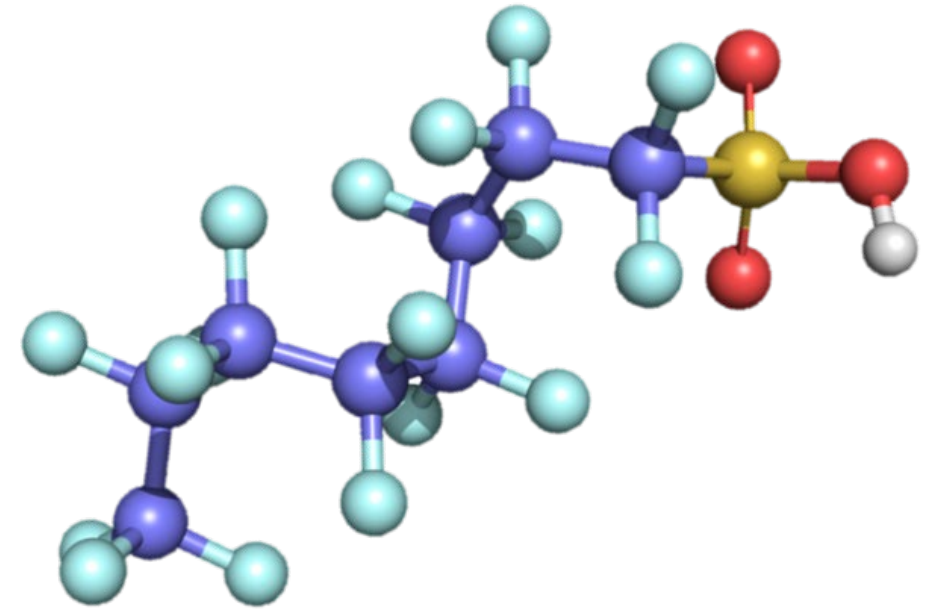
Aqueous Film Forming Foam

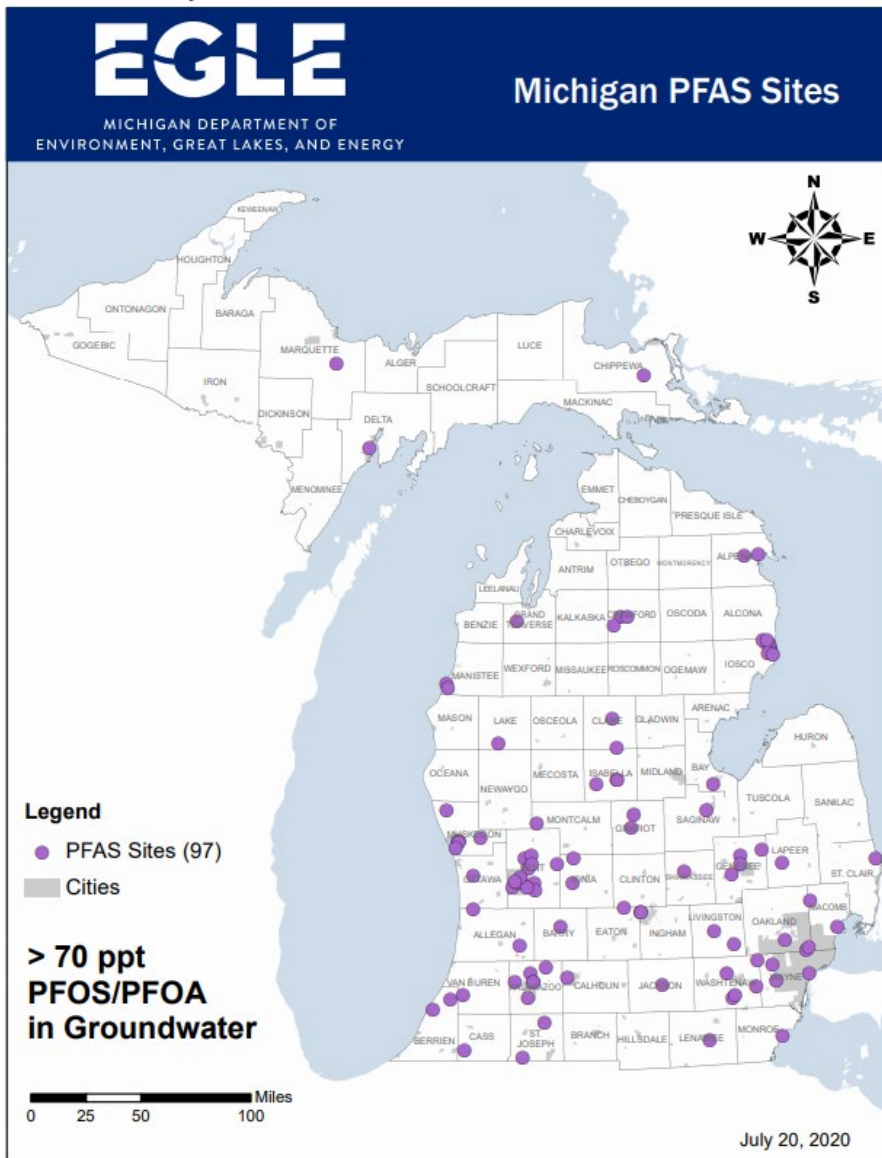


Semiconductors

Why the Concern?

- Widespread
- Don't Break Down Easily - Hard to Get Rid of
- Bioaccumulative – Build Up in Our Bodies
- Some PFAS May Affect Health
- Lack of Information
- Lack of Standards

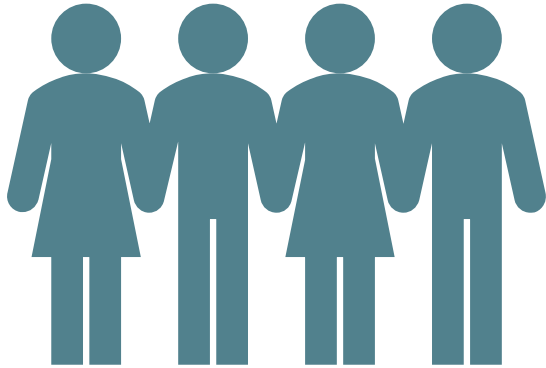




Sites Being Investigated

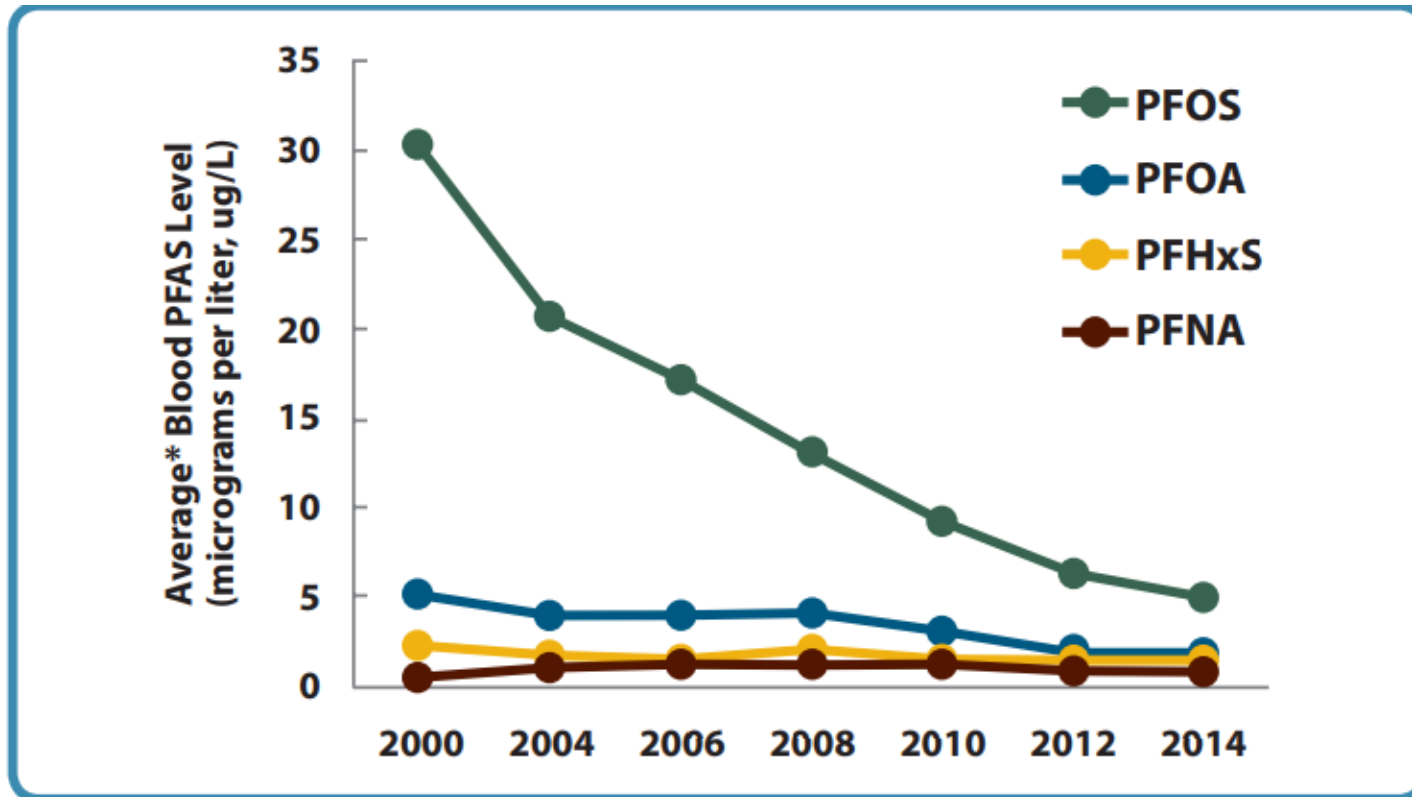
- Prioritized Investigations Based on Known or Suspected Sources, Potential for Exposure
- Protect Drinking Water Pathway
- Multiple Other Investigations Underway

