PFAS Contamination Marinette, Peshtigo, and Surrounding Communities

Listening Session 11 – Nov 18, 2020

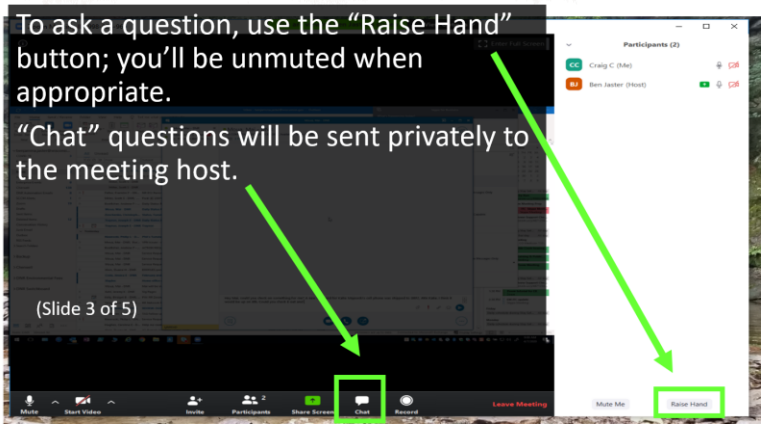
WISCONSIN DEPT. OF NATURAL RESOURCES

1

What to Expect from this Listening Session

'Zoom' Technology

- All attendees are automatically muted when they join the call
- If you are joining by web:
  - **During the presentation** – use **'chat'** feature to type questions
  - **After presentation** – use the **'chat'** feature *or* **'raise hand'** feature to request to be unmuted to ask a call
- If you are joining by phone:
  - Write questions down and contact us later (next slide)



2

2

Team Members

DNR - Remediation and Redevelopment

- Bridget Kelly, Emerging Contaminants
- Christine Haag, Director
- Alyssa Sellwood, Complex Sites Project Manager
- Trevor Nobile, Field Operations Director
- Jenna Soyer, Program and Policy Operations Director
- Dave Neste, Hydrogeologist
- Roxanne Chronert, NER Supervisor

DNR - Drinking Water And Groundwater

- Kyle Burton, Field Operations Director

DNR - Water Quality

- Heidi Schmitt-Marquez, NER Supervisor
- Alexis Peter, Wastewater Specialist
- Laura Gerold, Wastewater Engineer
- Adrian Stocks, Director

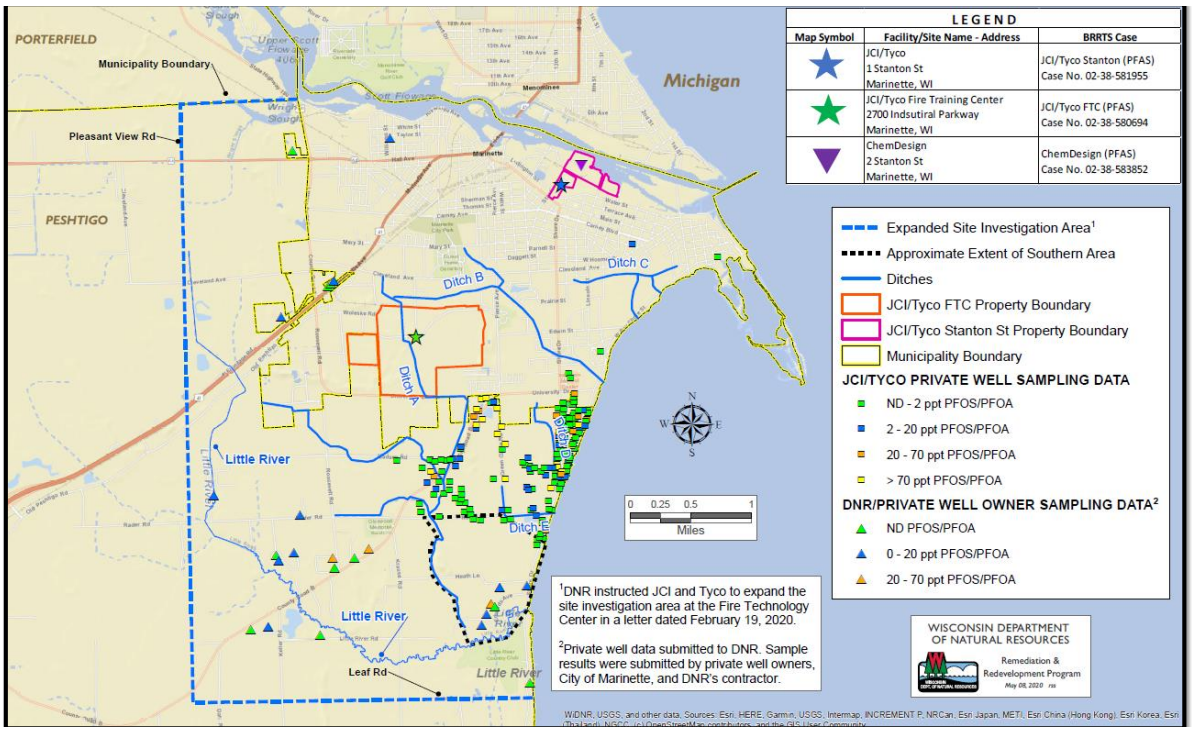
DNR – Fish, Wildlife, and Parks

- Sean Strom, Toxicologist

Department of Health Services

- Brita Kilburg-Basnyat, Toxicologist
- Amanda Koch, Health Educator
- Gavin Dehnert, DHS Postdoctoral Fellow

3



4

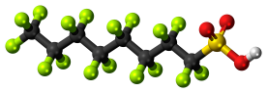
Staying Connected

- **Today - 11th in series of sessions**
  - Meetings every other month
  - Next meeting in January
- **Other options for contacting DNR**
  - Call (888-626-3244) or
  - email DNRJCIPFAS@wisconsin.gov
- **Also – check out website and FAQs**
  https://dnr.wi.gov/topic/Contaminants/Marinette.html

WISCONSIN DEPT. OF NATURAL RESOURCES

5

5



Welcome and Agenda

Presentation:

- Updates on DNR Private Potable Well Sampling in Expanded Site Investigation Area
- DHS – Groundwater Quality Standards Recommendations (Cycle 11)
- Site Investigation Updates
- Upcoming Important Dates

Listening Session:

