

Former Wurtsmith Air Force Base – PFCs in Fish and Drinking Water



March 23, 2016 Community Meeting
Oscoda, Michigan

Outline

- Who is MDHHS
- PFCs in Fish
- PFCs in Groundwater/Drinking Water

Who is MDHHS

- Division of Environmental Health
 - Toxicology and Response Section
- Cooperative agreement with federal Agency for Toxic Substances and Disease Registry
 - Who is ATSDR
- Partners with local health and other agencies



PFCs? PFASs?

- PFC = perfluorinated chemical
 - Some people also include polyfluorinated chemical
- PFAS = per- and polyfluorinated alkyl substance
 - Describes chemical group
 - Scientists moving to this term
- For this meeting, using “PFC”



PFCs in Fish

- Timeline:
 - 2010: MDEQ looked for PFCs at fire-training area
 - 2011: MDEQ sampled fish in Clark's Marsh ponds
 - 2012: fish data received, reviewed; MDHHS issued "do not eat"
 - 2013: first public meeting, every year since; additional outreach

Do Not Eat Fish From Clark's Marsh

The Michigan Department of Community Health has found unsafe levels of perfluorinated chemicals (PFCs) in fish from Clark's Marsh.



Eating fish from Clark's Marsh could harm your health.

Catching and releasing fish is fine. Touching the fish or water will not harm you.

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

Do Not Eat Fish From Allen Lake

The Michigan Department of Community Health has found unsafe levels of perfluorinated chemicals (PFCs) in fish from this area.



Eating fish from Allen Lake could harm your health.

Catching and releasing fish is fine. Touching the fish or water will not harm you.



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



Have fun on the Au Sable!

The Michigan Department of Community Health has advice about activities on the lower Au Sable River between Foote Dam and Lake Huron.



Do not eat resident river fish such as sunfish, bass, and perch. There are high amounts of perfluorinated chemicals (PFCs) in fish that live in this part of the river year round. Eating them could harm your health.

Fish that don't live in the river year round, such as salmon and steelhead, are safer to eat.



Enjoy swimming, boating, and fishing in the river. Touching the water will not harm you.



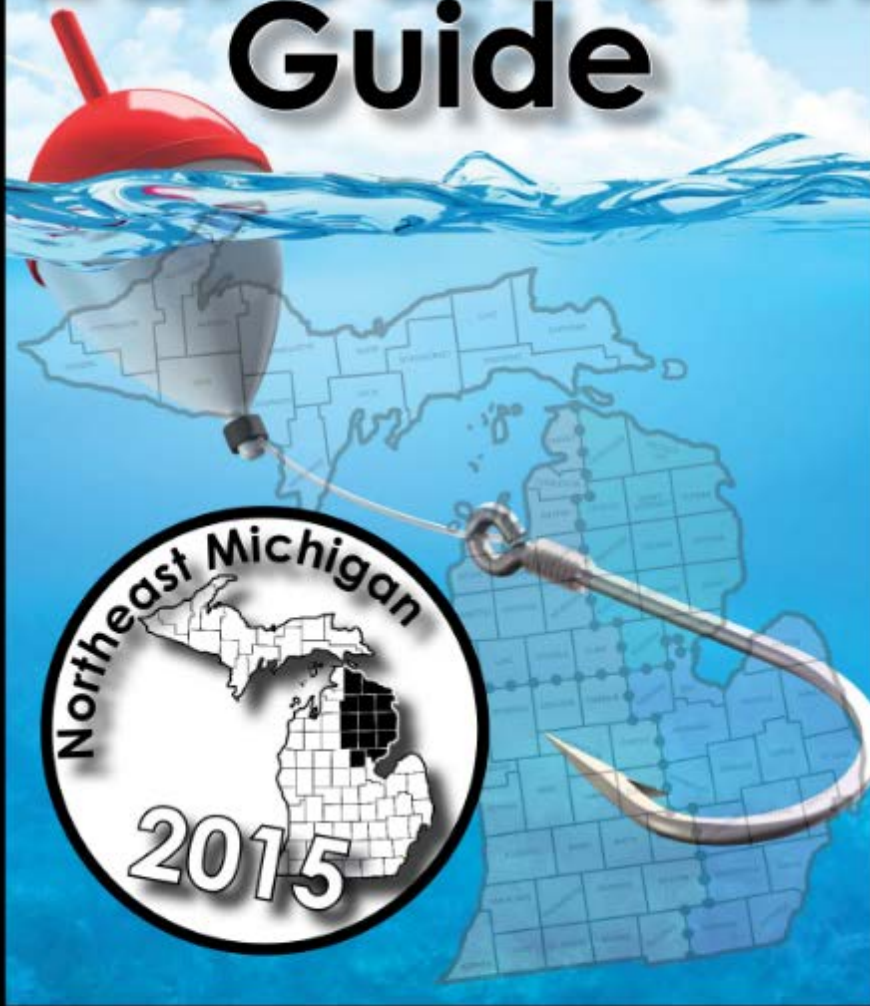
MDCH has meal guidelines for some Au Sable River and Lake Huron fish because of other chemicals. Call MDCH at 1-800-648-6942 or visit www.michigan.gov/eatsafefish.



