

# Tyco Community Update Results and Path Forward

03.13.2019

***tyco***  
*Fire Protection Products*

# Community Update Agenda

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<b>Poster Viewing</b>	<b>6:00</b>
<b>Welcome</b>	<b>6:30</b>
<b>Department of Natural Resources</b>	<b>6:40</b>
<b>Project Summary</b>	<b>7:10</b>
<b>Question and Answer</b>	<b>7:30</b>
<b>Poster Viewing and Q&amp;A</b>	<b>8:00</b>
<b>Close</b>	<b>9:00</b>

- If you have questions:
- Ask during the open Q&A immediately following this presentation
  - Take part in the open house/poster presentations following Q&A
  - <http://marinette.tyco.com>
  - <http://dnr.wi.gov/botw> (activity #0238580694)
  - <http://dnr.wi.gov/topic/contaminants/PFAS>
  - (800) 314-1381



# Presenters

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John Perkins  
Grady Crosby  
Jim Cox



Mike Bedard



Roxanne Chronert  
Dave Neste  
Kyle Burton



Rob Thiboldeaux



# Welcome

# Tyco in Marinette



- Marinette neighbor since 1912
- More than 800 employees
  - Manufacturing of firefighting products and technology
  - Firefighting training, research, and development
- Committed, Collaborative
  - Routine updates to the community
  - Engaged with Wisconsin state agencies
  - Marinette Recreation Center donor
  - \$7.5MM to Wisconsin-based charities in 2018



# Firefighting Foam

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**Most effective firefighting technology for suppressing oil and gas fires**

Produced to military specifications

Used by

- Military
- Aviation industry
- Oil and gas industry
- Firefighters

Saving lives and protecting property



# PFAS Investigations and Actions

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- Analyzed **1,881** total samples
- Used mobile laboratory on-site for immediate analysis for **70** initial samples
- Operated multiple drill rigs simultaneously
- Collected **36** surface water samples
- Conducted outreach survey to determine community preferences
- Delivered **2,700+** results letters, updates and invitations to residents
- Applied for **19** approvals, permits and authorizations
- Participated in **100+** municipal and private residential meetings
- Collected **309** groundwater samples from **51** VAPs since November 2017
- Collected soil samples from **20** VAP intervals
- Sampled **169** private drinking water wells, 1 result pending
- Analyzed **1,282** drinking water samples
- Installed and maintained **37** POETs
- Managed over **2,100** calls on the toll free number
- Installed and monitored piezometers at **9** locations along ditches A and B
- Interim remedial actions installed and underway for ditches

# Department of Natural Resources

## Wis. Stats. §292.11 - “Spills Law”

- Responsible Party shall take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands or waters of this state.
- Includes:
  - Interim Action
  - Site Investigation (iterative)
  - Select & implement appropriate remedial action
  - Long Term Monitoring/Site Management

# Per- and Polyflouroalkyl Substances (PFAS)

- Large group of human made chemicals used in industry & consumer products
- PFAS is Regulated under Wis. Stats § NR 292.11
- Broad definition of “hazardous substance”: *”...which may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or which may pose a substantial present or potential hazard to human health or the environment because of its quantity, concentration or physical, chemical or infectious characteristics...”*



# Emerging Contaminants - PFAS

- DNR is developing a PFAS strategy
- Established internal groups to coordinate
- Governor’s budget proposes funding for at least two new positions for PFAS contamination issues
- PFAS Website <https://dnr.wi.gov/topic/Contaminants/PFAS.html>



## Per- and polyfluoroalkyl substances (PFAS) contamination

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are a large group of human-made chemicals that have been used in industry and consumer products worldwide since the 1950s.

PFAS do not occur naturally and are widespread in the environment. They are found in people, wildlife and fish all over the world. Some PFAS can stay in peoples' bodies a long time and do not break down easily in the environment.

The U.S. EPA has established [cumulative-lifetime health advisories for PFOA and PFOS](#) [exit DNR], which are two PFAS that have been most widely produced and studied, at 70 parts per trillion (ppt). At the request of the DNR, the [Wisconsin Department of Health Services \(DHS\)](#) [exit DNR] is reviewing scientific literature to determine if there is sufficient toxicological information to recommend a groundwater quality standard for PFOA and PFOS in Wisconsin.

## Public input opportunities

The DNR will continue to seek public input on PFAS investigation, contamination and cleanup issues.

The DNR's Remediation and Redevelopment (RR) Program has convened a [PFAS technical advisory group](#) to discuss PFAS-related concerns that are **specific to the assessment and cleanup of environmental contamination**. The goal of the group is to examine the what, where, when and how of PFAS investigation and remediation by sharing concerns, identifying current and proposed practices and strategizing on issues requiring solutions. The group does not have an appointed membership; any interested party may attend.

[Environmental impacts](#) | [Health impacts](#) | [Investigation and cleanup](#) | [Resources](#)

### Emerging contaminants

[Drinking water](#)

[Wells](#)

[Cleanup and redevelopment](#)

### DNR database

▶ To view information on sites where PFAS contamination has been reported to the DNR, go to the [Remediation and Redevelopment Program database \(BRRTS on the Web\)](#).

▶ To find sites with PFAS contamination in the database, go to the "Advanced Search" tab, and under "Substances" search for "PFAS."