- Question + Answer Session

WISCONSIN DEPT. OF NATURAL RESOURCES

6

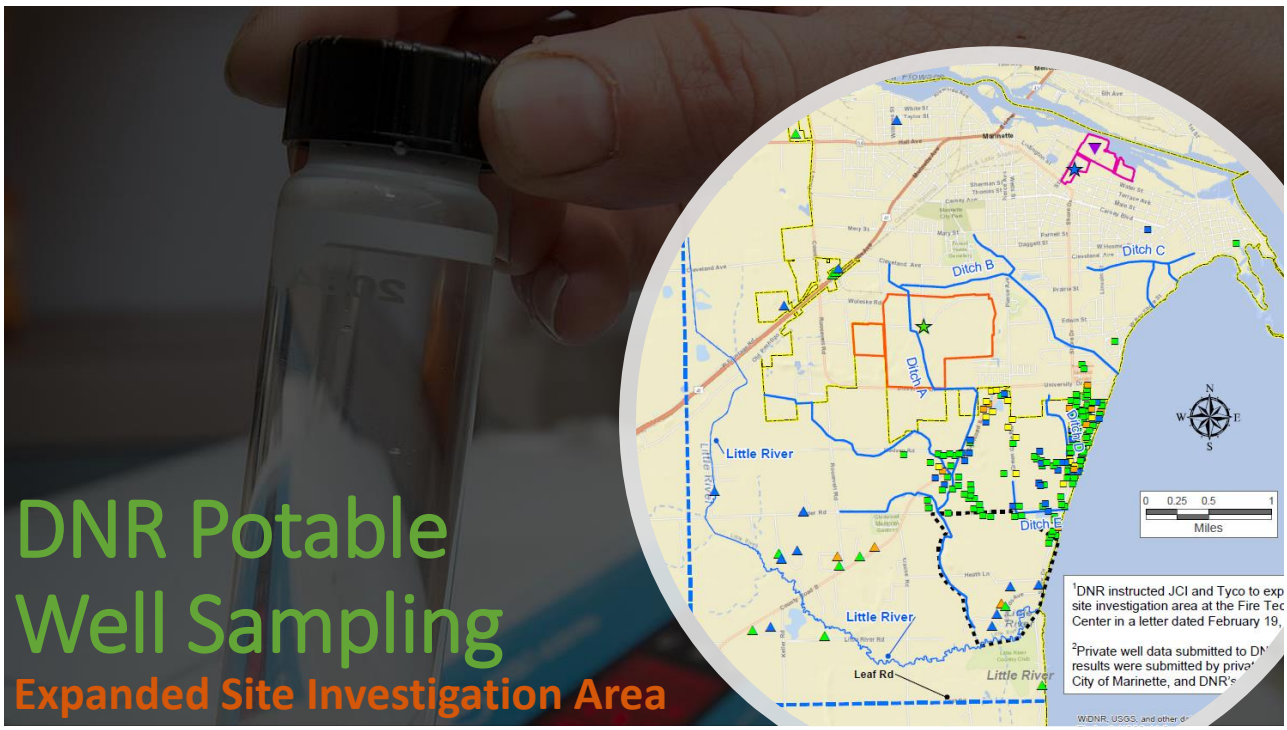
6

PFAS 101:
Where Can I find Additional Information?

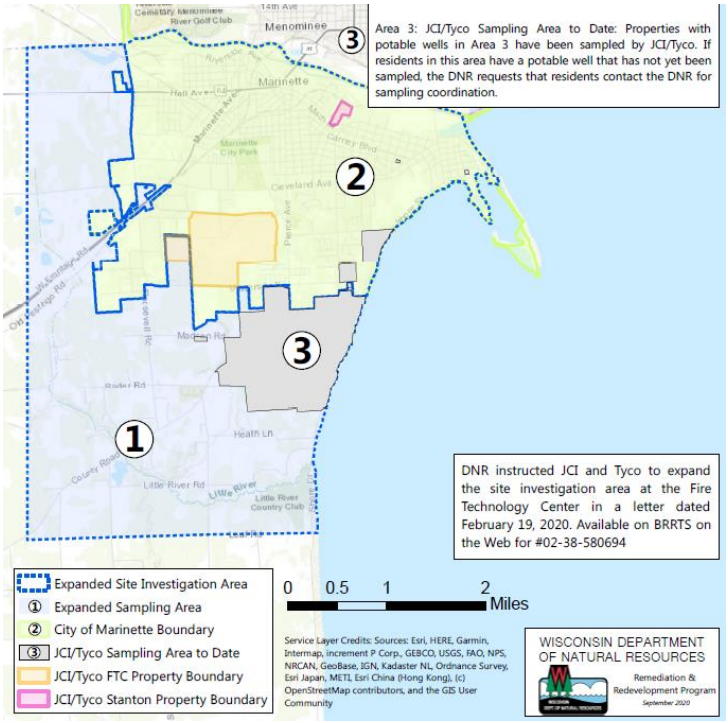
- https://dnr.wi.gov/topic/Contaminants/Marinette.html
- Previous Zoom recordings – meetings 7 and 8
- Sign-up for updates →

SUBSCRIBE to Marinette and Peshtigo area PFAS contamination updates.

7



8



Eligible Well Owners

- Site Investigation area associated with JCI/Tyco Cases (Areas 1, 2, and 3)
- The *Expanded Sampling Area (Area 1)* is bound by the bay of Green Bay (east), Leaf Road (south), Pleasant View Road (west), and Marinette municipality boundary (north).
- Well owners outside of this area (blue dotted line) are not included as part of this sampling effort (e.g. wells near biosolids landspreading fields)

9

Where are we at so far?

Summary of Landowner Response and Sampling Activities		
Mailer Details	Total Sent	576
	Opt in	350 (60%)
	Opt out	8
	Outstanding Mailers	215
Sampling Activities	Scheduled for Sampling	294
	Completed Sampling	294

10

Sample Results Reporting

- Posted to DNR's website as often as possible → goal weekly (No PII)
- Email subscription list → messages sent each time results are posted
- Posted to BOTW
- Discuss at Listening Sessions

11

Potable Well Sampling Project Timelines

- Original target – complete all sampling by Dec 31, 2020
- Challenges:
  - Seasonal access to outdoor spigots
  - Indoor only access to spigots
  - Sampling in accordance with guidelines in place for COVID
- Re-evaluating target →additional sampling in spring 2021 to complete the project

12

Can I still get my well tested?

- Potable wells (drinking water well) in Area 1 – yes!
- **Deadline Extension – DNR will accept past original deadline.**
  - *Post Mark Nov 30th* – sampling in Dec
  - *Received after Nov 30th* – sampling in spring

13

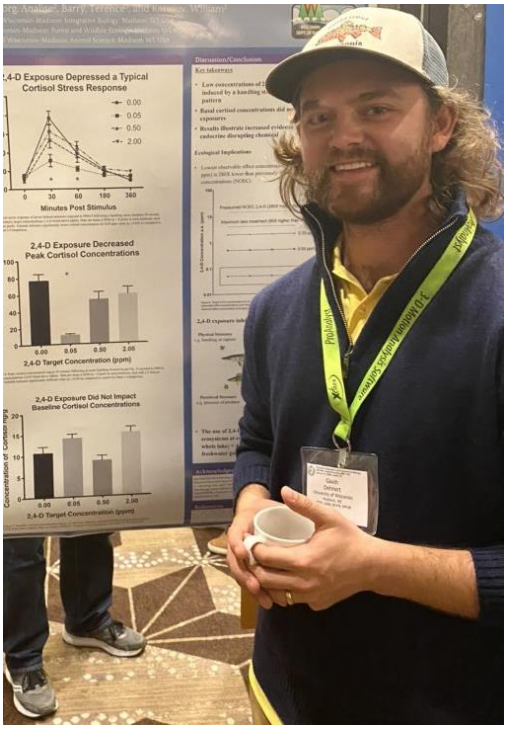
Want to know more?