Citizens Advisory Workgroup



- Residents From Impacted Communities
- Key Charges:
 - Recommend How to Engage and Empower Communities
 - Recommend How to Educate the General Public

Blood Levels of the Most Common PFAS in People in the U.S. from 2000-2014



* Average = geometric mean

Data Source: Centers for Disease Control and Prevention. Fourth Report on Human Exposure to Environmental Chemicals, Updated Tables, (January 2017). Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention.

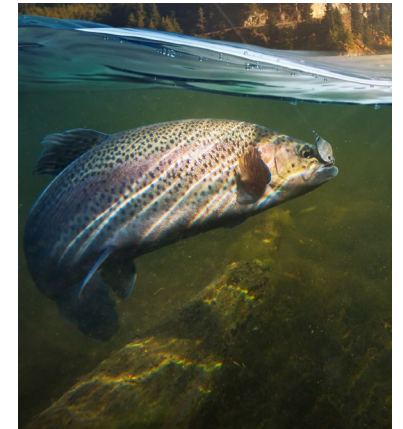
Potential Associated Human Health Outcomes PFOA and/or PFOS

- Lowering a woman's chance of getting pregnant
- Increasing the chance of high blood pressure in pregnant women
- Increasing the chance of thyroid disease*
- Increasing cholesterol levels
- Changing immune response
- Increasing chance of cancer, especially kidney and testicular cancers

* PFOA only

Exposure to PFAS

- Drinking contaminated water
- Eating fish caught from water contaminated by PFAS
 - “Do Not Eat Fish” Advisories
- Occasional swallowing of contaminated soil or dust
- Eating food packaged in materials containing PFAS
- Using some consumer products
- PFAS absorption through skin is not typically a concern, although research is ongoing



Oscoda Area Conceptual Site Model

Beth Place | Amanda Armbruster

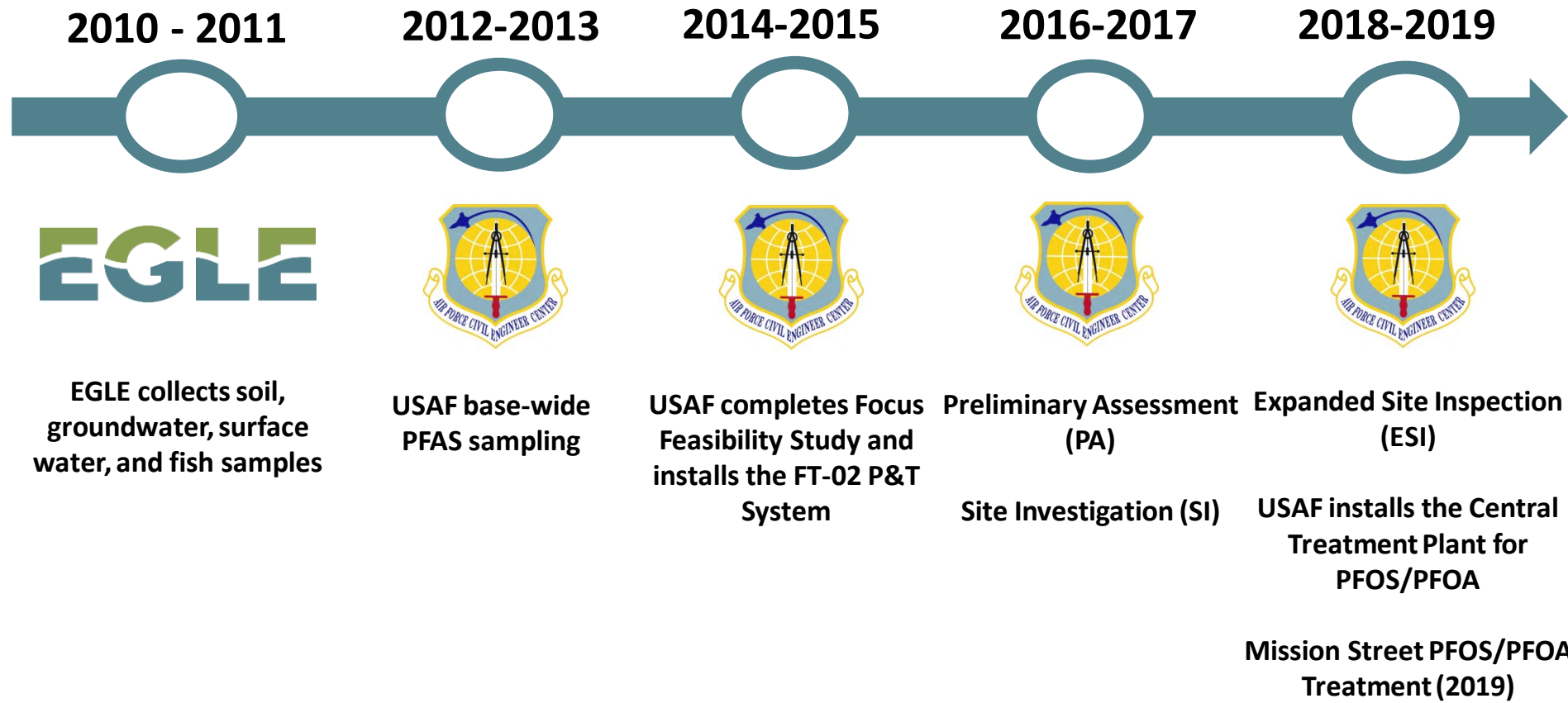
EGLE Remediation and Redevelopment Division

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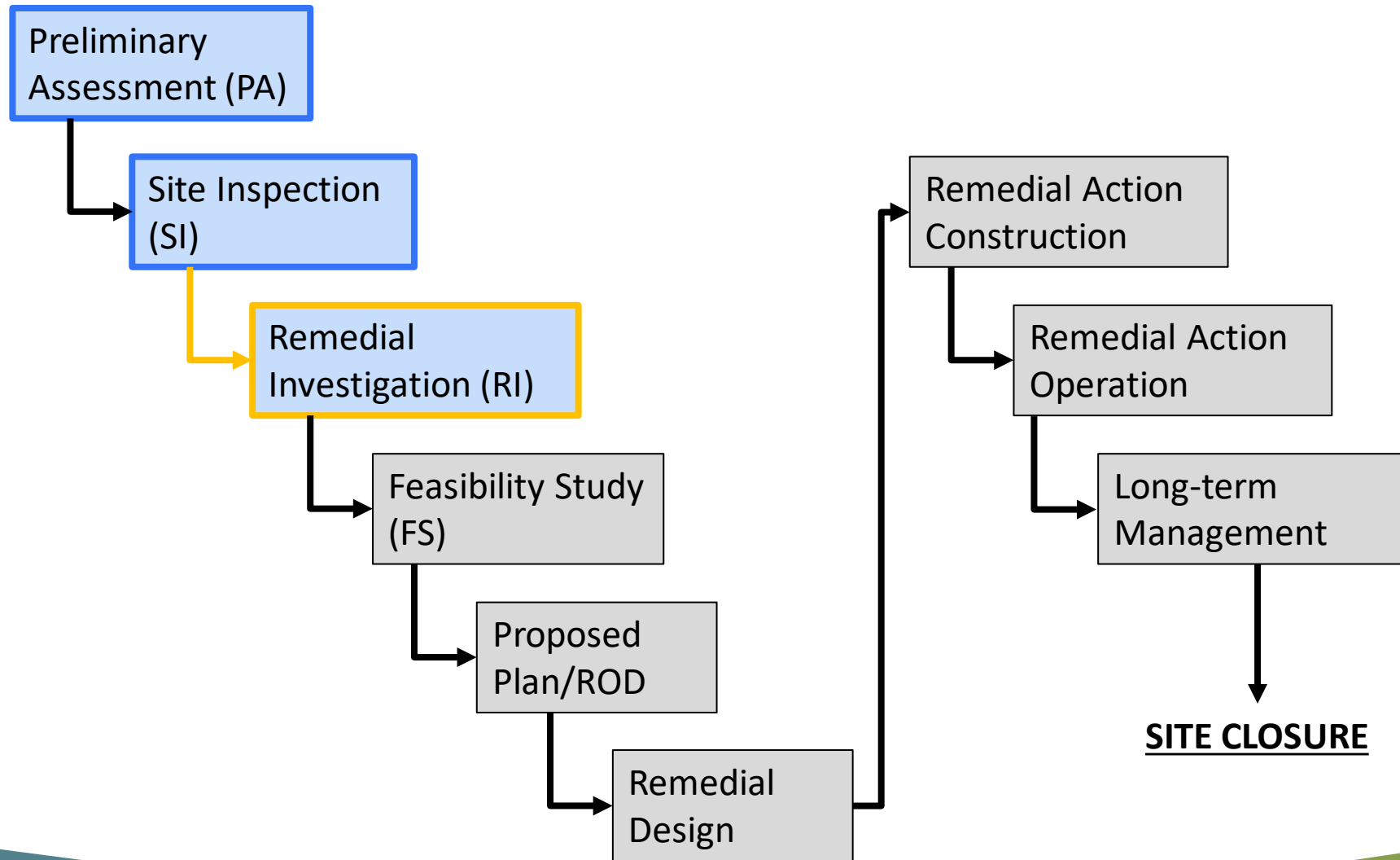
Presentation Outline