### PFAS resources

- WI Dept. of Health Services: [Per- and Polyfluoroalkyl Substances \(PFAS\)](#) [exit DNR]
- U.S. EPA: [Per- and Polyfluoroalkyl Substances \(PFAS\)](#) [exit DNR]
- U.S. EPA: [Research on PFAS](#) [exit DNR]
- Agency for Toxic Disease Registry (ATSDR): [Per- and Polyfluoroalkyl Substances \(PFAS\) and Your Health](#) [exit DNR]

# Spills Law Authority – DNR

- Regulatory oversight to ensure Responsible Party is following the law
  - Wis. Stats. § 292.11 and Wis. Admin. Code chs. NR 700-754
- Oversee Responsible Party actions: interim actions, site investigation, remediation, and long term monitoring/site management
- Review fee based submittals & provide comments
- Upload documents to DNR Database - BOTW



# DNR Database - BOTW

- Remediation and Redevelopment database of Contaminated Properties – BRRTS on the Web (BOTW)
- Access JCI Case file via database *or* interactive map
- <https://dnr.wi.gov/topic/brownfields/rrsm.html>
- BRRTS Case 02-38-580694, can access site documents

## BRRTS on the Web

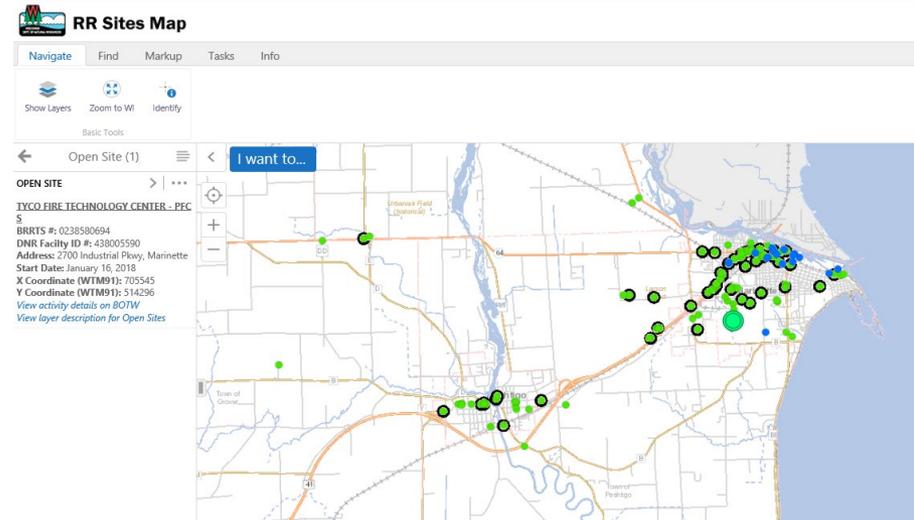
The Bureau for Remediation and Redevelopment Tracking System (BRRTS) on the Web is a searchable database containing information on the investigation and cleanup of potential and confirmed contamination to soil and groundwater in the state of Wisconsin.

### Basic Search

**Basic Search**
Advanced Search

[HELP](#)

BRRTS data comes from various sources, both internal and external to DNR. There may be omissions and errors in the data and delays in updating new information. Please see the [disclaimers page](#) for more information. We welcome your [Feedback](#).



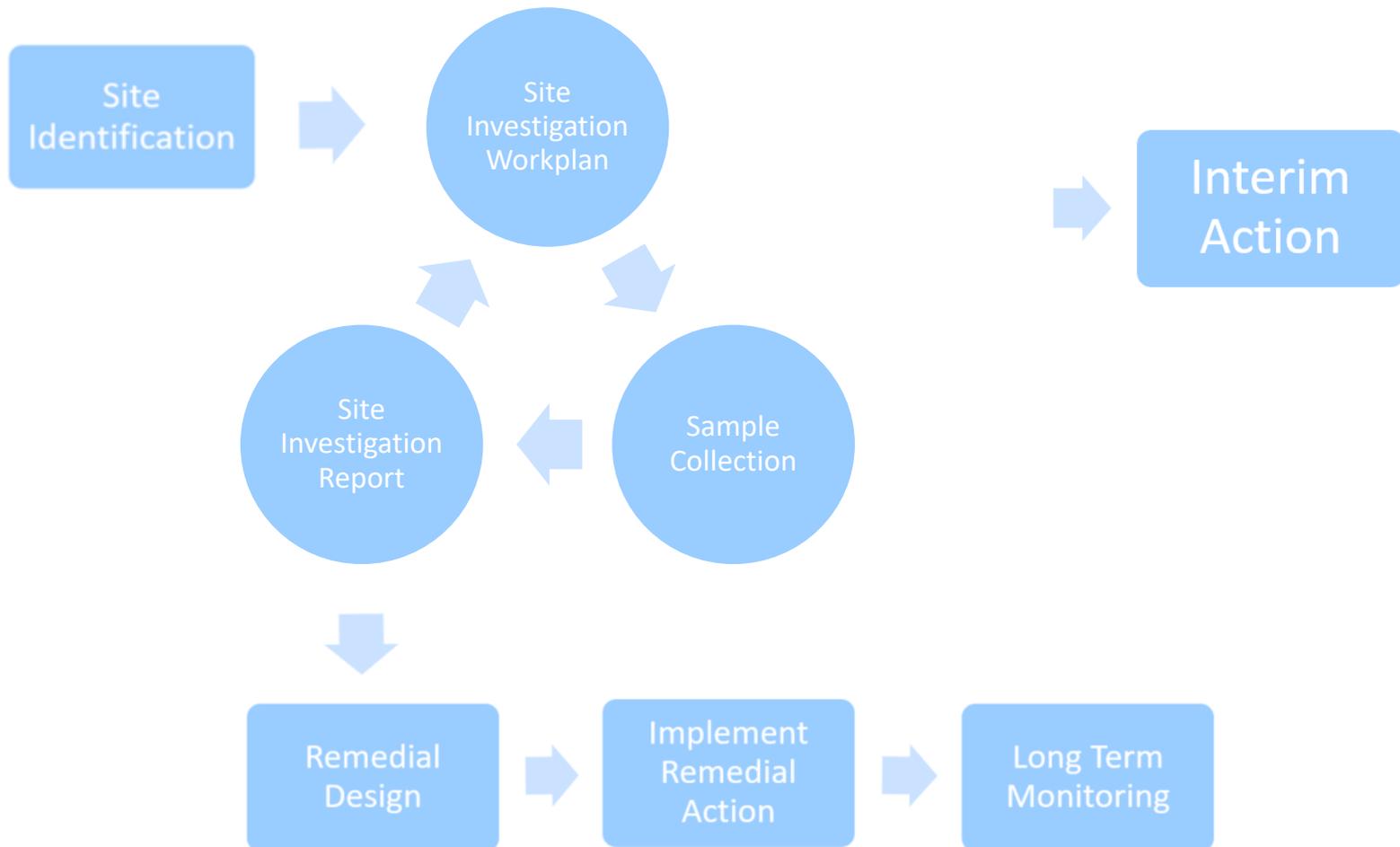
## Spill Law Authority – Responsible Party