- Well Sampling packet on website
- Town of Peshtigo meeting presentation on website
- Real Estate guidance sheet at Peshtigo Town Hall (or request via email)
- Contact Us for a packet to be mailed to your home
  - **Email:** DNRJCIPFAS@wisconsin.gov
  - **Call:** (888-626-3244)

14

Wisconsin's process for establishing recommended groundwater standards for PFAS

Gavin Dehnert, Ph.D.
Postdoctoral Fellow
Brita Kilburg-Basnyat, Ph.D.
Toxicologist
WISCONSIN DEPARTMENT of HEALTH SERVICES



15

Today's presentation:

- Groundwater standard process
- Recommended groundwater standards for:
  - *PFAS*
  - *Combined Groundwater PFAS Standard*

16

16

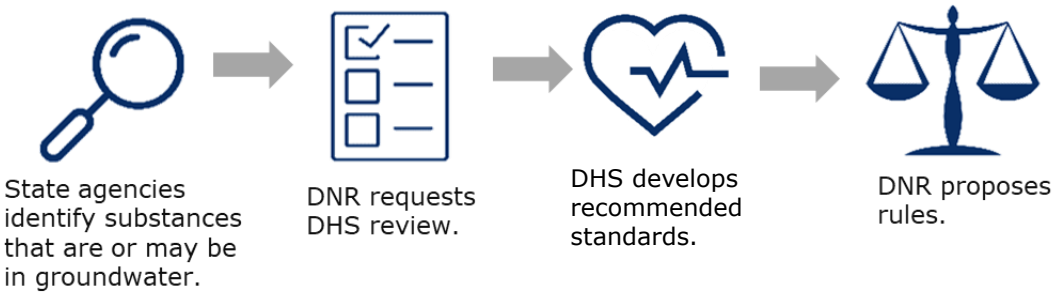
Two-thirds of Wisconsin residents use groundwater.

17

Standards are set to protect health of Wisconsin residents.

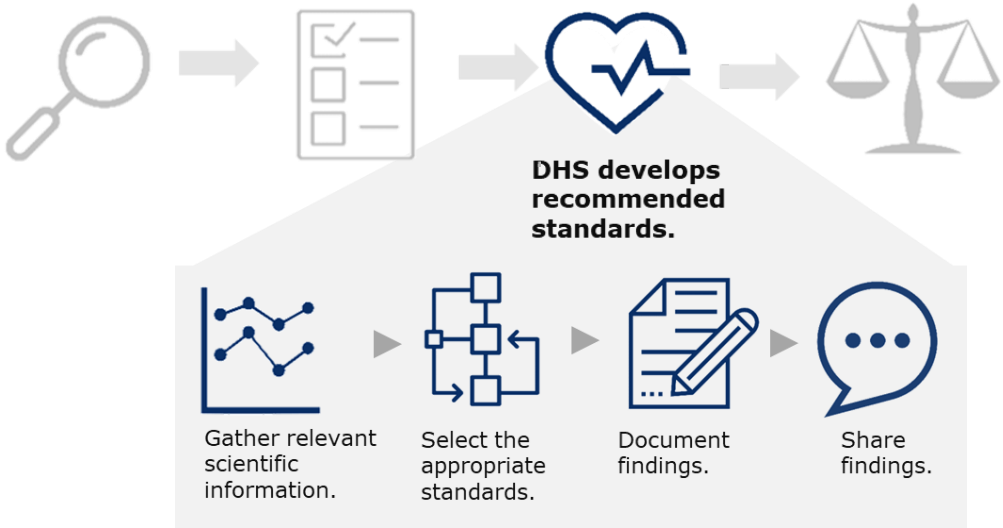
18

Wisconsin's groundwater standards process



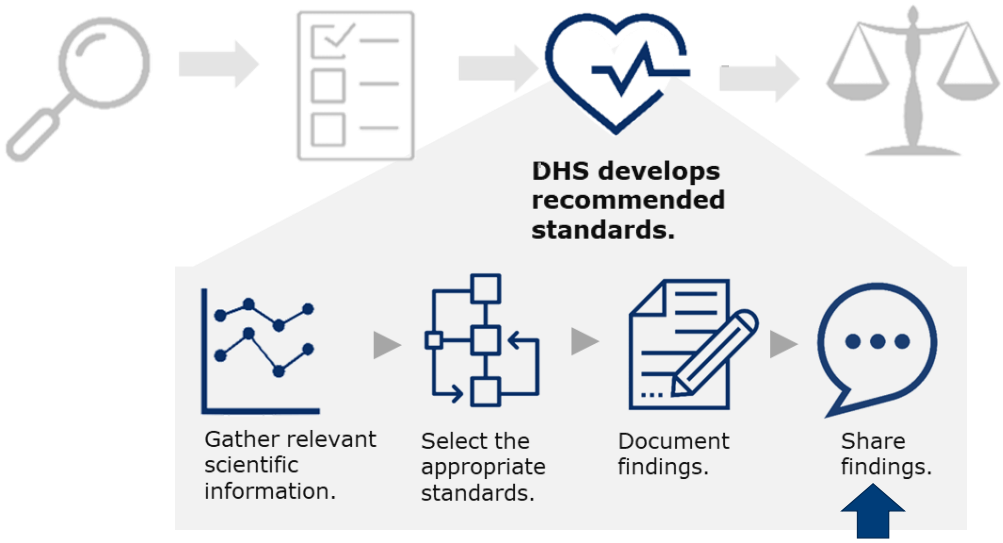
19

Wisconsin's groundwater standards process



20

Wisconsin's groundwater standards process



21

Wisconsin's groundwater standards have 2 parts.

Enforcement Standard

Preventive Action Limit

22

22

The enforcement standard is established from available health information.