- Brief On-Base PFAS History
- Conceptual Site Model
- Criteria Exceedances in Groundwater and Surface Water
- Current PFAS Investigations

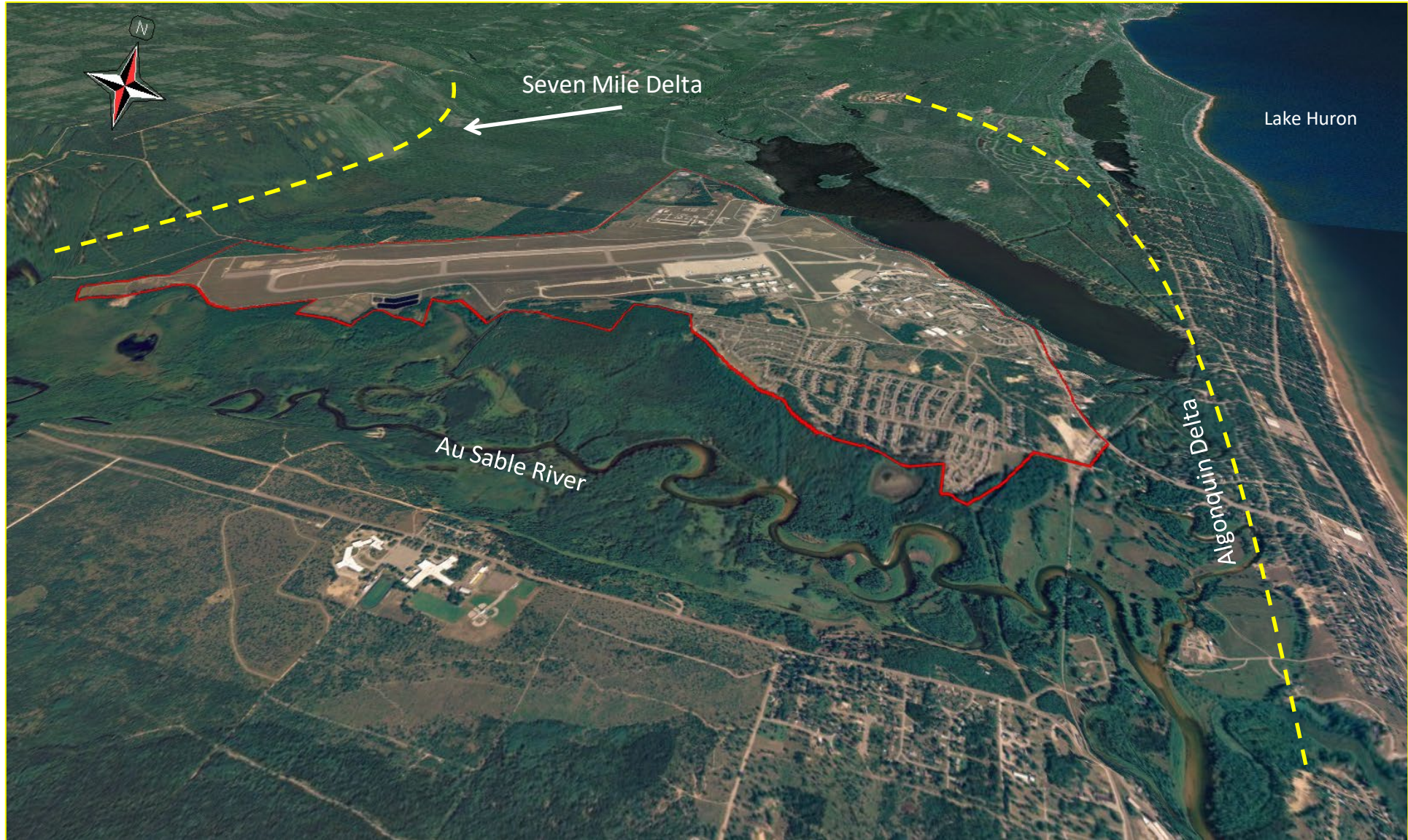
Former Wurtsmith Air Force Base

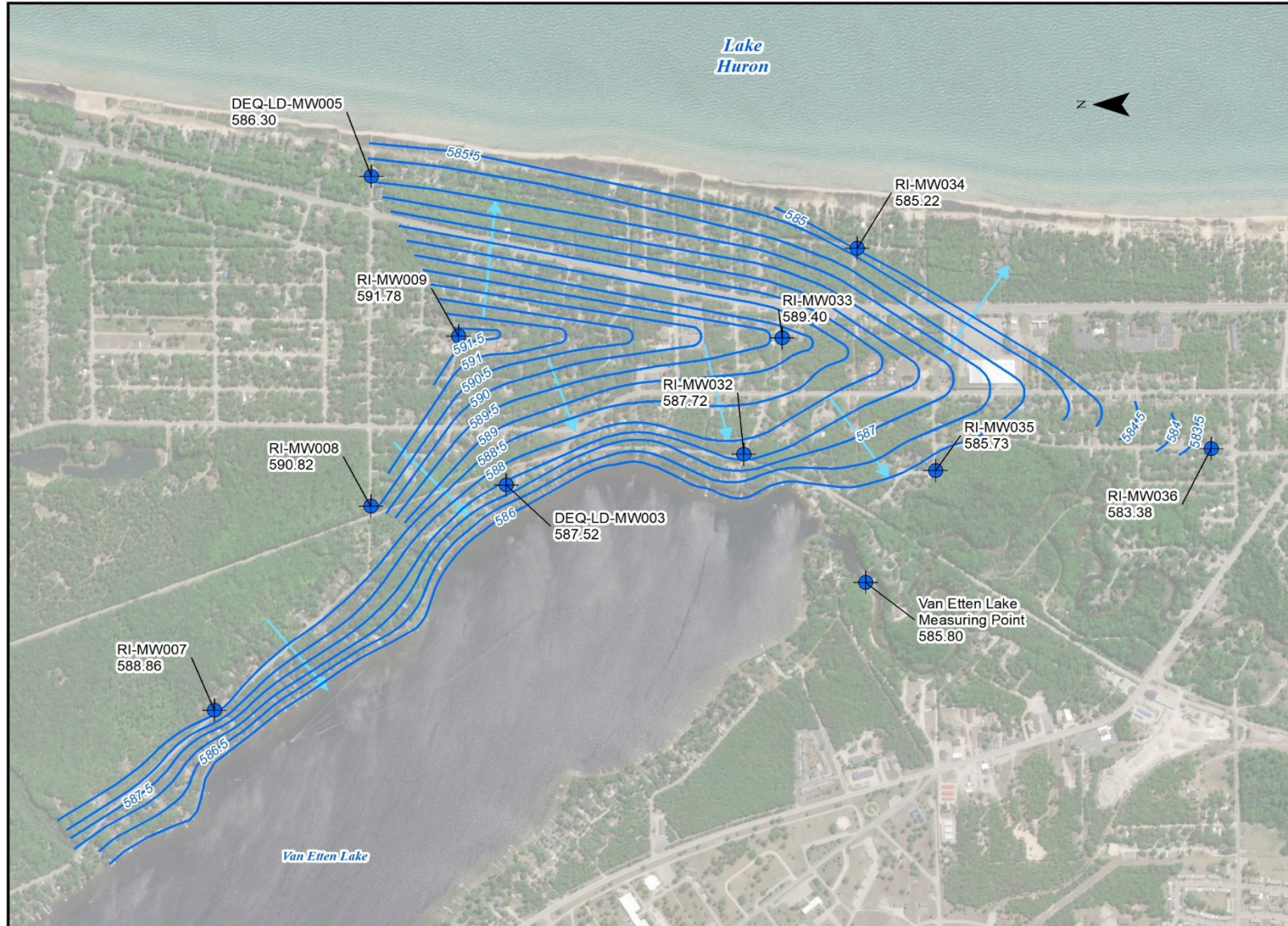


CERCLA Process



Conceptual Site Model



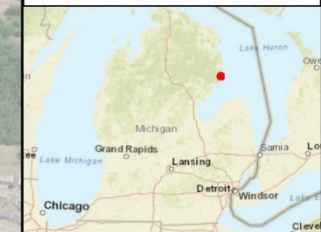
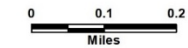