- Take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands or waters of this state.
- Follow Wis. Stats. § 292.11 and Wis. Admin. Code chs. NR 700-754
- Hire consultant, submit Site Investigation Workplan, Site Investigation Report, Remedial Action Plan, Implement Remedial Action
  - Fees are not required

# Site Investigation Process

- Governed by Wis. Admin. Code ch. NR 716
  - Collecting site data for impacted media (e.g. samples soil, groundwater, surface water, sediment, fish, etc.)
    - Iterative/Cycle
  - Goal is to define degree and extent of environmental impacts
- October 2018 Site Investigation Report
  - “Not Approved”: Internal DNR nomenclature. Not a rejection of the report. Letter recognizes that Site Investigation is not complete.

# Site Investigation Process



# Interim Action

- Governed by Wis. Admin. Code NR 708.11
  - NR 708.11 (1) (a): *“Interim action shall be taken where it is necessary to contain or stabilize a discharge of a hazardous substance or environmental pollution, in order to minimize any threat to public health, safety, or welfare or the environment.”*
    - Providing bottled water,
    - Sampling of Private Wells,
    - Installation of Granulated Active Carbon (GAC) Point of Entry Treatment System (POET),
    - Ditch A (Ditch B - proposed) surface treatment systems

# WI DNR Role in Determining a Long Term Potable Water Solution

- Responsible Parties required under Spills Law and NR 700 series of WI Administrative code to:
  - Restore the environment to the extent possible
  - Select appropriate remedial action for pathways of concern
    - Pathways of concerns include drinking water
    - Selected remedial actions must be implementable

# Long Term Potable Water Solution

- WI DNR supports provision of water from a “Community Water Supply.”
  - Community Water Supplies provide the most protected and reliable source of drinking water.
    - Regulated by the Federal Safe Drinking Water Act
    - Regularly monitored for all regulated contaminants
    - Required to have emergency operations and supply plans
    - Operated by certified individuals

# Long Term Potable Water Solution

– Options for community water supplies include:

- Extension of nearby municipal water source
- Formation of a sanitary district operated by a municipal entity that could either purchase water from nearby municipal water source or create its own source (i.e. wells or surface water intake)
- Series of shared wells, operated by private entities such as a homeowners association

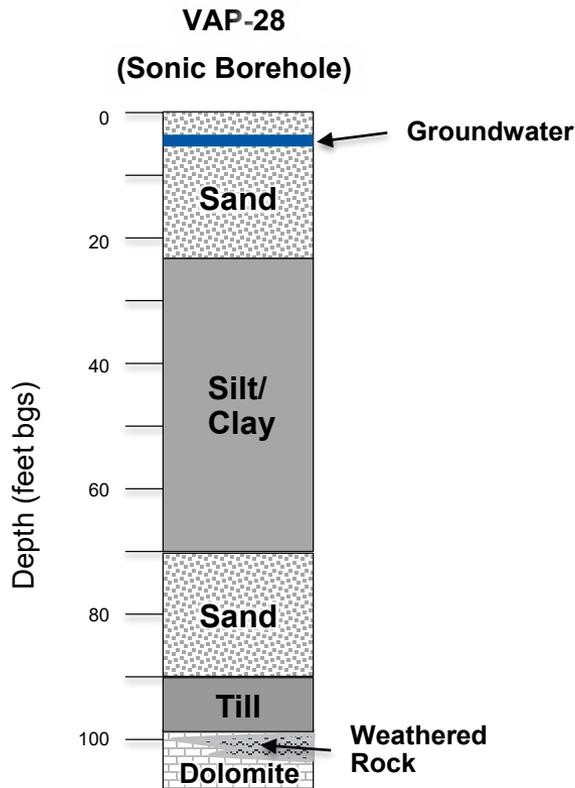
# Long Term Potable Water Solution

- WI DNR does not have regulatory authority to require a municipality to extend its service or sell water to another public water system.
- WI DNR does not have regulatory authority to require an implementable solution within a specific time frame.
- WI DNR has had conversations with JCI, Marinette, and Town of Peshtigo regarding implementable long term potable water solutions.
- JCI is currently working with both the Town of Peshtigo and the City of Marinette regarding and implementable long term potable water solution.

# Project Summary

# Geology and Groundwater Overview

What is the local geology and what is important about it?