23

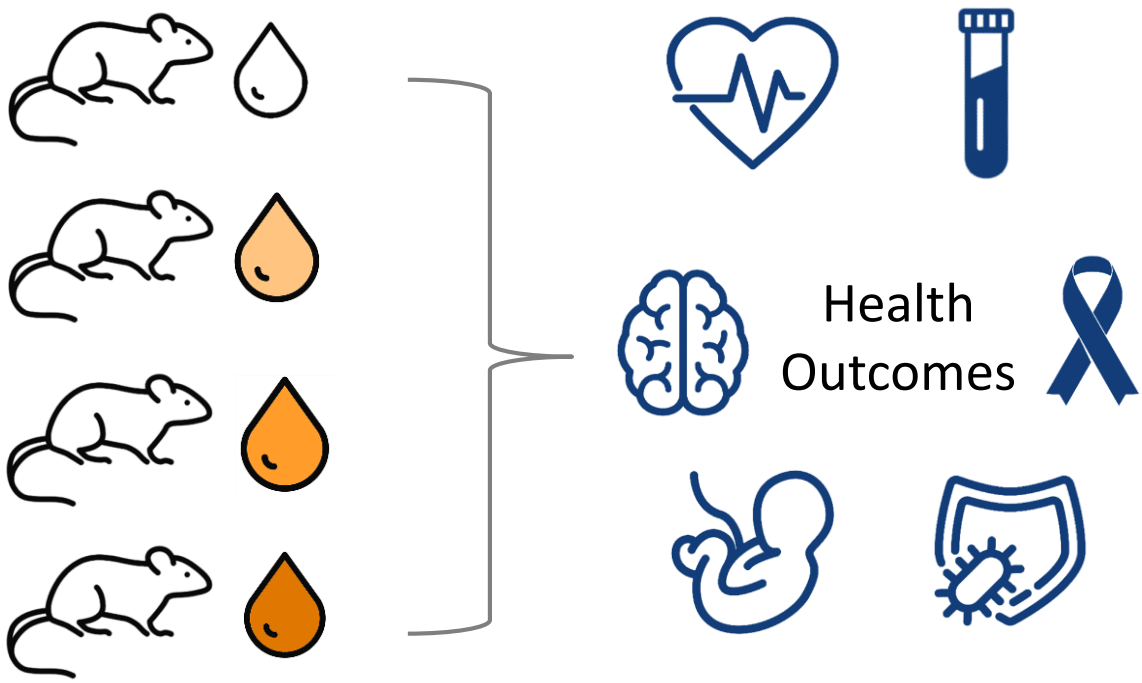
Enforcement standards can be based on:

- Federal number
- State drinking water standard
- EPA value
- Technical information
- Cancer risk

24

Most human health standards are based on toxicology studies conducted in research animals.

25

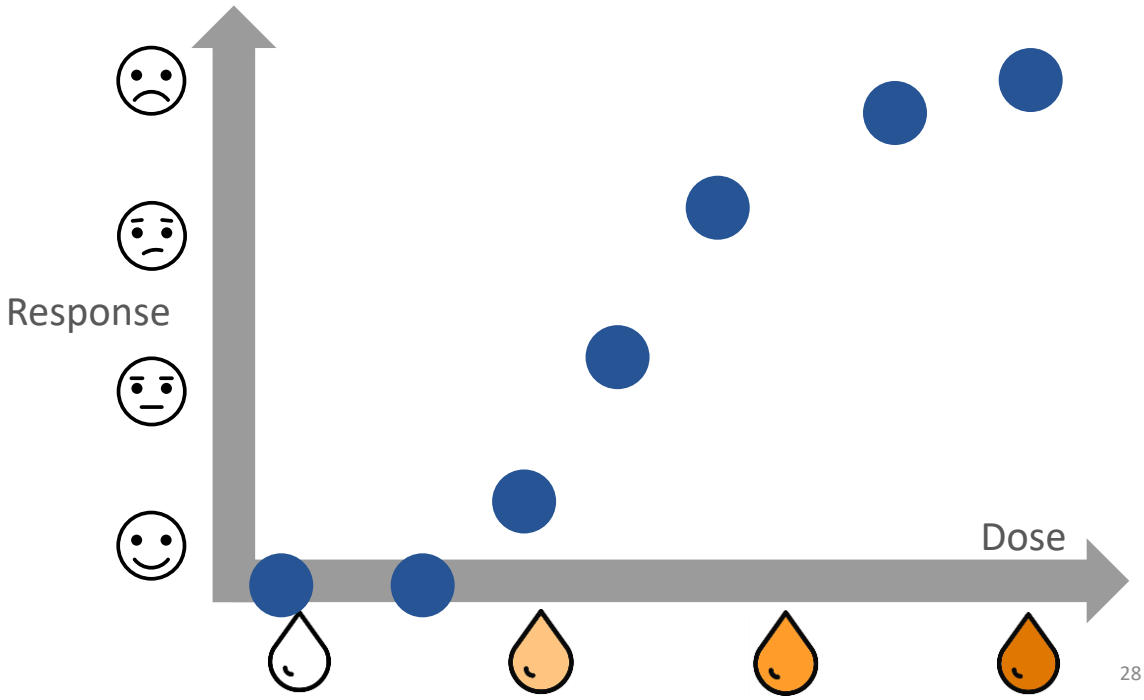


26

Dose response experiments are used to figure out **how much** of a chemical is needed to cause an effect.