Scan this with your smartphone!

Michigan Department of Community Health's

Eat Safe Fish Guide



Some fish contain chemicals that can harm your health. MDCH tests filets of fish taken from Michigan's lakes and rivers to learn which fish are safer to eat. The *Eat Safe Fish Guide* lists the fish that have been tested and how much is safe to eat.



Health consultation report on fish

- Out for public review and comment
 - Hardcopies at Oscoda and Au Sable Twp offices, library
 - On-line at MDHHS's Wurtsmith page
 - Can be mailed/emailed to you
- Comment period ends May 1, 2016 (can be extended)
- Final report will include response to comments

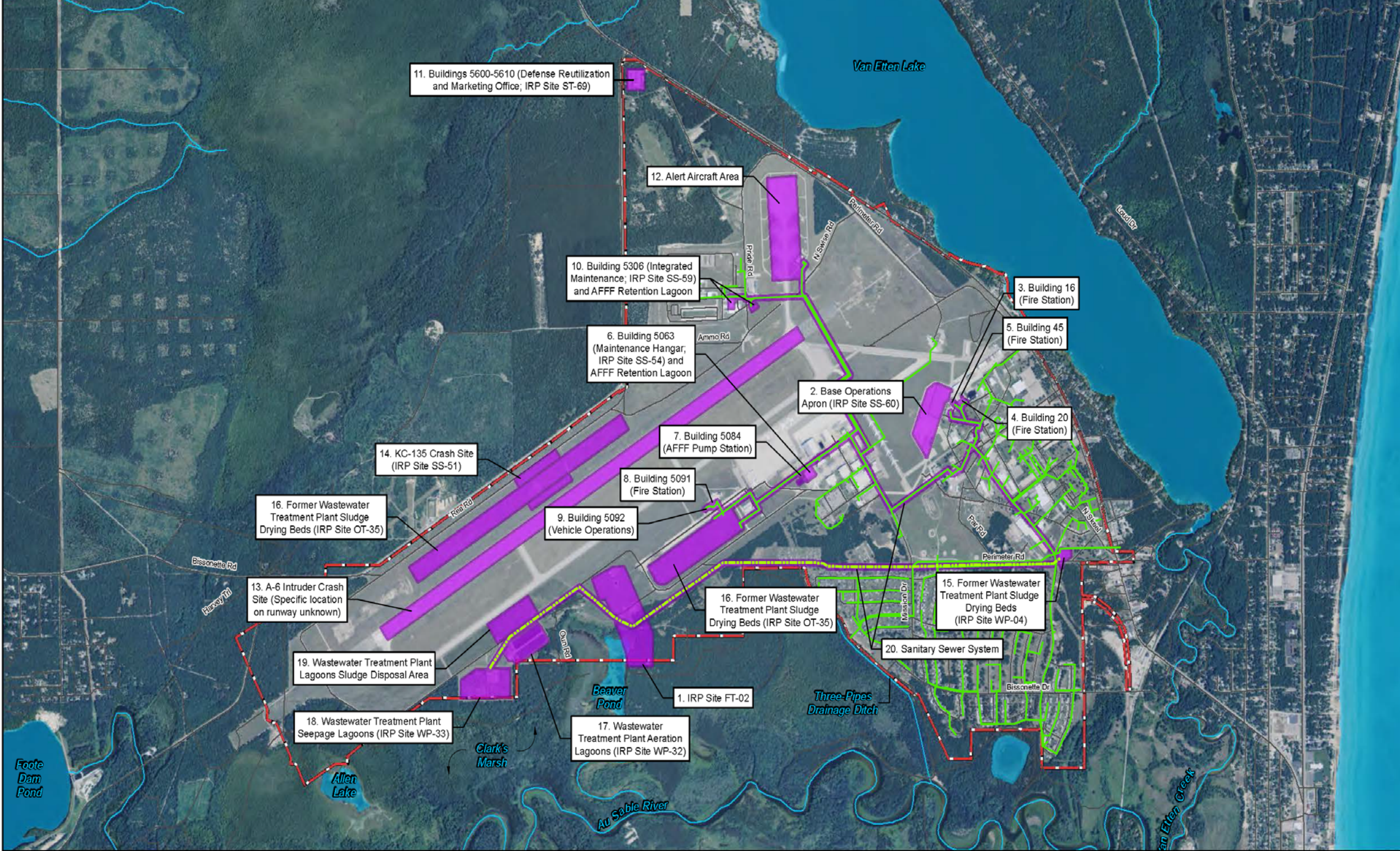
What's next for fish

- Pump and treat system at fire-training area (started April 2015)
- More fish data over time (USAF, MDEQ)
- More outreach as needed (MDHHS)

PFCs in Groundwater

Parts per ...?