Soils change at various depths  
Groundwater in all layers  
Evaluating groundwater in all layers

# What are PFAS?

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**PFAS are a group of man-made compounds that have been manufactured and used in a variety of industries around the globe since the 1940s**



PFAS can be found in many common products such as:

- Food packages/wrappers
- Stain- and water-repellent fabrics and clothing, nonstick products, polishes, and waxes
- Paints, cleaners, and firefighting foams

# Data-driven Solutions

## 1. Investigate

- Groundwater samples
- Drinking water samples
- Surface water and sediment samples
- Soil samples

## 2. Assess

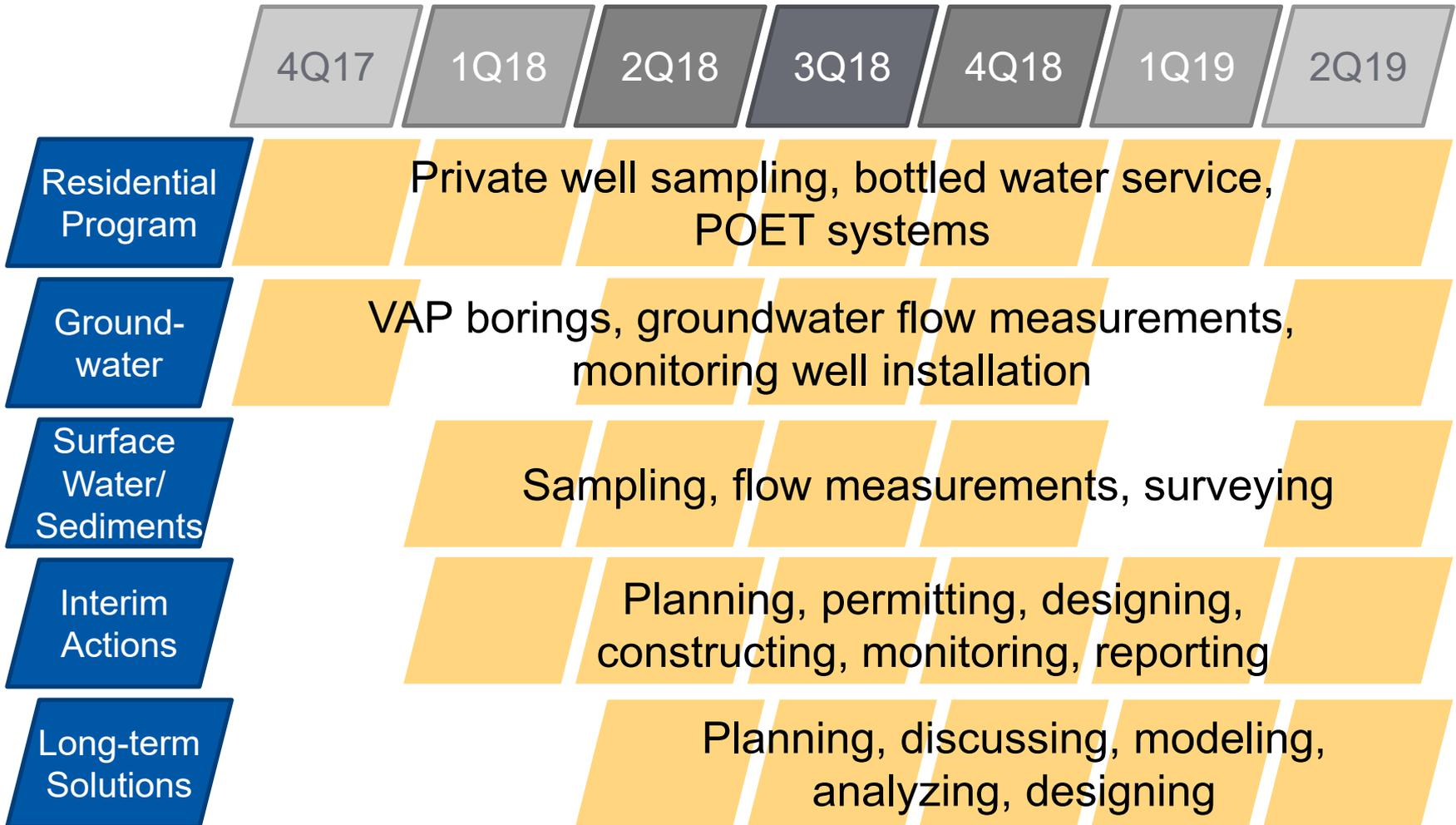
- Data analysis
- Option analysis
- Engaging with WDNR and municipalities