27

27

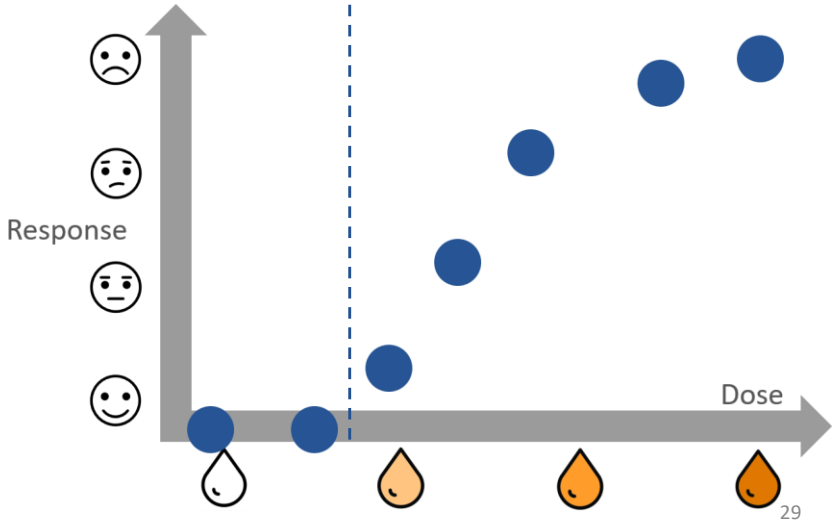


28

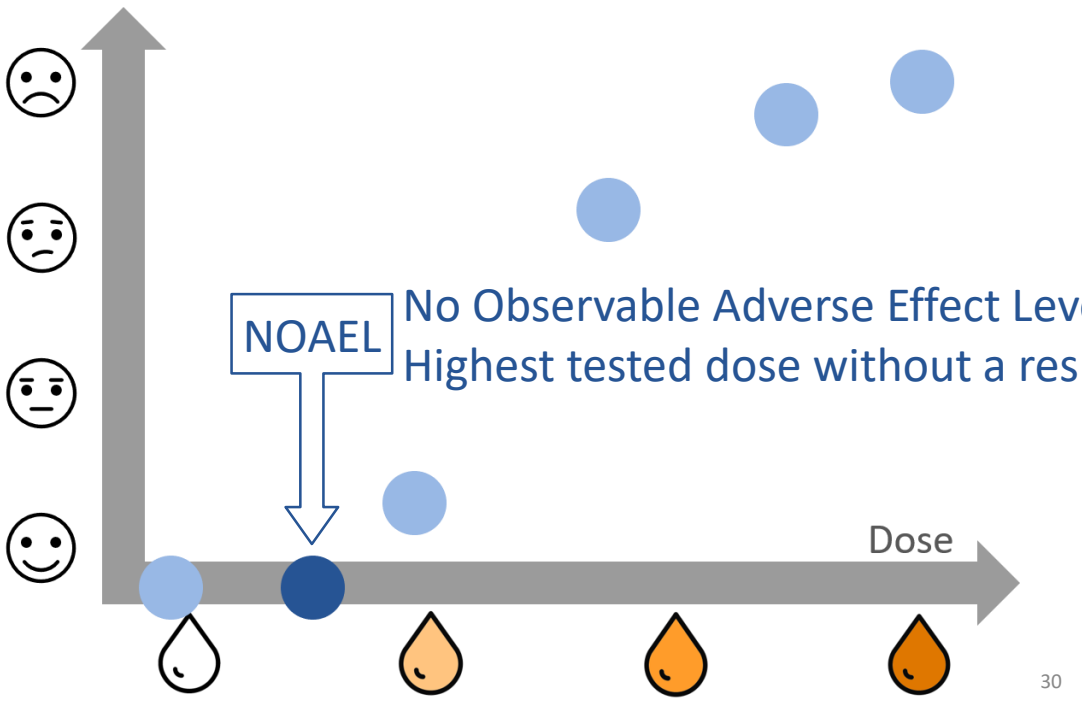
28

Most effects have a threshold.

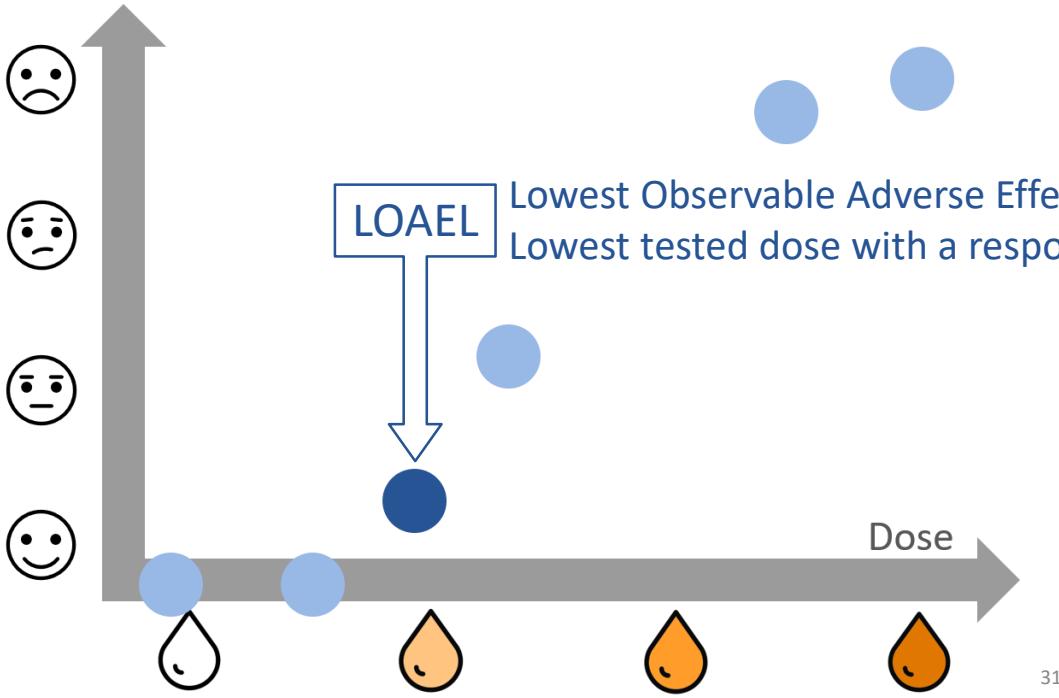
There is some level below which these effects are not expected to occur



29



30

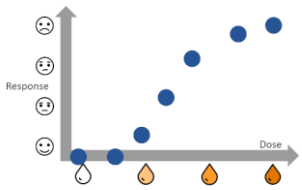


31

31

Most human health standards are based on toxicology studies conducted in research animals.

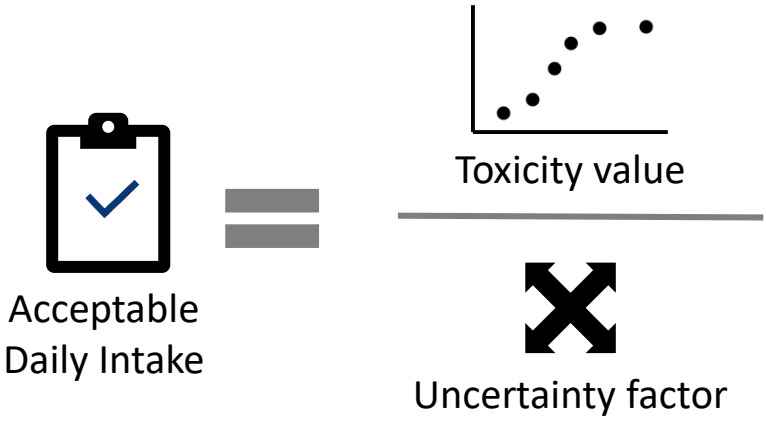
Toxicology studies called dose response experiments are used to figure out **how much** of a chemical is needed to cause an effect.