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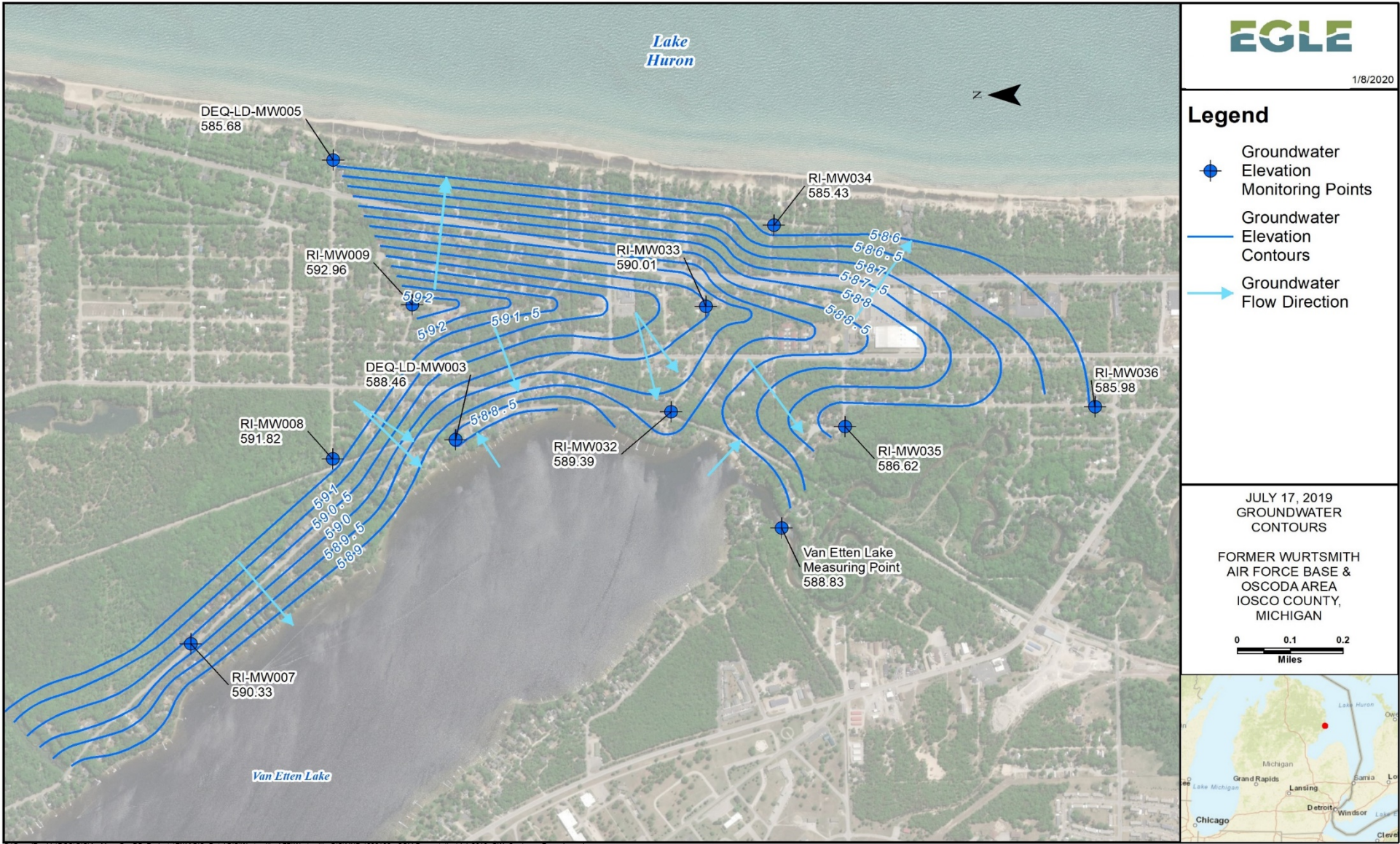
- Groundwater Elevation Monitoring Points
- Groundwater Elevation Contours
- Groundwater Flow Direction

DECEMBER 12, 2018
GROUNDWATER
CONTOURS

FORMER WURTSMITH
AIR FORCE BASE &
OSCODA AREA
IOSCO COUNTY,
MICHIGAN

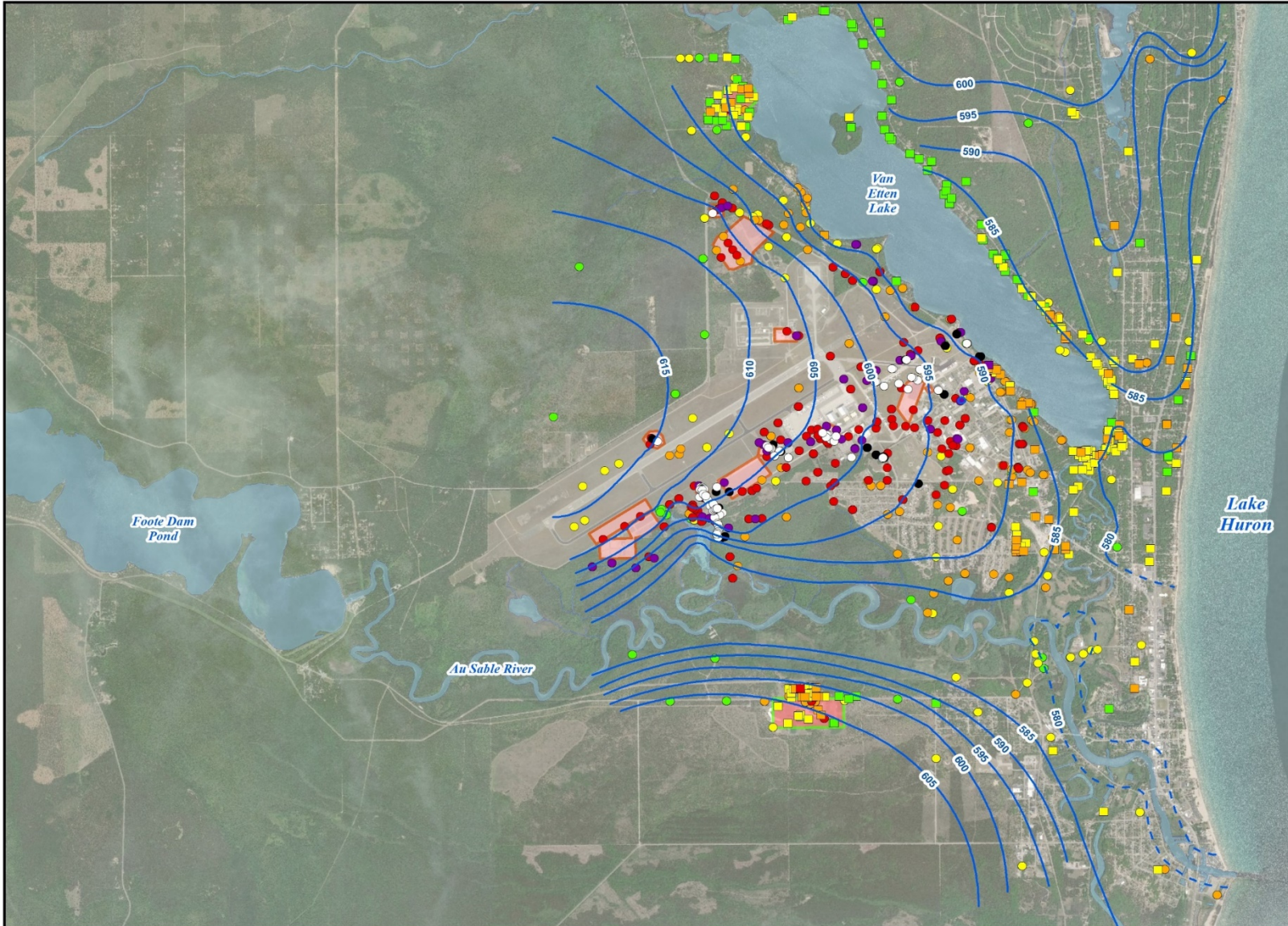


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Criteria Exceedances in Groundwater and Surface Water



PFOA + PFOS (ppt)