## 3. Take Action

- Bottled water
- POETs
- Interim action – ditches
- Municipal water



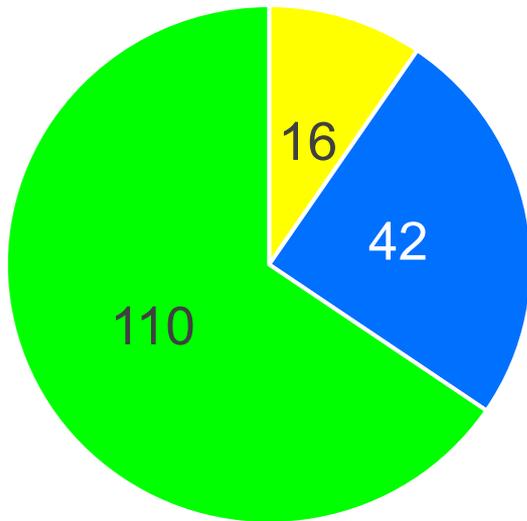
# Investigation Timeline



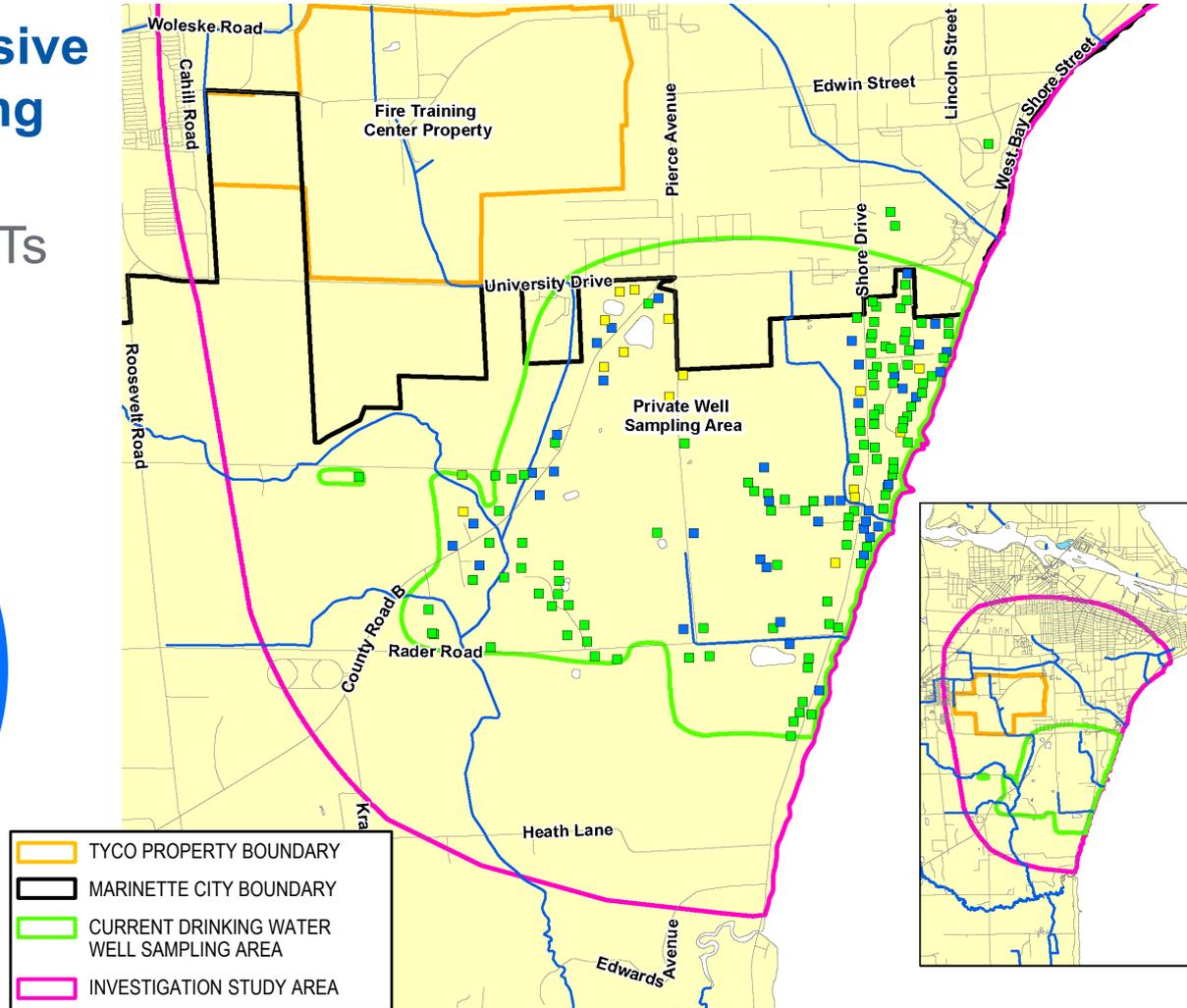
# Drinking Water Sampling Summary

Assessed every responsive home within the sampling area