- For WATER
- Notification letters in parts per billion (ppb)
 - Decimal places
- This presentation in parts per trillion (ppt)
 - Easier to read the number
 - $1 \text{ ppb} = 1,000 \text{ ppt}$ ($0.001 \text{ ppb} = 1 \text{ ppt}$)



11. Buildings 5600-5610 (Defense Reutilization and Marketing Office; IRP Site ST-69)

12. Alert Aircraft Area

10. Building 5306 (Integrated Maintenance; IRP Site SS-59) and AFFF Retention Lagoon

6. Building 5063 (Maintenance Hangar; IRP Site SS-54) and AFFF Retention Lagoon

2. Base Operations Apron (IRP Site SS-60)

3. Building 16 (Fire Station)

5. Building 45 (Fire Station)

4. Building 20 (Fire Station)

7. Building 5084 (AFFF Pump Station)

8. Building 5091 (Fire Station)

14. KC-135 Crash Site (IRP Site SS-51)

16. Former Wastewater Treatment Plant Sludge Drying Beds (IRP Site OT-35)

9. Building 5092 (Vehicle Operations)

13. A-6 Intruder Crash Site (Specific location on runway unknown)

16. Former Wastewater Treatment Plant Sludge Drying Beds (IRP Site OT-35)

15. Former Wastewater Treatment Plant Sludge Drying Beds (IRP Site WP-04)

19. Wastewater Treatment Plant Lagoons Sludge Disposal Area

20. Sanitary Sewer System

18. Wastewater Treatment Plant Seepage Lagoons (IRP Site WP-33)

17. Wastewater Treatment Plant Aeration Lagoons (IRP Site WP-32)

1. IRP Site FT-02

Foot Dam Pond

Allen Lake

Clark's Marsh

AuSable River

Three-Pipes Drainage Ditch

Van Etten Lake

Van Etten Creek

Bissonette Rd

Highway 70

Rice Rd

Orchard Dr

Ammo Rd

Riviera Rd

N. Swiss Rd

Perimeter Rd

Perimeter Rd

Perimeter Rd

Mission Dr

Bissonette Dr

Lead Cr

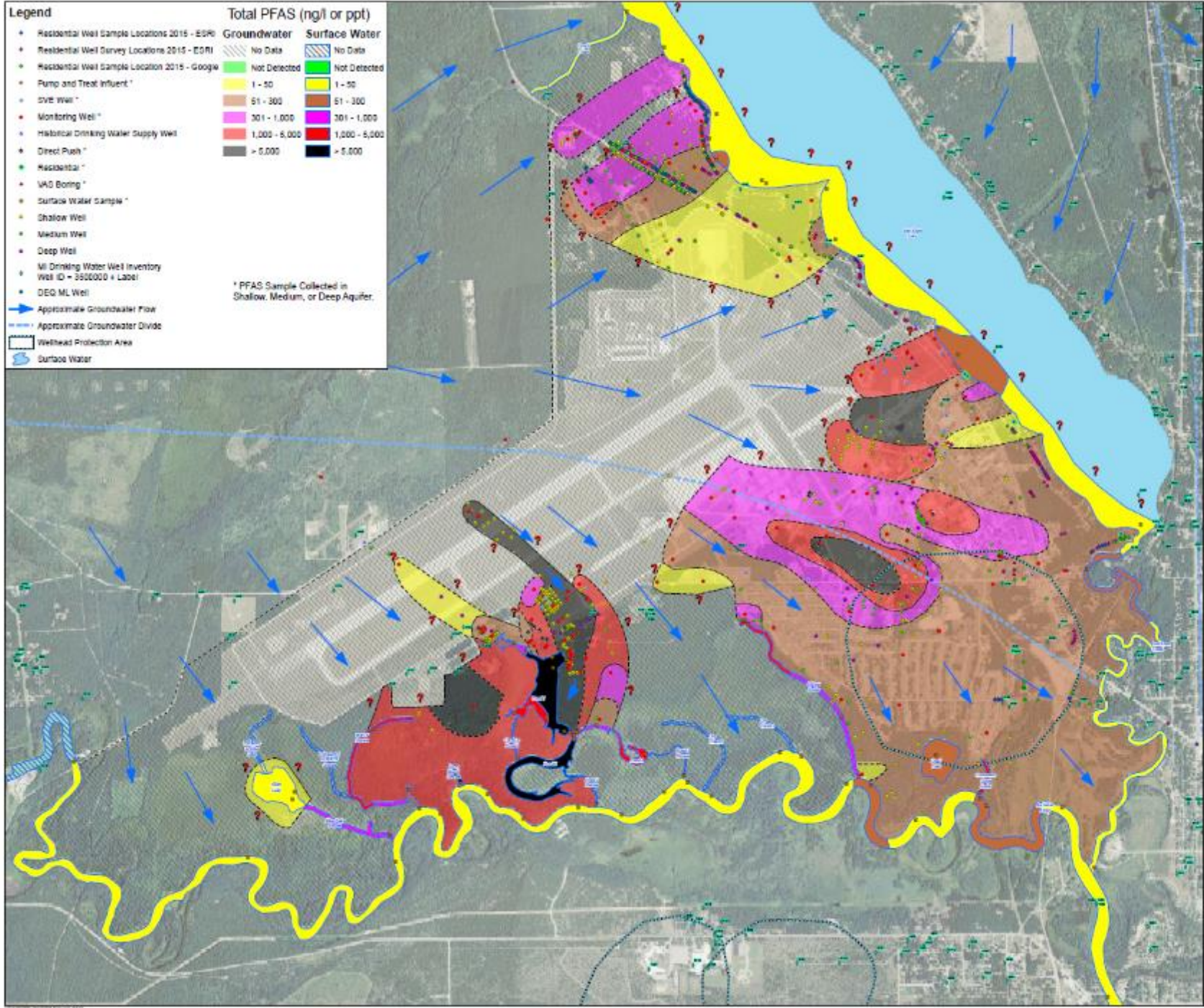
Legend

- Residential Well Sample Locations 2015 - EDR
- Residential Well Survey Locations 2015 - EDR
- Residential Well Sample Location 2015 - Google
- Pump and Treat Influent *
- DVE Well *
- Monitoring Well *
- Historical Drinking Water Supply Well
- Direct Push *
- Residential *
- VAD Boring *
- Surface Water Sample *
- Shallow Well
- Medium Well
- Deep Well
- MI Drinking Water Well Inventory Well ID = 3500000 + Label
- DEQ ML Well
- Approximate Groundwater Flow
- Approximate Groundwater Divide
- Wellhead Protection Area
- Surface Water

Total PFAS (ng/l or ppt)

Groundwater		Surface Water	
No Data	No Data	No Data	No Data
Not Detected	Not Detected	Not Detected	Not Detected
1 - 50	1 - 50	1 - 50	1 - 50
51 - 300	51 - 300	51 - 300	51 - 300
301 - 1,000	301 - 1,000	301 - 1,000	301 - 1,000
1,000 - 5,000	1,000 - 5,000	1,000 - 5,000	1,000 - 5,000
> 5,000	> 5,000	> 5,000	> 5,000

* PFAS Sample Collected in Shallow, Medium, or Deep Aquifer.