Residential Wells

- Non-Detect
- <10
- 10 - <70
- 70 - <1,000
- 1,000 - <5,000
- 5,000 - <10,000

Groundwater Samples

- Non-Detect
- <10
- 10 - <70
- 70 - <1,000
- 1,000 - <5,000
- 5,000 - <10,000
- >10,000

- Groundwater Contour
- - - Inferred Groundwater Contour

PFAS Sources

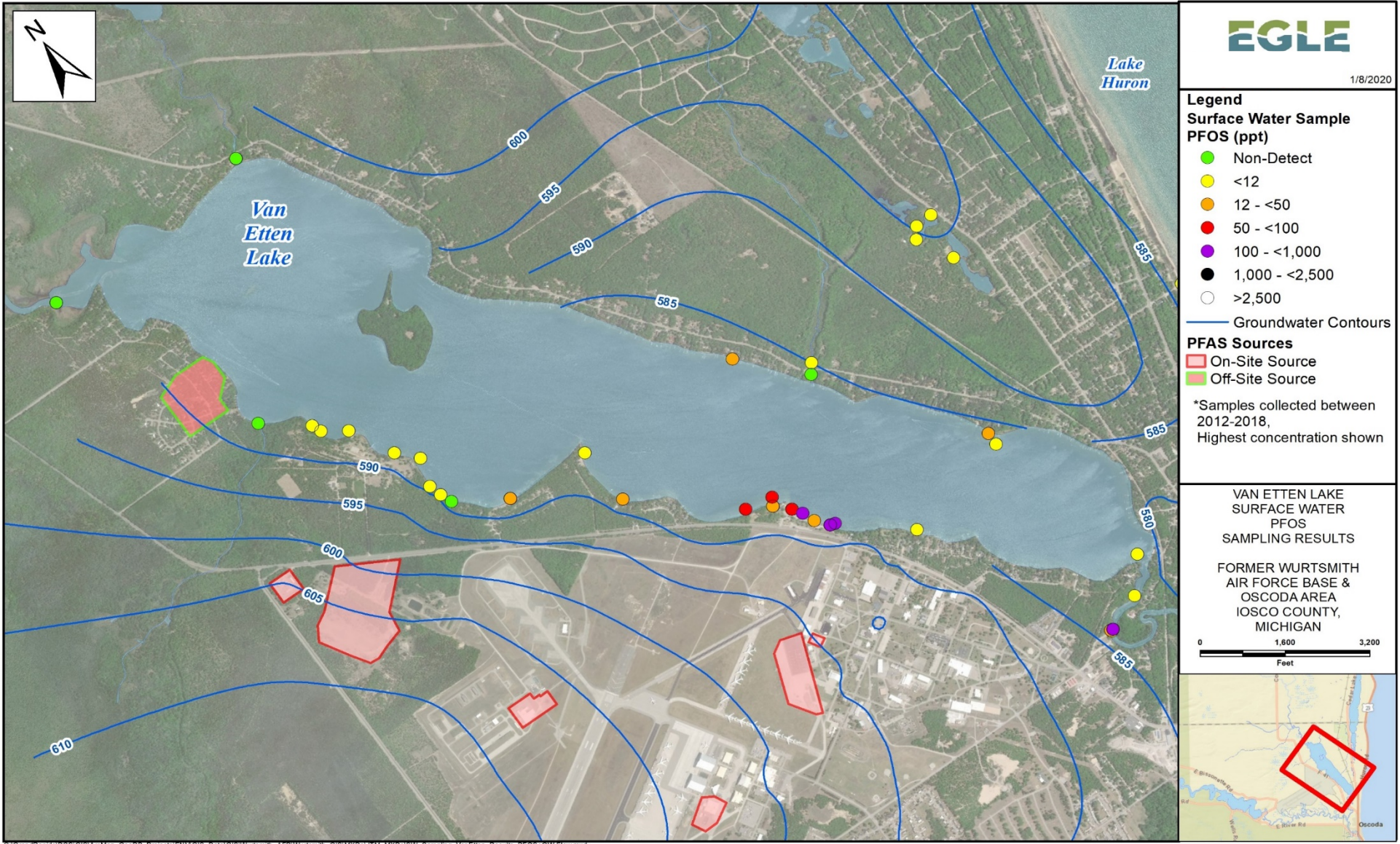
- On-Site Source
- Off-Site Source

GROUNDWATER & RESIDENTIAL SAMPLING RESULTS PFOA + PFOS

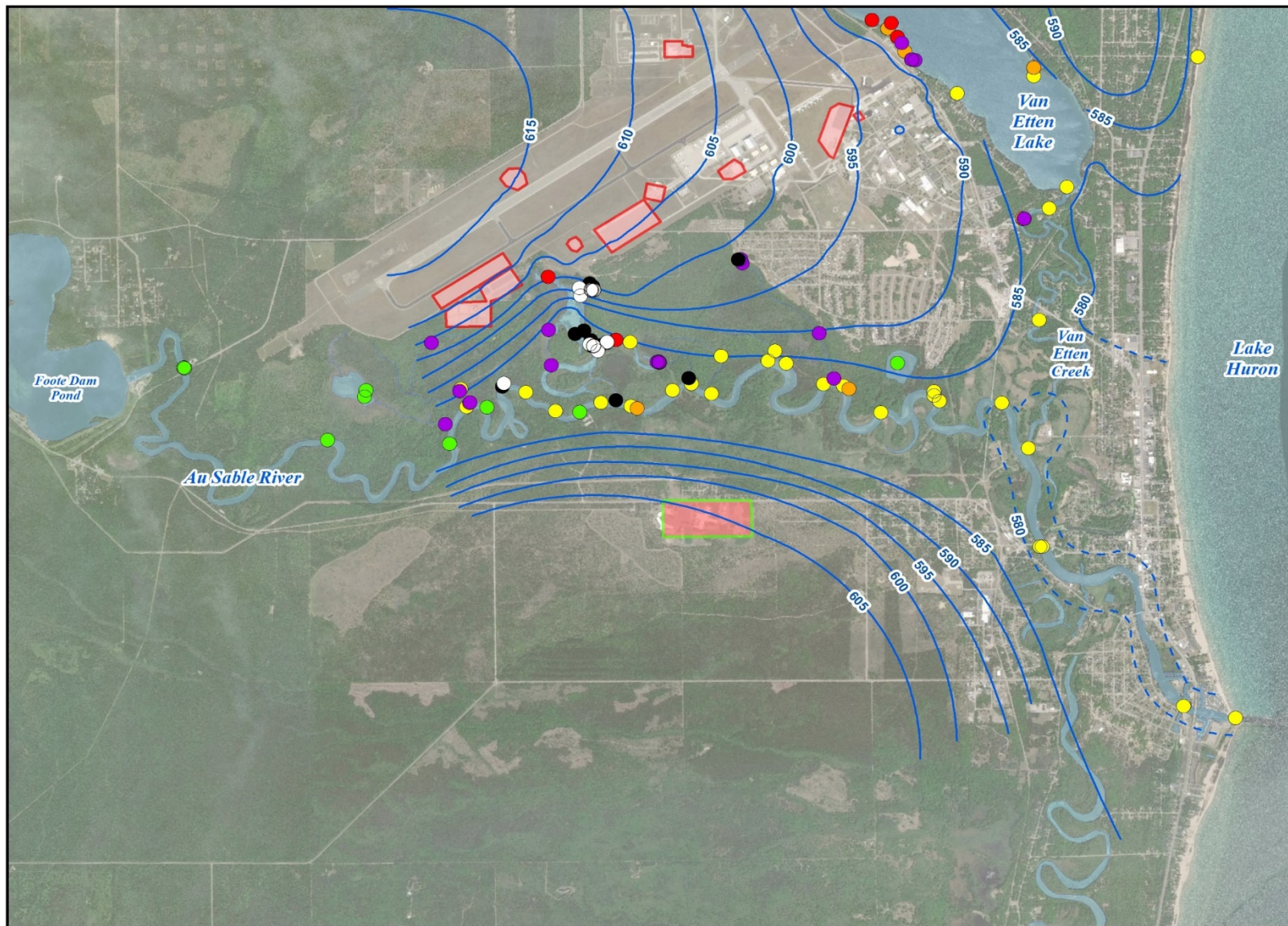
FORMER WURTSMITH AIR FORCE BASE & OSCODA AREA
 IOSCO COUNTY, MICHIGAN



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Legend

Surface Water Sample PFOS (ppt)

- Non-Detect
- <12
- 12 - <50
- 50 - <100
- 100 - <1,000
- 1,000 - <2,500
- >2,500