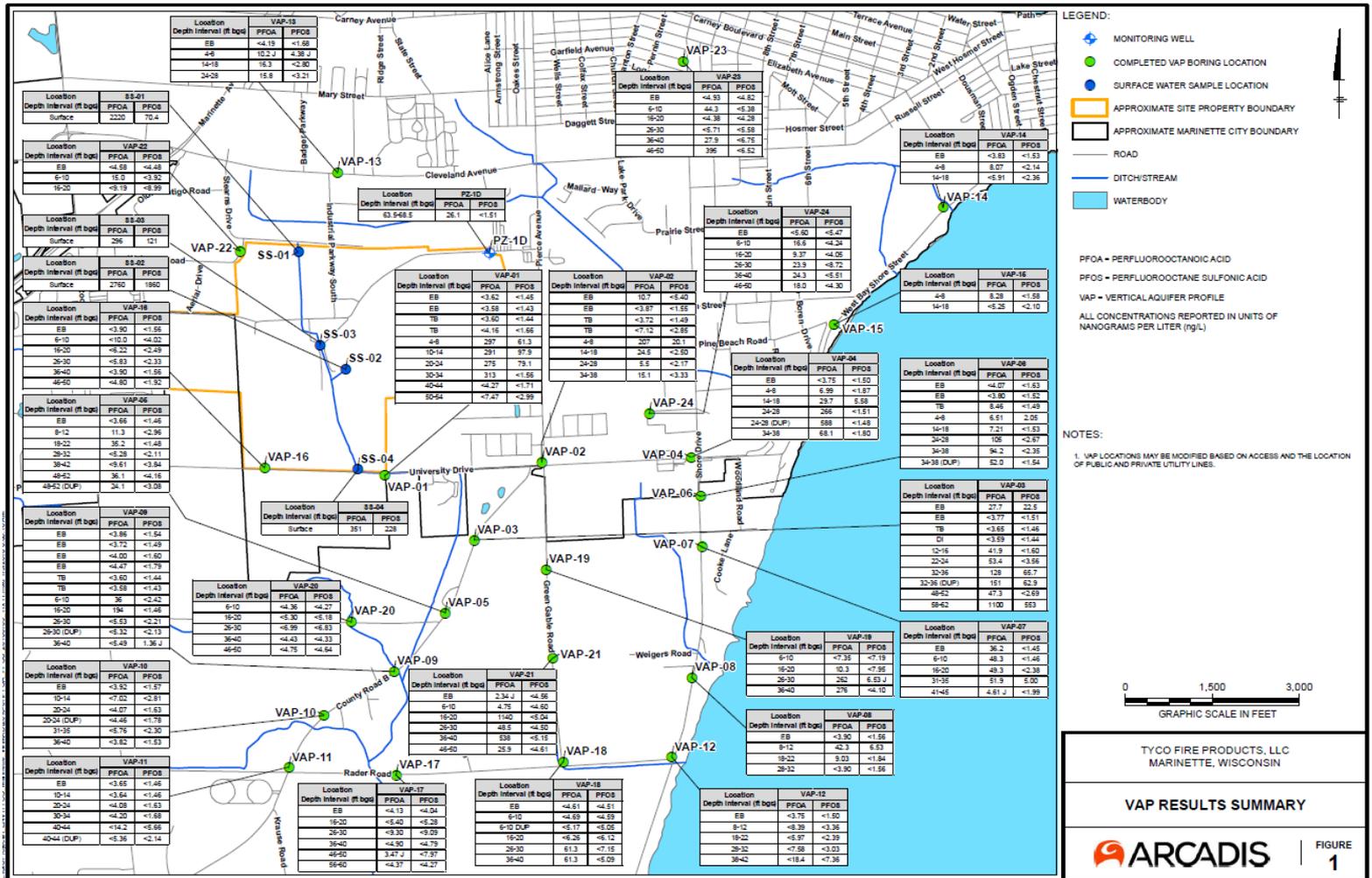
Bottled water and/or POETs offered to each well user within the sampling area



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# Investigation Results Winter 2017-2018