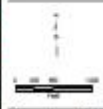
AZCOM

04/29/2020
www.azcom.com

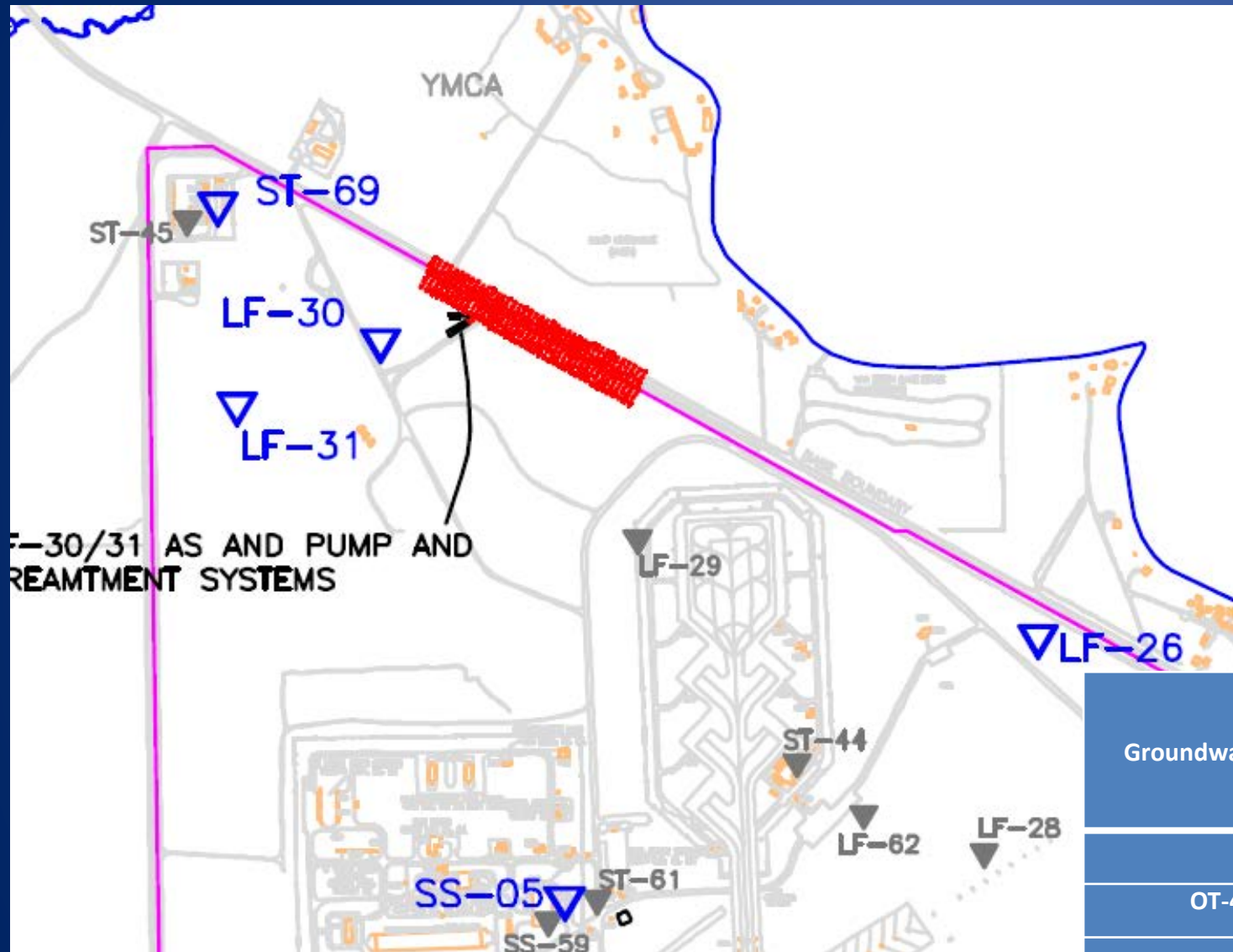
Geographic Data
by AZCOM

DRAFT

APPROXIMATE EXTENT OF ESTIMATED PFAS PLUMES OCTOBER 2015 -