NOAEL LOAEL

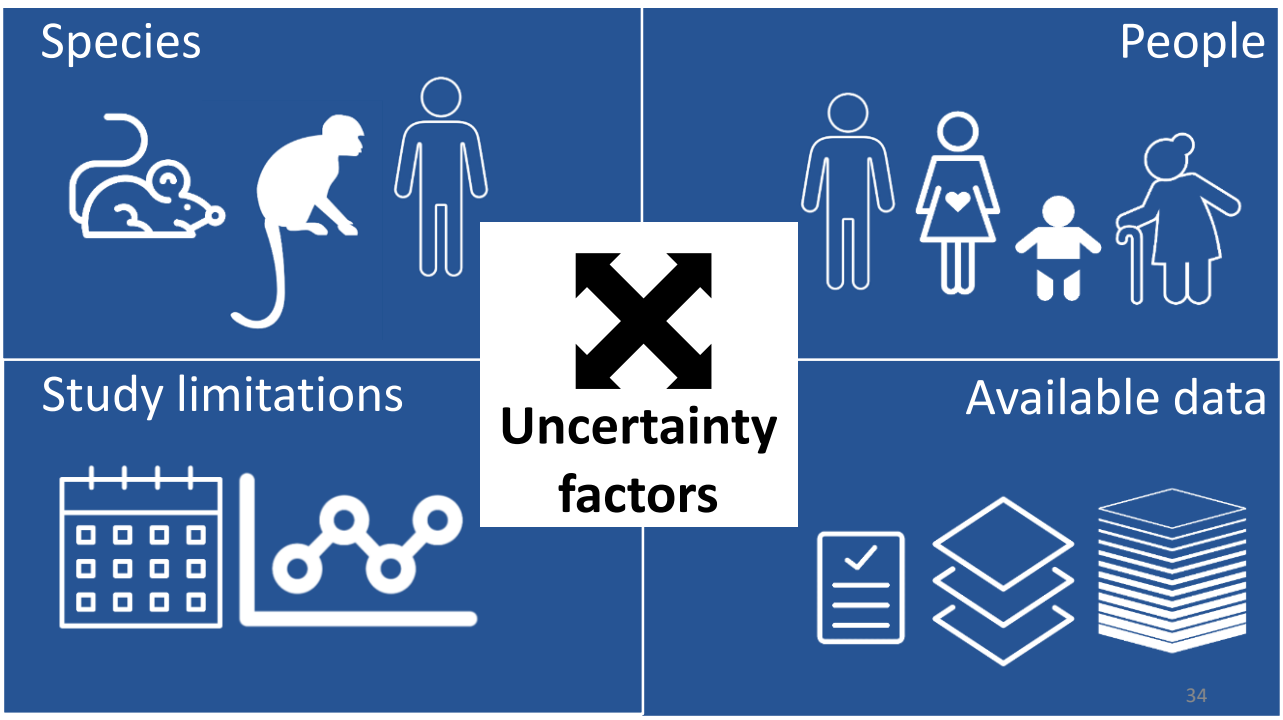
32

32

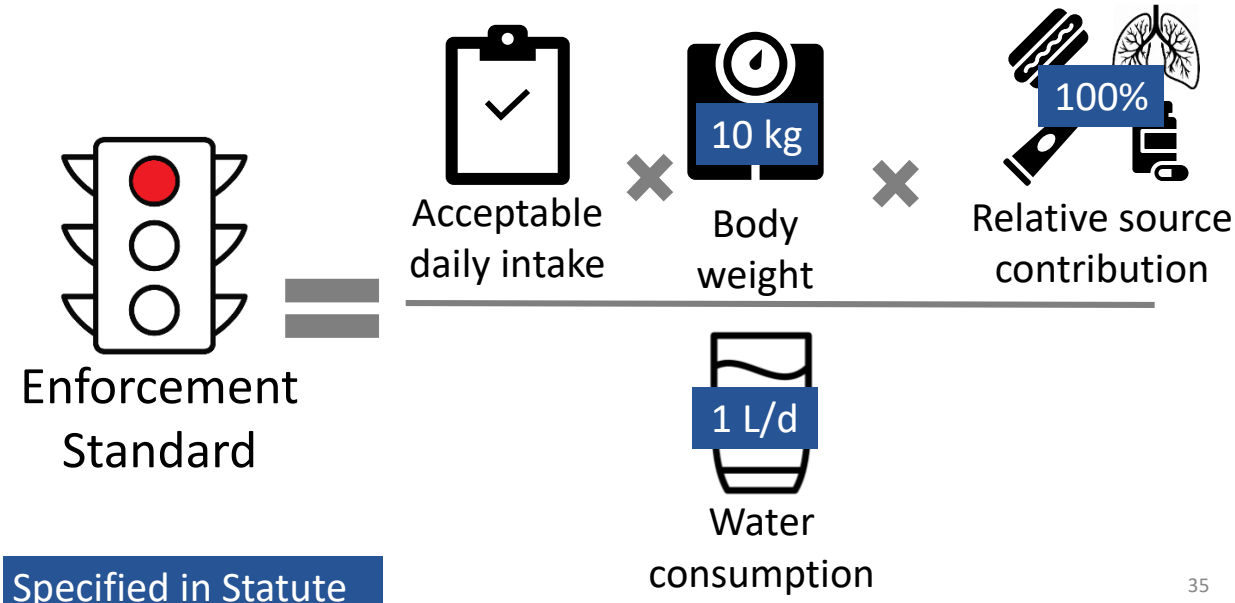

Toxicity value
Acceptable
Daily Intake
Uncertainty factor

33

33


Species
People
Uncertainty factors
Study limitations
Available data
34

34

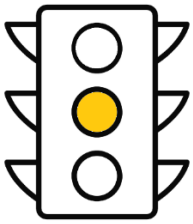


Specified in Statute

35

The preventive action limit is set at a percentage of the enforcement standard.

36



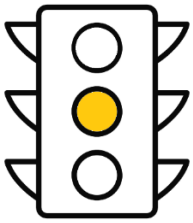
Preventive action limit

= 10% of the enforcement standard

Substances that cause carcinogenic, mutagenic, teratogenic, or interactive effects

37

37



Preventive action limit

= 20% of the enforcement standard

All other substances

38

38

PFAS Groundwater Standard Recommendations

39

PFAS Recommendations

Substance	Enforcement Standard	Preventive Action Limit
Perfluorotetradecanoic acid (PFTeA)	10 µg/L	2 µg/L
Perfluorobutanoic acid (PFBA)	10 µg/L	2 µg/L
Perfluorohexanoic acid (PFHxA)	150 µg/L	30 µg/L
Perfluorononanoic acid (PFNA)	30 ng/L	3 ng/L
Perfluorodecanoic acid (PFDA)	300 ng/L	60 ng/L
Perfluoroundecanoic acid (PFUnA)	3 µg/L	0.6 µg/L
Perfluorobutanesulfonic acid (PFBS)	450 µg/L	90 µg/L
Perfluorohexanesulfonic acid (PFHxS)	40 ng/L	4 ng/L
Perfluorododecanoic acid (PFDoA)	500 ng/L	100 ng/L
Hexafluoropropylene oxide dimer acid (HFPO-DA; GenX*)	300 ng/L	30 ng/L
Perfluorooctandecanoic acid (PFODA)	400 µg/L	80 µg/L
4,8-Dioxa-3H-perfluorononanoic acid (DONA)	3 µg/L	0.6 µg/L

µg/L = micrograms per liter; equivalent to parts per billion
ng/L = nanograms per liter; equivalent to parts per trillion
* Trade name

40

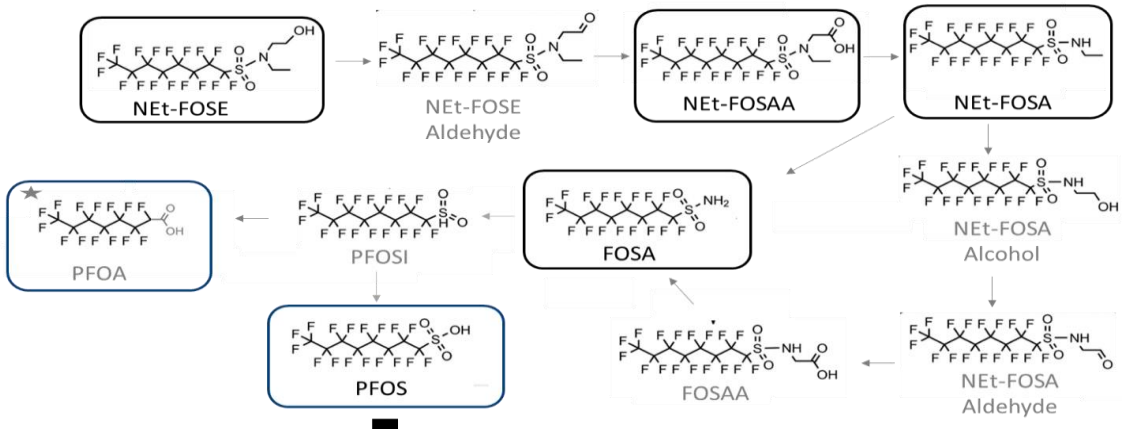
PFAS Recommendations

Substance	Enforcement Standard	Preventive Action Limit
Perfluorooctane sulfonamide (FOSA)	20 ng/L*	2 ng/L*
N-Ethyl Perfluorooctane sulfonamide (NEtFOSA)	20 ng/L*	2 ng/L*
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	20 ng/L*	2 ng/L*
N-Ethyl perfluorooctane sulfonamidoethanol (NEtFOSE)	20 ng/L*	2 ng/L*

* Applies to the sum of FOSA, NEtFOSA, NEtFOSAA, NEtFOSE, PFOS, and PFOA.