# Drinking Water Solutions

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## Bottled Water

- Interim and immediate drinking water solution

## POET System

- Interim treatment of drinking water

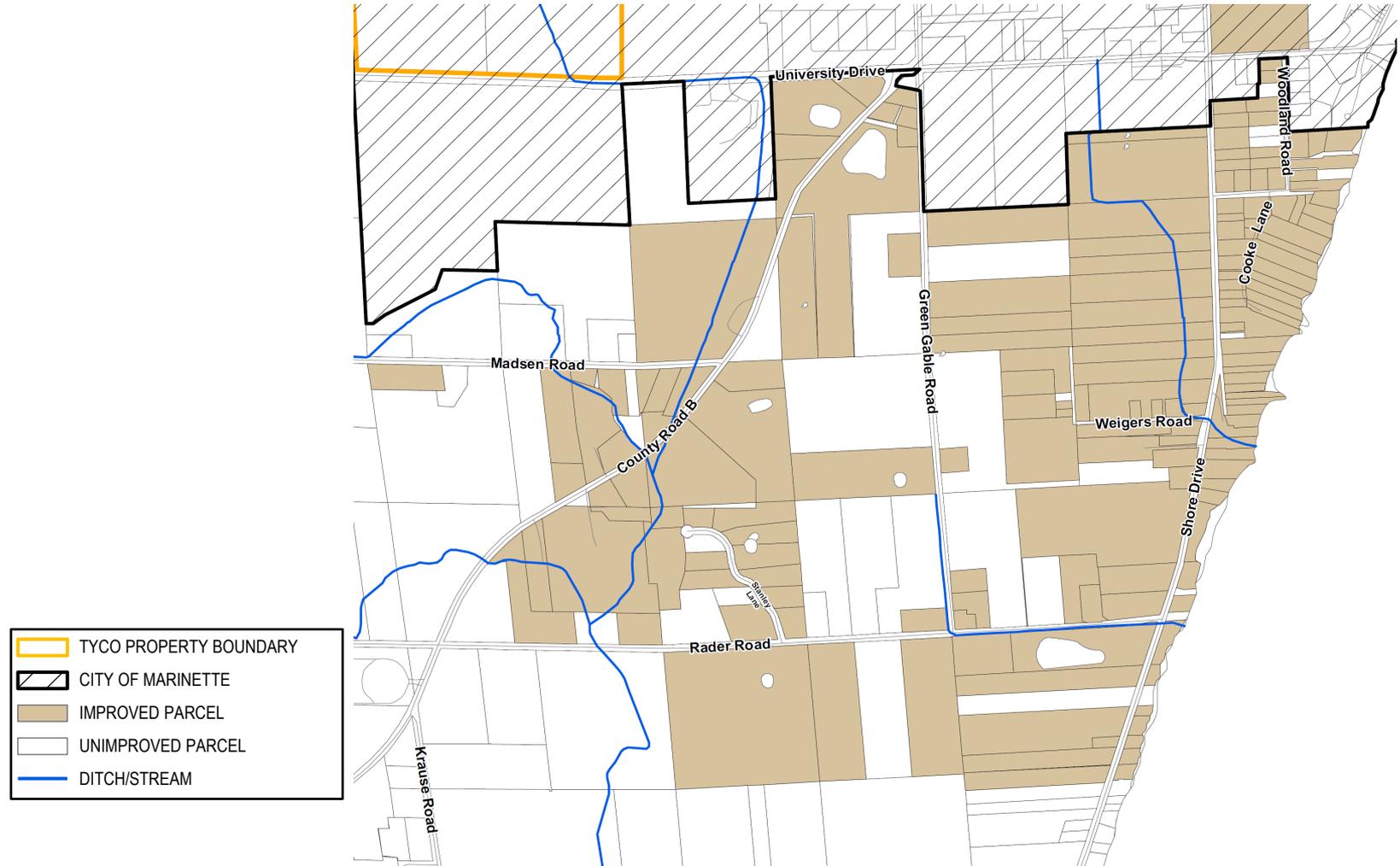
## Bedrock Wells

- Considered and evaluated against municipal water

## Municipal Water Supply

- Supported by WDNR
- Reviewing with City of Marinette and Town of Peshtigo
- Target 2-year timeline
- Demonstrated, reliable approach
- Permanent drinking water solution
- Regulated, documented water quality
- Least ongoing maintenance for water user

# Long-Term Proposed Drinking Water Solution (Conceptual)



# Ditch Treatment Systems

## Proven Technology

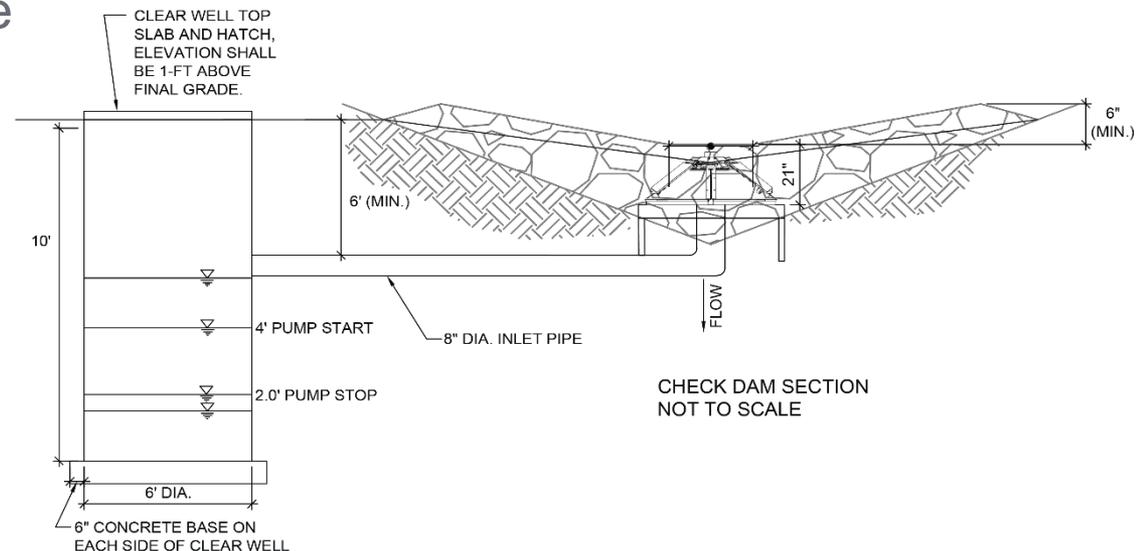
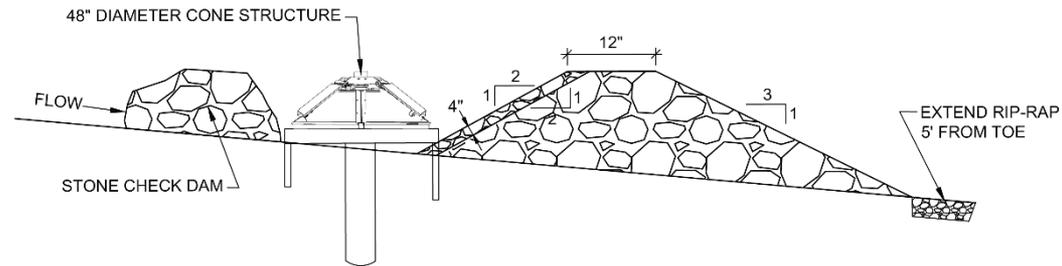
Granular activated carbon (GAC)