IMPACTED SURFACE WATER AND GROUNDWATER
FORMER WURTSMITH AIRFORCE BASE
IOSCO COUNTY, MICHIGAN



PROJECT NUMBER
00160503
SCALE NUMBER
1



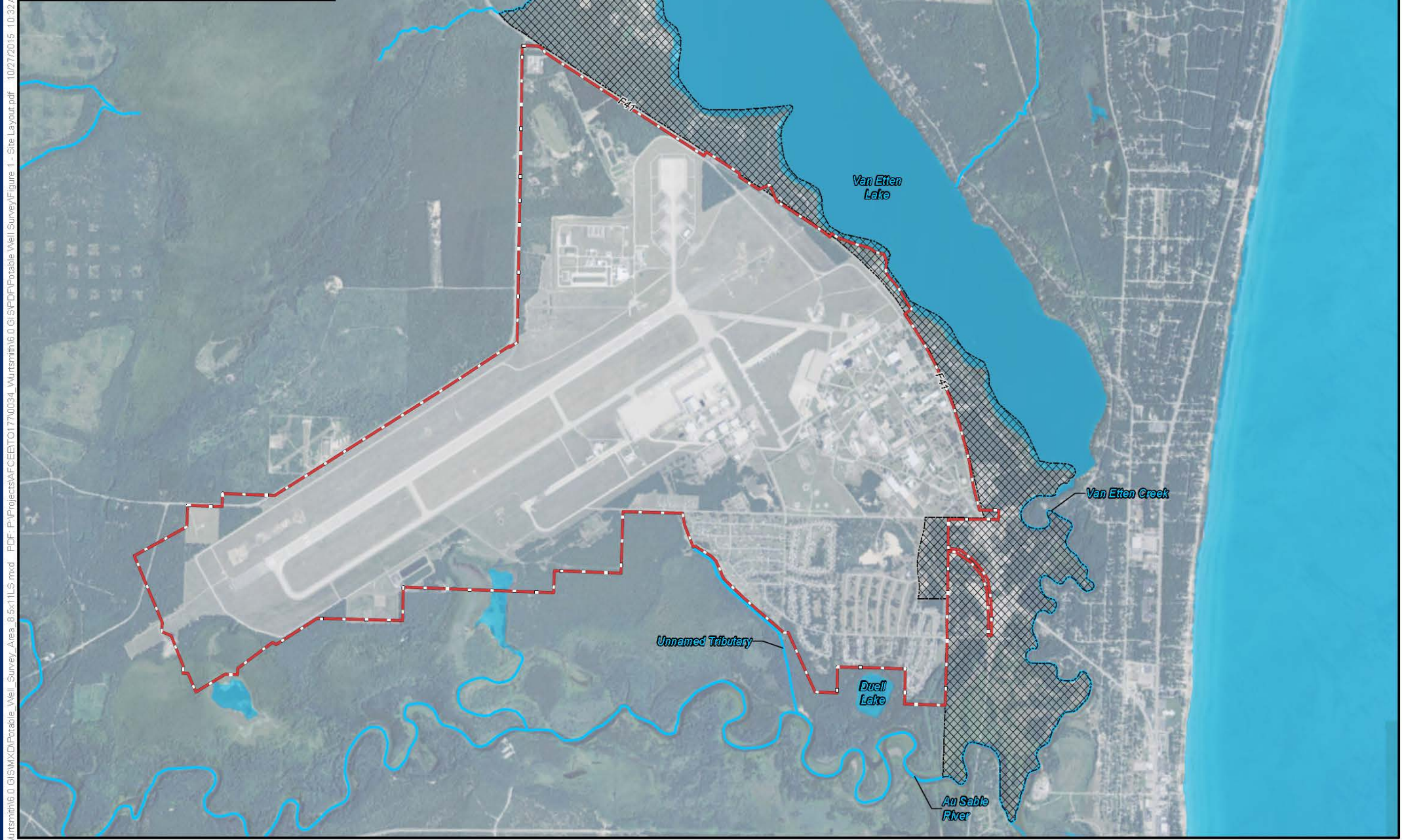
PFOS Concentrations in Monitoring Wells (north)