— Groundwater Contour
 - - - Inferred Groundwater Contour

PFAS Sources

- ▭ On-Site Source
- ▭ Off-Site Source

*Samples collected between 2012-2018, Highest concentration shown

AU SABLE RIVER & CLARK'S MARSH SURFACE WATER PFOS SAMPLING RESULTS

FORMER WURTSMITH AIR FORCE BASE & OSCODA AREA
 IOSCO COUNTY, MICHIGAN

0 2,750 5,500
 Feet

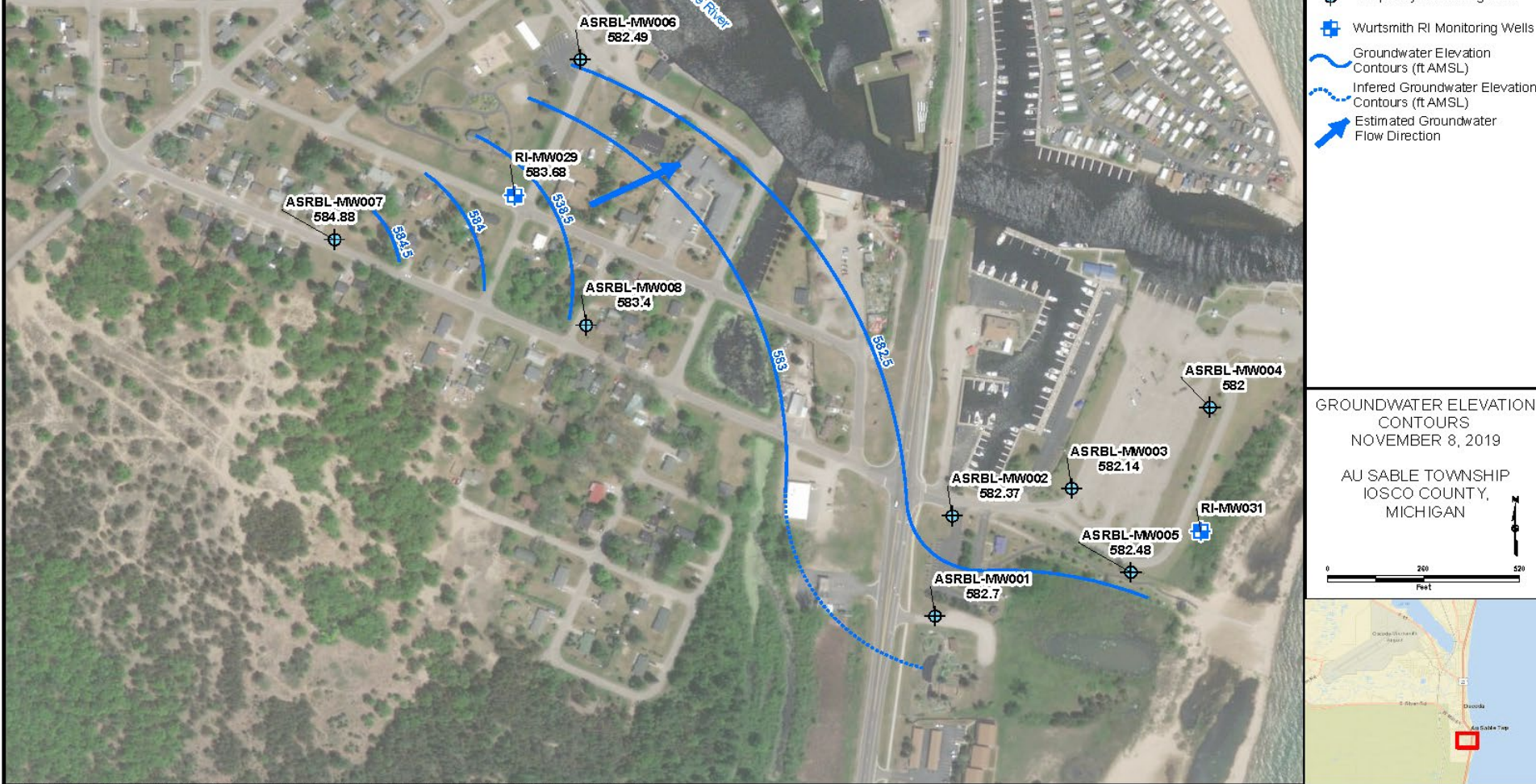


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Current PFAS Investigations

- **EGLE Superfund**
 - Oversite of Air Force environmental activities
 - EGLE Project manager - Beth Place
 - Superfund Section, Lansing

- **EGLE Saginaw Bay District**
 - EGLE Quarterly Groundwater Sampling
 - Au Sable River Boat Launch Investigation
 - Projects managed by Amanda Armbruster
 - Bay City District





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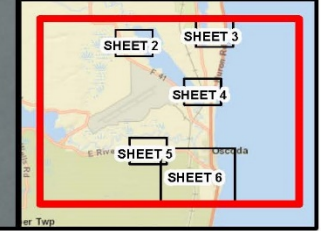
- GSU Monitoring Well
- Wurtsmith PFAS Groundwater Investigation Monitoring Well

Well ID	
Well Screen Depth Interval	
PFOA+PFOS	Total PFAS
Result (ppt)	Result (ppt)

ND - non-detect
* No label = well not sampled.

GSU YEAR 1 QUARTER 3
GROUNDWATER SAMPLING
APRIL 2020
SHEET 1 OF 6

OSCODA AREA
IOSCO COUNTY,
MICHIGAN



Legend

- GSU Monitoring Well
- Wurtsmith PFAS Groundwater Investigation Monitoring Well

Well ID	
Well Screen Depth Interval	
PFOA+PFOS	Total PFAS
Result (ppt)	Result (ppt)

ND - non-detect
 * No Label = Well not sampled.



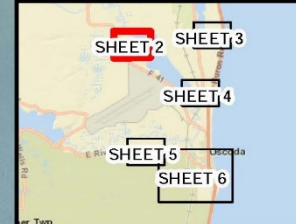
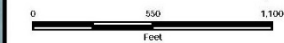
DEQ-CR-MW005	
18 - 23 ft	
PFOA+PFOS	Total PFAS
ND	2.2

DEQ-CR-MW006	
20 - 25 ft	
PFOA+PFOS	Total PFAS
9.4	22.0

DEQ-CR-MW002	
20 - 25 ft	
PFOA+PFOS	Total PFAS
51.6	65.3

GSU YEAR 1 QUARTER 3
 GROUNDWATER SAMPLING
 APRIL 2020
 SHEET 2 OF 6

OSCODA AREA
 IOSCO COUNTY,
 MICHIGAN



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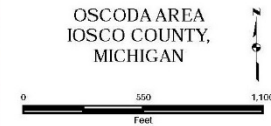
- GSU Monitoring Well
- Wurtsmith PFAS Groundwater Investigation Monitoring Well

Well ID	
Well Screen Depth Interval	
PFOA+PFOS	Total PFAS
Result (ppt)	Result (ppt)

ND - non detect
 * No Label = Well not sampled.

GSU YEAR 1 QUARTER 3
 GROUNDWATER SAMPLING
 APRIL 2020
 SHEET 3 OF 6

OSCODA AREA
 IOSCO COUNTY,
 MICHIGAN



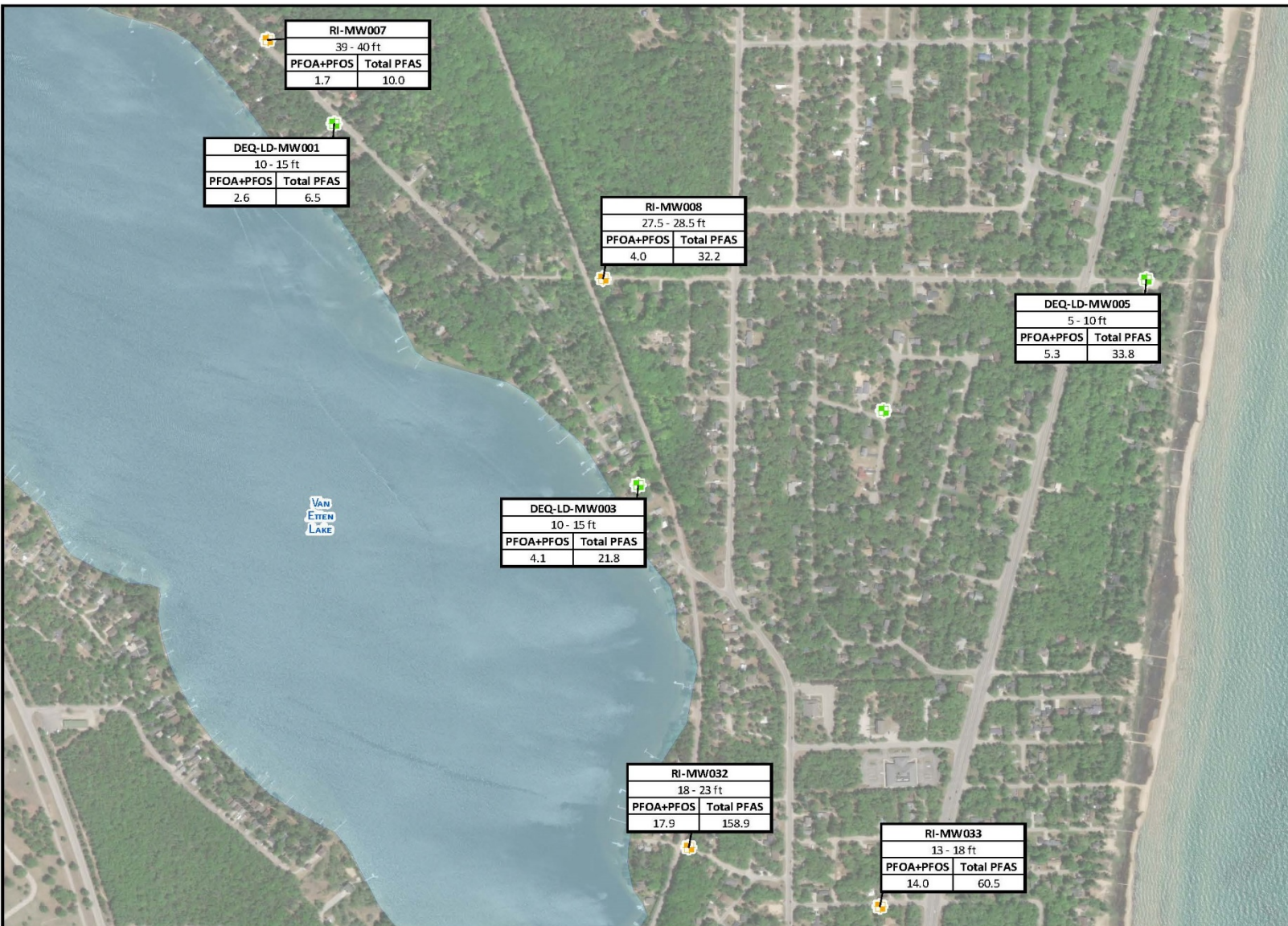
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Legend