## Performance Monitoring

Permits require performance monitoring and reporting

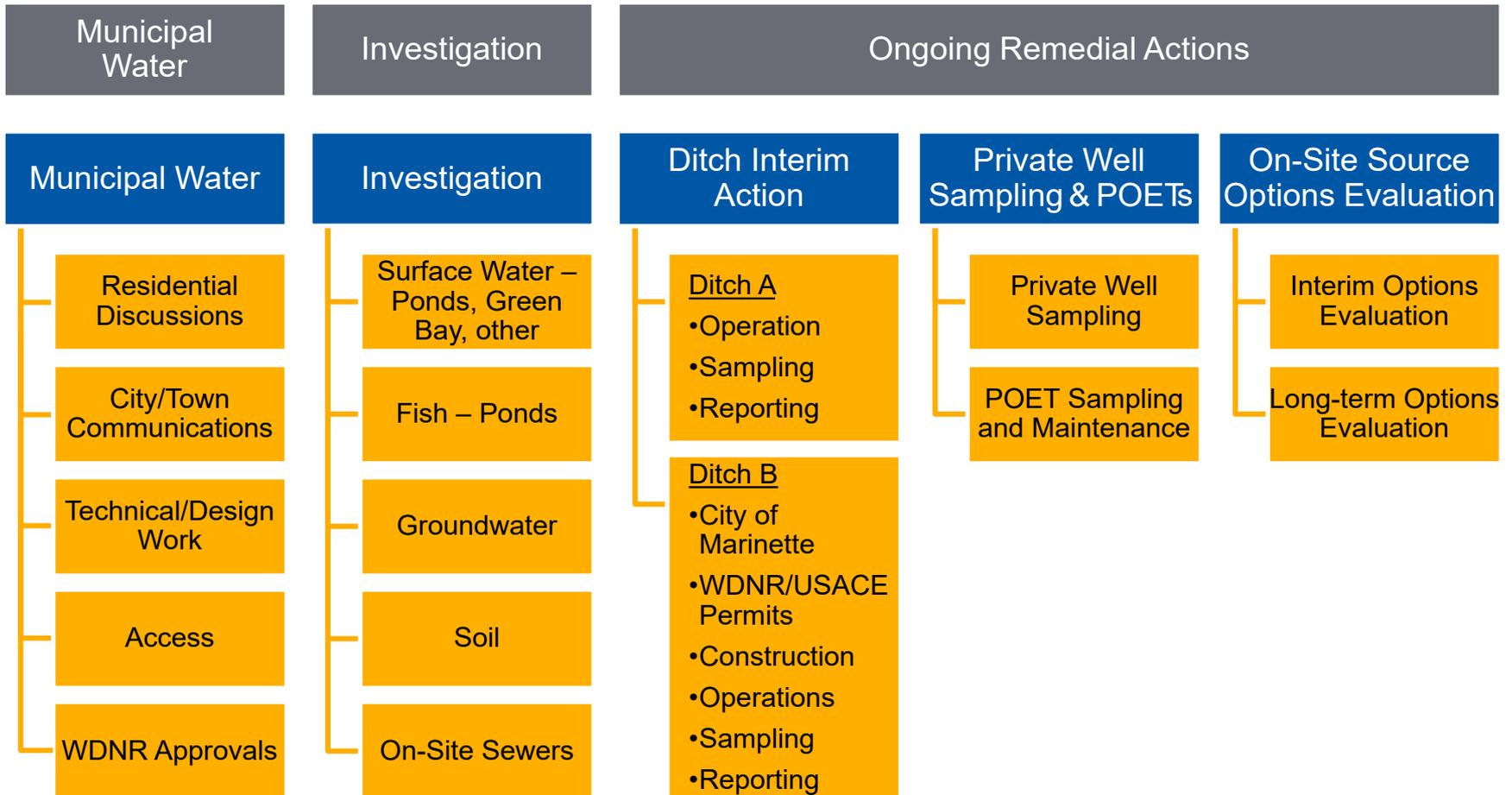
## Regulatory Oversight

Permits, approvals and authorization required from WDNR, USACE, City of Marinette



Proven technology for treating surface water.

# Concurrent Activities for 2019



# Questions

# Extra Slides

# Fish



- DNR has been tracking the amount of pollutants (PCBs, Mercury, dioxins/furans, etc.) in fish since the 1970's.
- DNR began monitoring of PFAS in fish from the Great Lakes and major river systems in 2006.
- PFAS concentrations in fish from Great Lakes is lower than those sampled from major River Systems, particularly Mississippi River.
- In 2007, the DNR and DHS first issued a PFAS-based (specifically PFOS) consumption advisory of 1 meal/week for some fish species found in the Mississippi River. This advisory remains in place today.
- The DNR continues to routinely monitor levels of pollutants in fish, including many PFAS, in Wisconsin's rivers and the Great Lakes.

# Fish - continued



- DNR collected fish in 2017 (25 fish) and 2018 (17 fish) from Green Bay and the Menominee River up to the first dam. The remaining sections of the Menominee River (upstream of the first dam) are on schedule to be sampled in 2019.
- We are still awaiting the results on all of the fish collected in 2017 and 2018, but preliminary results indicate PFAS levels similar to levels observed in past sampling events. While PFAS was detected in nearly all of the fish (this is expected), any advisory based on PFAS would be superseded by advisories based on PCBs (the PCB advisory is more protective). Fish consumption advisories already exist for fish from the Menominee River and Green Bay due to PCBs.
- Fish from the Menominee River upstream of the first dam are sampled approximately every five years. Fish from Green Bay are also sampled on a five year rotating basis.

# Wildlife

- PFAS accumulation in wildlife is an emerging area of research.
- We are aware of Michigan's recent findings in one deer on the eastern border of the Lower Peninsula.
- Michigan's investigation is the first of its kind that we are aware of, and very little scientific information exists on whitetail deer and PFAS chemicals.
- We are working closely with our environmental partners within the agency on this important issue and its potential effects to wildlife.
- Though deer may not readily show symptoms of PFAS exposure, sick deer reporting is the most efficient way to monitor deer herd health. If you observe a sick deer contact your local biologist in your county which is available via the following link:  
<https://dnr.wi.gov/topic/wildlifehabitat/sickdeer.html>.

# Water Quality



- Wastewater
- DNR Requested Marinette Wastewater Treatment Plant Biosolid be held
- DNR is studying Biosolid containing PFAS Application to Fields
- Until then, the DNR has requested Marinette Public Works landfill or incinerate biosolids
  
- Surface Water
- DNR plans to perform surface water quality sampling at select locations in 2019
- Requiring PFAS testing and treatment in general discharge permits from known sites (e.g. JCI and Husky refinery fire)

# Acronyms and Abbreviations

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DPT	Direct Push Technology
HAL	USEPA Lifetime Health Advisory Level
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate
POET	Point of Entry Treatment
RL	Reporting Limit
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VAP	Vertical Aquifer Profile (Groundwater Sample)
WDHS	Wisconsin Department of Health Services
WDNR	Wisconsin Department of Natural Resources