Groundwater Monitoring Locations	No. detects / No. wells sampled	Concentration Range (ppt)
LF-30/31	9 / 10	ND – 37
OT-45 (shown as ST-45)	1 / 1	190
SS-05	0 / 3	ND
ST-69	3 / 3	51 – 970

PFCs in Drinking Water

- Timeline
 - September 2015: Type 1 water-supply at mobile home park ID'd and sampled
 - October 2015: Results received; planning begins for potable well survey
 - December 2015: USAF and MDEQ sample 24 private residential wells
 - January 2016: Results received; MDHHS prepares “Understanding Your Well Test Results” fact sheet
 - February 2016: USAF and MDEQ send results letters and fact sheet; MDHHS sends recommendations letter with meeting info, updated fact sheet; local health conducts in-person outreach
 - March 2016: MDHHS final report showing evaluation of data sent to local health and township

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

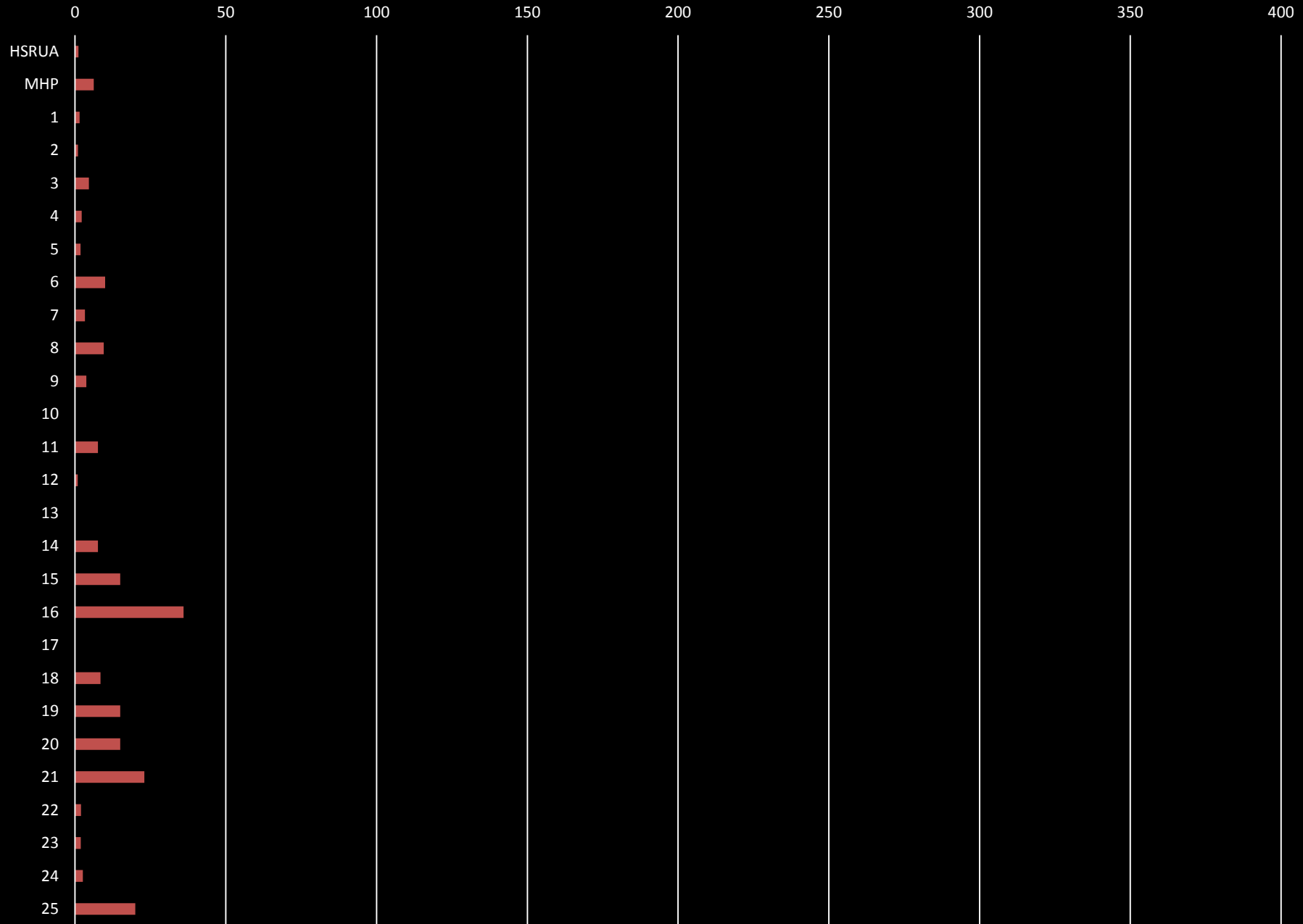


Wurtsmith6.0.GIS\MXD\Potable_Well_Survey_Area_8.5x11.LS.mxd PDF - P:\Projects\AFCEB\T01770034_Wurtsmith6.0.GIS\PDF\Potable_Well_Survey\Figure 1 - Site Layout.pdf 10/27/2015 10:32 AM brnan.peters