41

PFAS Recommendations



42

DHS does not recommend standards for **18** PFAS due to limited health information.

Perfluorotridecanoic acid (PFTriA)
Perfluoropentanoic acid (PFPeA)
Perfluoroheptanoic acid (PFHpA)
Perfluoroheptanesulfonic acid (PFHpS)
Perfluorodecanesulfonic acid (PFDS)
Perfluoropentanesulfonic acid (PFPeS)
9-chlorohexanedecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CL-PF3OUdS)
Perfluorododecanesulfonic acid (PFDoS)
Perfluorononanesulfonic acid (PFNS)
N-Methyl Perfluorooctane sulfonamide (NMetFOSA)
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)
N-Methyl perfluorooctane sulfonamidoethanol (NMeFOSE)
6:2 Fluorotelomer sulfonic acid (6:2 FTSA)
8:2 Fluorotelomer sulfonic acid (8:2 FTSA)
4:2 Fluorotelomer sulfonic acid (4:2 FTSA)
10:2 Fluorotelomer sulfonic acid (10:2 FTSA)
Perfluorohexadecanoic acid (PFHxDA)

43

Summary

- 12 individual PFAS groundwater recommendations
- 4 additional PFAS into a combined groundwater standard
- 18 PFAS that did not receive groundwater standard recommendations

44

For more information:

Cycle 11 Recommendations
www.dhs.wisconsin.gov/water/gws-cycle11.htm
Groundwater Process
www.dhs.wisconsin.gov/water/gws.htm
Rulemaking Process
dnr.wisconsin.gov/topic/Groundwater/NR140.html
Fact sheets
www.dhs.wisconsin.gov/water/gws-cycle11.htm

45

Thank you!

Gavin Dehnert, Ph.D.
DHS Postdoctoral Fellow
Brita Kilburg-Basnyat, Ph.D.
Toxicologist

Bureau of Environmental and Occupational Health
Wisconsin Department of Health Services

To contact the team working on this site:
DHSEnvHealth@dhs.wisconsin.gov

46

Sample Results and Cycle 11

- State and JCI/Tyco will review all previously sampled wells:
  - Determine if additional sampling is necessary
  - Determine if there are any at or above recommended standards (offer alternative water)

47

Fish Tissue Sampling

- JCI/Tyco collected fish tissue from private ponds
- Sample target: 3-5 individual species per pond (9 -15 fish samples per sampling location)
- Several different types of fish

48

Fish Tissue Sample Results

Great Lakes Consortium Guidelines

PFOS Level	Consumption Guideline
Below 10 ppb	No suggested consumption restriction
10 – 20 ppb	Fish should be consumed no more than twice per week
20 – 50 ppb	Fish should be consumed no more than once per week
50 – 200 ppb	Fish should be consumed no more than once per month
> 200 ppb	Fish should not be consumed (may result in Do Not Eat advisory)

Pond A (Located 0.1 miles from the FTC):

- 15 fish analyzed from Pond A had
- PFOS concentrations ranging from 11.6 ppb to 144 ppb.

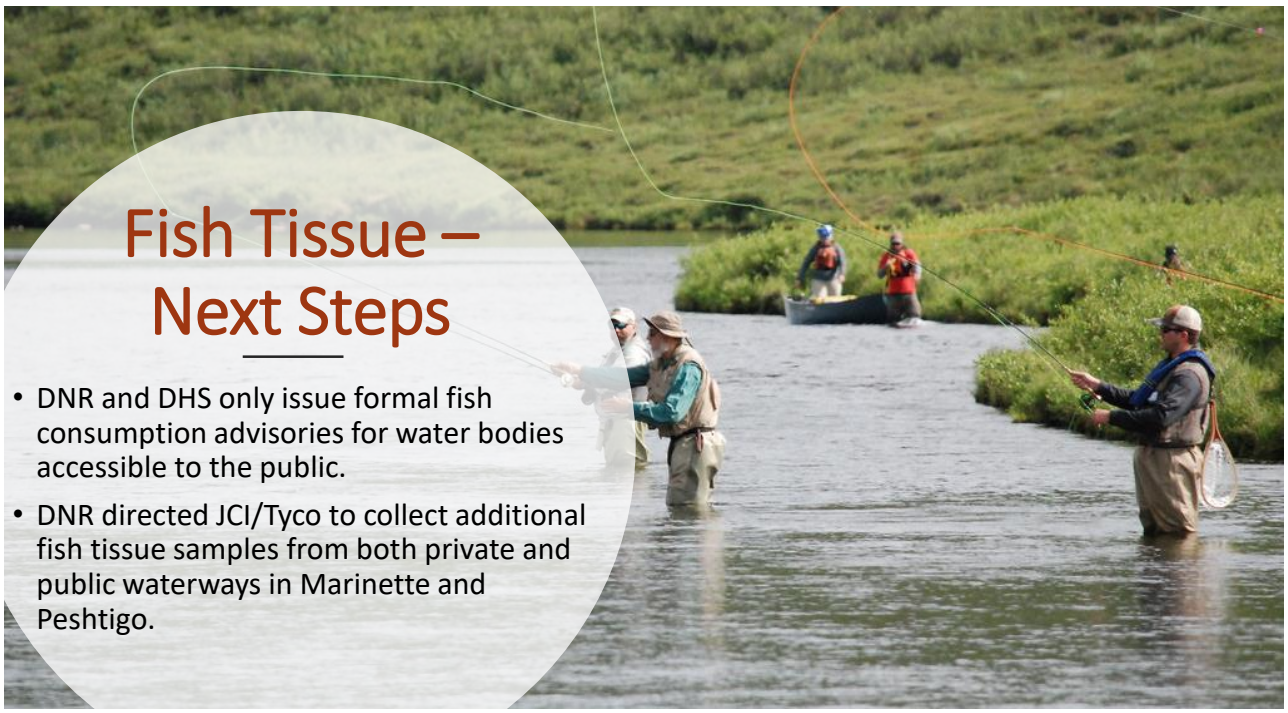
Pond B (0.75 miles from the FTC):

- Five of the six fish analyzed from this pond had PFOS concentrations from 1.36-3.44 ppb.
- One fish registered 23.7 ppb

Pond C (1.1 miles from the FTC):