- GSU Monitoring Well
- Wurtsmith PFAS
- Groundwater Investigation Monitoring Well

Well ID	
Well Screen Depth Interval	
PFOA+PFOS	Total PFAS
Result (ppt)	Result (ppt)

ND - non-detect
 * No Label = Well not sampled.



RI-MW007	
39 - 40 ft	
PFOA+PFOS	Total PFAS
1.7	10.0

DEQ-LD-MW001	
10 - 15 ft	
PFOA+PFOS	Total PFAS
2.6	6.5

RI-MW008	
27.5 - 28.5 ft	
PFOA+PFOS	Total PFAS
4.0	32.2

DEQ-LD-MW005	
5 - 10 ft	
PFOA+PFOS	Total PFAS
5.3	33.8

DEQ-LD-MW003	
10 - 15 ft	
PFOA+PFOS	Total PFAS
4.1	21.8

RI-MW032	
18 - 23 ft	
PFOA+PFOS	Total PFAS
17.9	158.9

RI-MW033	
13 - 18 ft	
PFOA+PFOS	Total PFAS
14.0	60.5

GSU YEAR 1 QUARTER 3
 GROUNDWATER SAMPLING
 APRIL 2020
 SHEET 4 OF 6

OSCODA AREA
 IOSCO COUNTY,
 MICHIGAN



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Legend

- GSU Monitoring Well
 - Wurtsmith PFAS Groundwater Investigation Monitoring Well
- | Well ID | |
|----------------------------|--------------|
| Well Screen Depth Interval | |
| PFOA+PFOS | Total PFAS |
| Result (ppt) | Result (ppt) |
- ND - non-detect
* No Label = Well not sampled.



DEQ-RR-MW004	
17 - 22 ft	
PFOA+PFOS	Total PFAS
30.4	441.9

DEQ-RR-MW006	
11 - 16 ft	
PFOA+PFOS	Total PFAS
3.4	3.4

DEQ-RR-MW007	
10 - 15 ft	
PFOA+PFOS	Total PFAS
64.6	69.8

DEQ-RR-MW008	
8 - 13 ft	
PFOA+PFOS	Total PFAS
22.5	111.8

DEQ-RR-MW005	
13 - 18 ft	
PFOA+PFOS	Total PFAS
26.5	462.7

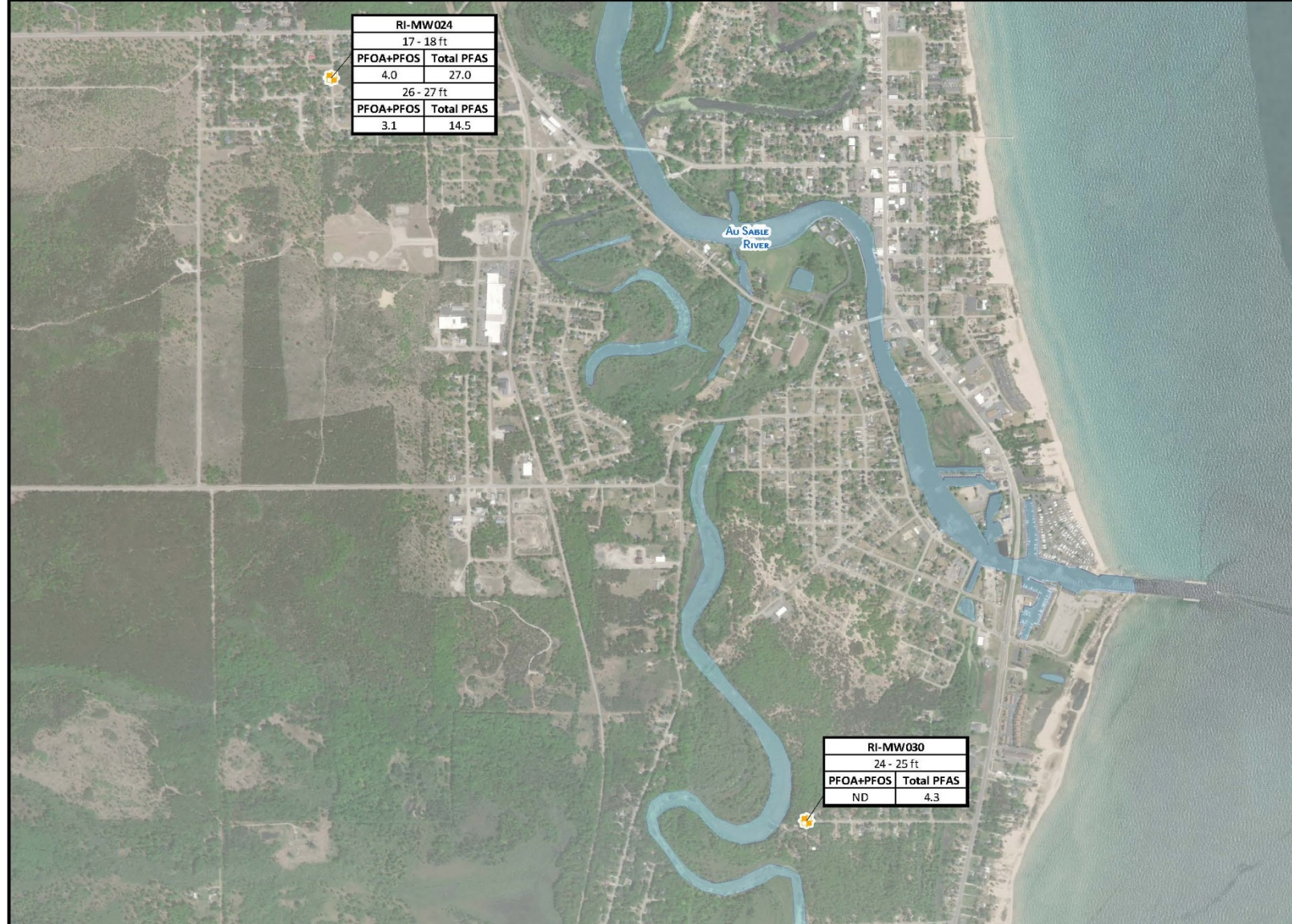
DEQ-RR-MW003	
12 - 17 ft	
PFOA+PFOS	Total PFAS
ND	ND

GSU YEAR 1 QUARTER 3
GROUNDWATER SAMPLING
APRIL 2020
SHEET 5 OF 6

OSCODA AREA
IOSCO COUNTY,
MICHIGAN



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RI-MW024	
17 - 18 ft	
PFOA+PFOS	Total PFAS
4.0	27.0
26 - 27 ft	
PFOA+PFOS	Total PFAS
3.1	14.5

RI-MW030	
24 - 25 ft	
PFOA+PFOS	Total PFAS
ND	4.3

Legend

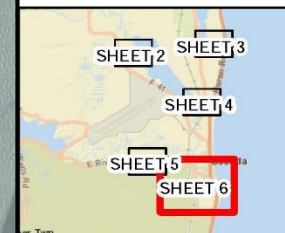
- GSU Monitoring Well
- Wurtsmith PFAS Groundwater Investigation Monitoring Well

Well ID	
Well Screen Depth Interval	
PFOA+PFOS	Total PFAS
Result (ppt)	Result (ppt)

ND - non-detect
 * No Label = Well not sampled.