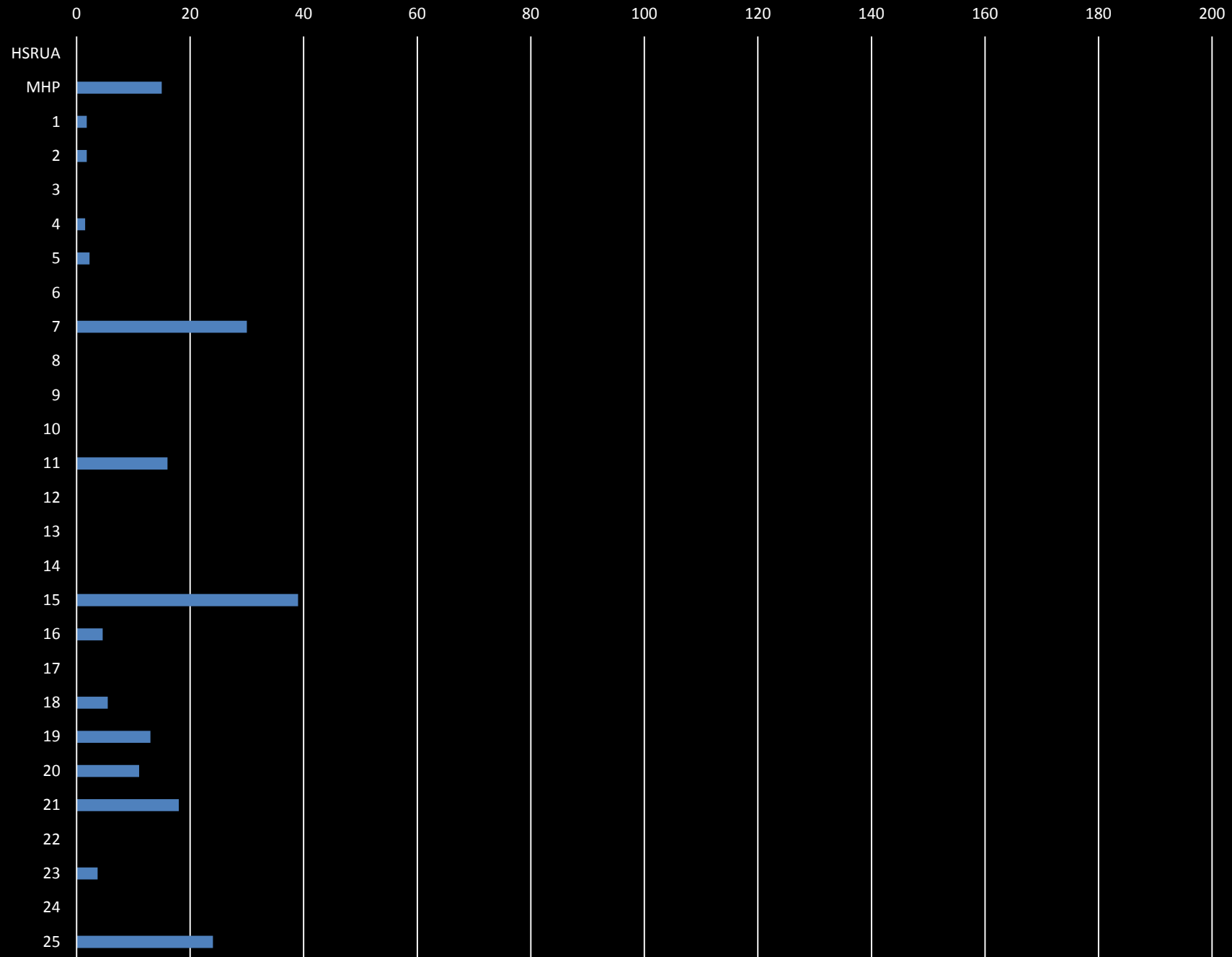
Evaluation of Drinking Water Data

- USAF results vs. MDEQ results → no real difference
- Screening levels
 - EPA Provisional numbers
 - Michigan and other states
- MDHHS evaluation not limited to just “the number”