- Five fish analyzed recorded PFOS readings of 0.67-1.92 ppb

49



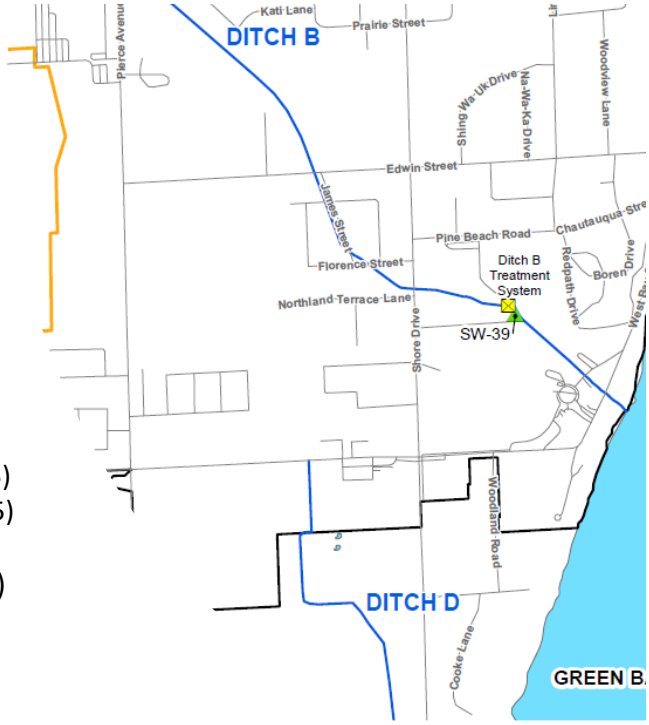
Fish Tissue – Next Steps

- DNR and DHS only issue formal fish consumption advisories for water bodies accessible to the public.
- DNR directed JCI/Tyco to collect additional fish tissue samples from both private and public waterways in Marinette and Peshtigo.

50

Ditch B Site Investigation Updates

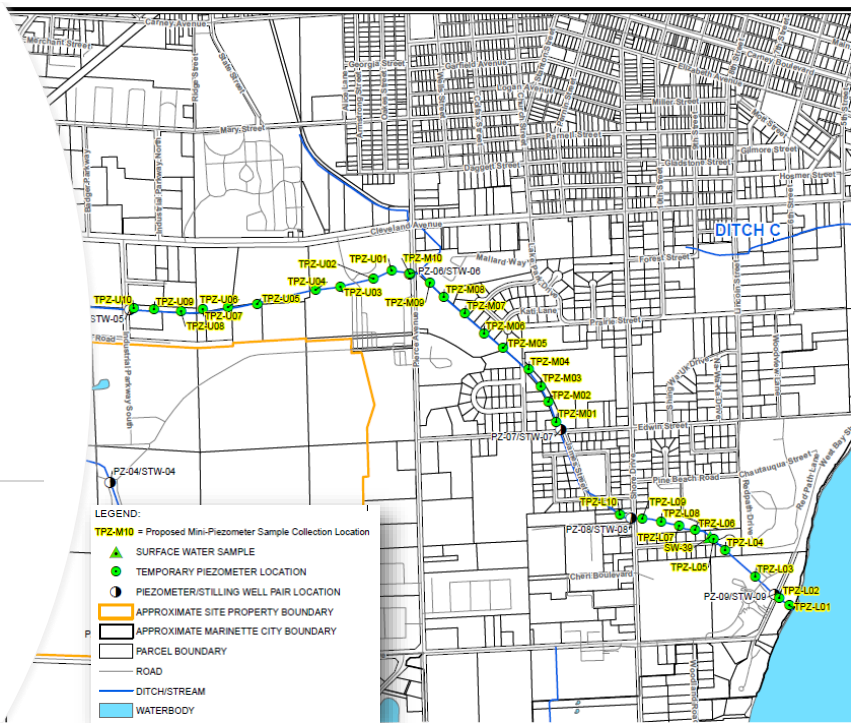
- Surface Water Sample Results (PFOA + PFOS ppt):
  - July 2020 – Ditch B (SW-39):
    - PFOS: 72
    - PFOA: 1,000
  - October 2020 – Ditch B:
    - PFOS: 2.2 (2.9 – 16 in piezometers L1 – L5)
    - PFOA: 36 (45 – 130 in piezometers L1 – L5)
- Ditch B WPDES permit references MI SW standards (discharge to potable water source)
  - PFOS: 11
  - PFOA: 420



51

Ditch B – Next Steps

- JCI/Tyco has begun investigation work to support a groundwater extraction system

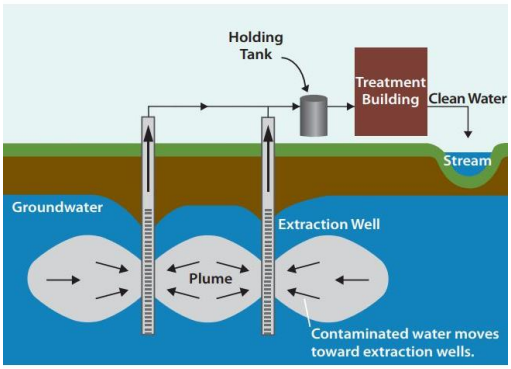


52

Ditch B – Next Steps

- Characterization work along Ditch B (Oct – Dec)
- Installation of a groundwater extraction well
- Engineering and design of groundwater extraction system
- Targeted dates (pending various approvals):
  - Construction May 2021
  - Operational Fall 2021

Groundwater Extraction Concept Drawing



https://enviraj.com/envipedia/pump-and-treat.html

53

Upcoming Important Dates

As soon as possible:

- Return Access Permission Agreements and Potable Well Surveys
  - If returned by Nov 30th – may still be sampled in Dec 2020 or otherwise spring 2021

December/January

- Stanton St WPDES permit

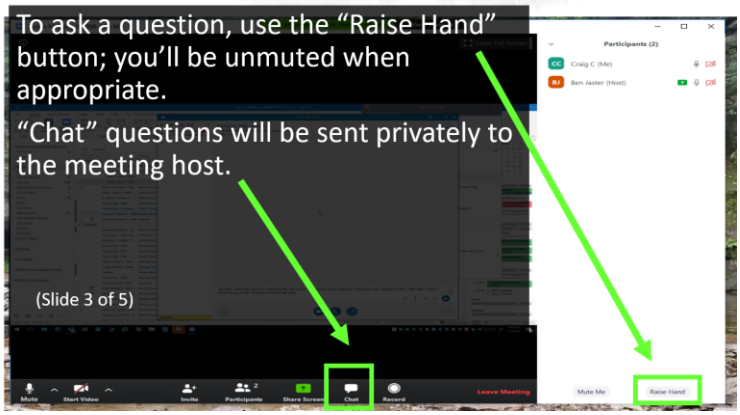
January 20th

- Next Listening Session

54

Ground Rules – Listening Session

- Use the **'chat'** feature *or* **'raise hand'** feature to request to be unmuted to ask a call
- 3-mins per person → everyone has the opportunity to voice concerns
- Keep comments constructive
- Attack the problem not the person



55

55