GSU YEAR 1 QUARTER 3
 GROUNDWATER SAMPLING
 APRIL 2020
 SHEET 6 OF 6

OSCODA AREA
 IOSCO COUNTY,
 MICHIGAN



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Michigan Department of Health and Human Services (MDHHS)

Puneet Vij, Ph.D.
Toxicologist

MDHHS PFAS Comparison Values

Specific PFAS	MDHHS Screening Levels	Proposed MCLs	MDHHS Comparison Values
PFOA	9 ppt	8 ppt	8 ppt
PFOS	8 ppt	16 ppt	8 ppt
PFNA	9 ppt	6 ppt	6 ppt
PFHxS	84 ppt	51 ppt	51 ppt
PFBS	1,000 ppt	420 ppt	420 ppt
PFHxA		400,000 ppt	400,000 ppt

MDHHS Resampling Effort

Phase 1 Resampling Summary (as of July 20, 2020)

- Number of wells sampled: 272
- Number of non-detects (ND): 92
- Number of Detections: 83
- Range PFOA + PFOS: 2.04 - 50 ppt
- Range Total PFAS: 2.02 - 83 ppt
- Number exceeding MDHHS Comparison Values: 15

Foam

Naturally occurring Foam



PFAS-containing Foam



Avoid Foam

- Foam may have high amounts of PFAS
- Rinse off foam after contact
- Bathe or shower after the day's outdoor activities
- Recreational use of **water** is *not a concern*
- Incidental swallowing of **foam** with high levels of PFAS is a *concern*
- Do not allow pets to drink foamy water
- Rinse pets with fresh water after contact with foam



Fish and Wildlife

- Extensive contamination of Clark's Marsh (~12,000 ppt Total PFAS)
- High levels of PFAS, mainly PFOS, measured in fish and deer
- Consumption of fish or wildlife caught from Clark's marsh is a concern. Catch and release is OK.
- EGLE is currently analyzing more fish samples from Cedar Lake, Van Etten Lake, and Clark's Marsh

Clark's Marsh

Type of Fish Tested	Chemical Causing MI Serving Recommendation	Size of Fish	Recommended MI Servings Per Month
Bluegill	PFOS	Any	Do Not Eat
Sunfish	PFOS	Any	Do Not Eat
All Other Species	PFOS	Any	Do Not Eat

Au Sable River

Type of Fish	Chemical Causing MI Serving Recommendation	Size of Fish	Recommended MI Servings per Month
Bluegill	PFOS	Any	Do Not Eat
Brown Trout	PCBs	Any	6 Per Year ^{2x}
Carp	PCBs	Any	Limited
Chinook Salmon	PCBs	Any	6 Per Year ^{2x}
Coho Salmon	PCBs	Any	6 Per Year ^{2x}
Largemouth Bass	PFOS	Any	Do Not Eat
Rainbow Trout	PCBs	Any	6 Per Year ^{2x}
Rock Bass	PFOS	Any	Do Not Eat
Smallmouth Bass	PFOS	Any	Do Not Eat
Steelhead	PCBs	Any	6 Per Year ^{2x}
Suckers	PFOS	Any	Do Not Eat
Sunfish	PFOS	Any	Do Not Eat
Walleye	Dioxins	Any	6 Per Year ^{2x}
All Other Species	PFOS	Any	Do Not Eat

Van Etten Lake

Type of Fish	Chemical Causing MI Serving Recommendation	Size of Fish	Recommended MI Servings per Month
Black Crappie	Mercury & PFOS	Any	4
Largemouth Bass	Mercury & PFOS	Under 17"	2
	Mercury	Over 17"	1
Northern Pike	Mercury	Any	1
Smallmouth Bass	Mercury & PFOS	Under 17"	2
	Mercury	Over 17"	1
Walleye	Mercury	Any	1
White Crappie	Mercury & PFOS	Any	4

Additional Resources

- Michigan PFAS Action Response Team (MPART)
www.michigan.gov/pfasresponse
- More info about ESF guidelines →
www.michigan.gov/EatSafeFish
- Agency for Toxic Substances and Disease Registry (ATSDR)
<https://www.atsdr.cdc.gov/pfas/>

Oscoda Area PFAS Exposure Evaluation Listening Sessions



- July 30, 10:30 am – noon and 6:30 – 8:00 pm
- Letters and emails were sent to Oscoda area community members with registration information
- Also available at www.dhd2.org → PFAS Activities
- Contact us, mdhhs-pfas@michigan.gov

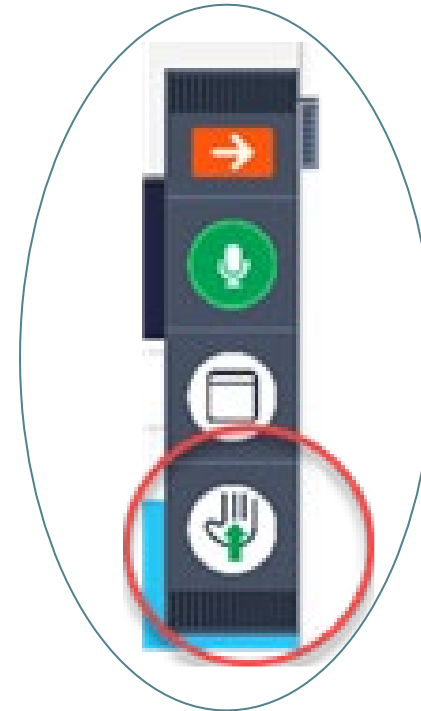
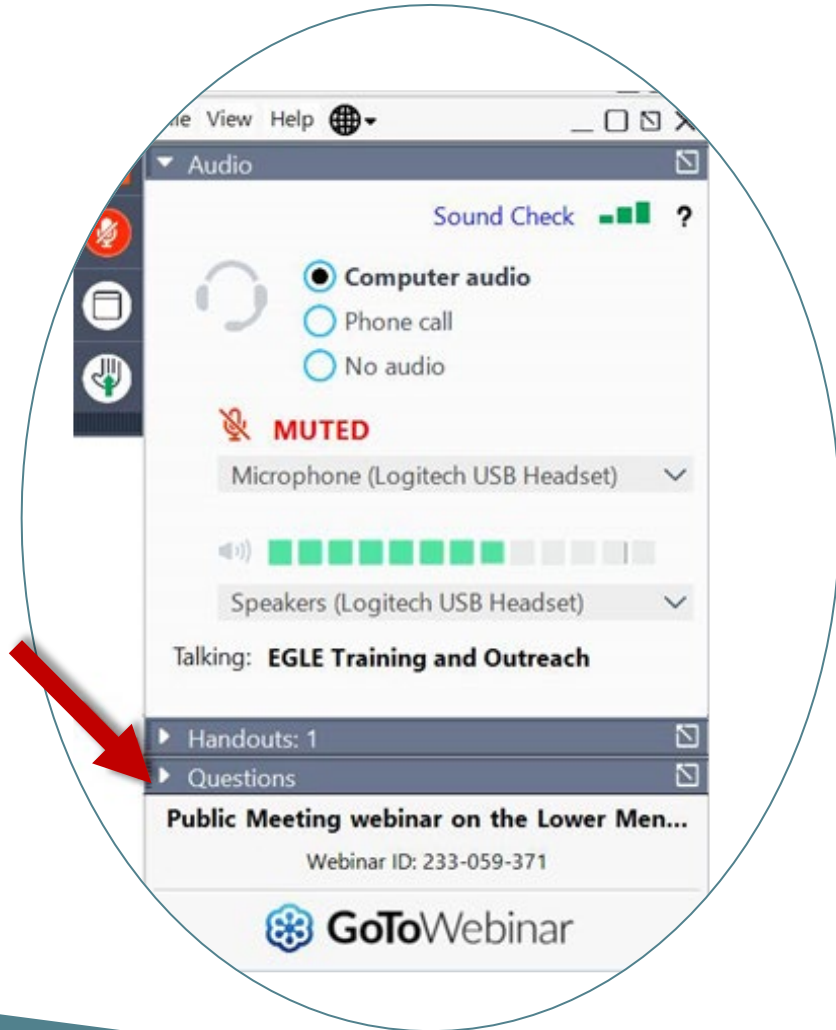
Michigan Department of Natural Resources

Tammy Newcomb
Water Policy Advisor

Question and Answer Session

- Introduce yourself and where you're from
- Ask one question at a time so everyone can ask their questions/make a comment.

How to ask a question



Raise your hand



Lower your hand

Restoration Advisory Board (RAB) Meeting

- Wednesday, July 22, 5:00 – 8:00 pm
- Information is available at michigan.gov/pfasresponse -> Investigations -> Iosco County, Oscoda, Wurtsmith Air Force Base in the Community Engagement section.

Michigan.gov/PfasResponse



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Thank you