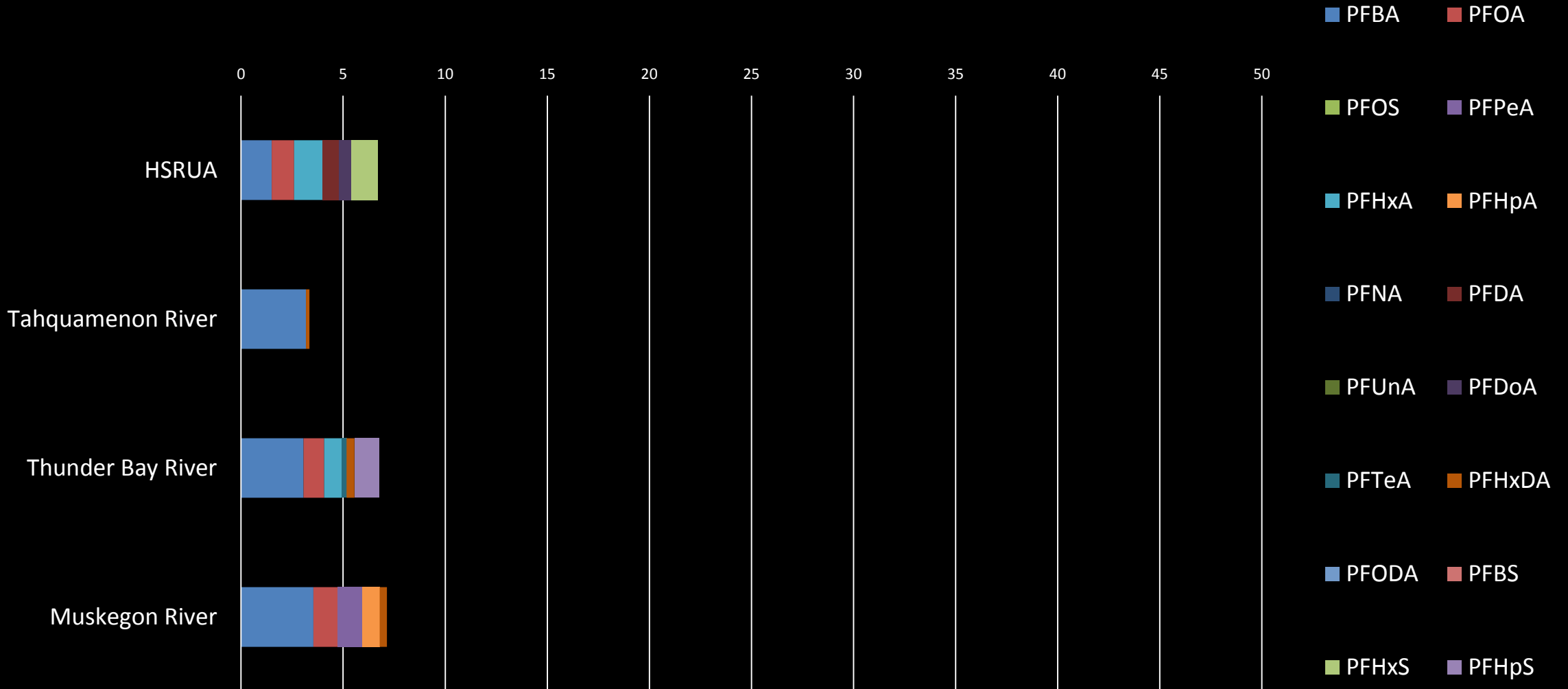
PFOA (ppt) in Drinking Water Samples



PFOS (ppt) in Drinking Water Samples



Total PFCs (ppt): HSRUA vs. Other Michigan Waterbodies



Considerations

- PFOA and PFOS do not exceed EPA provisional numbers, BUT
- Contamination at WAFB → → drinking water wells
- Contamination not fully understood or controlled
- PFCs in well water higher than in HSRUA
- Animal/human studies → potential for harm
- PFCs persistent, bioaccumulate
- Some PFCs have long half-lives in humans

Conclusion and Recommendations

- Ongoing exposure to PFCs in drinking water wells could cause harm.
- MDEQ/USAF: prevent public's exposure to site-related PFCs
 - Sample remaining wells in area of interest
 - Monitor “upstream”
 - Learn more about plumes → control them
- Well owners: precautionary advice - use water without elevated PFCs for drinking and cooking.
 - Bathing, washing hands and dishes, laundering are fine.

Other exposures?

- Fish (already evaluated)
- Watering veg gardens? → OK (MN study)
- Eating wild game?
 - Tree swallow studies at Clark's Marsh show impact on songbirds
 - Research (New York) shows PFCs in waterfowl from affected waterbodies, more in fish-eating ducks than others
 - Deer? Turkey? Other game?

Reported Questions/Rumors

- Are wells outside of investigation area OK?
 - PFCs expected to enter surface water, flow out to Lake Huron
- OK to use well water for pets?
 - Same advice as for your family
- Dredging of river mouth
 - PFCs in river very low
 - Dredged material nearly all sand (PFCs not likely to stick)
- Hull Island
 - PFCs in river very low
 - No source to island itself

MDHHS Contacts

- Christina Bush, Toxicologist
 - 517-335-9717 or 800-648-6942
 - bushc6@michigan.gov
- Sue Manente, Health Educator
 - 517-335-0003 or 800-648-6942
 - manentes@michigan.gov
- Mail comments on fish report to Christina Bush via email or:
 - MDHHS-DEH
 - PO Box 30195
 - Lansing, MI 48909

Resources

- MDHHS webpage for Wurtsmith work:
 - www.michigan.gov/envirohealth → “Health Assessments and Related Documents” → “(Former) Wurtsmith Air Force Base”
- “Eat Safe Fish” website
 - www.michigan.gov/eatsafefish

Questions / Comments