WISCONSIN DEPARTMENT OF NATURAL RESOURCES

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RRT 5 WEBINAR

FEBRUARY 4, 2021

WISCONSIN
DEPT. OF NATURAL RESOURCES

HAZARDOUS SUBSTANCE SPILLS

Wis. Stat. 292.11 Hazardous Substance Spills

- **(2)** Notice of a discharge. (a) A person who possesses or controls a hazardous substance or who causes a discharge of a hazardous substance shall notify the department immediately of any discharge not exempted under sub. (9).

Hazardous Substance

- Any substance in sufficient quantities that can cause harm to human health and safety, or the environment, because of where it is spilled, the amount spilled, its toxicity or its concentration. Even common products such as milk, butter, pickle juice, corn, beer, etc., may be considered a hazardous substance if discharged to a sensitive area.

Reporting Emergency Hazardous Substance Releases

- Report hazardous substance discharges as soon as visual or olfactory evidence confirms a discharge or laboratory data is available to document a discharge. Do not wait to complete a Phase II environmental assessment, or other similar report, to notify the DNR.

WIS. ACT 101 AND HAZARDOUS SUBSTANCE SPILLS

2019 Wis. Act 101 was codified into Wisconsin law as Wis. Stat. § 299.48 in February 2020 and became effective on September 1, 2020. The law required the Wisconsin DNR to draft an emergency rule (Wis. Admin. Code ch. 159) and permanent rule to implement the measures in Wis. Stat. § 299.48.

The statute includes the following requirements:

- **Prohibits the use of PFAS-containing (fluorinated) foam, with exceptions only for its use in emergency firefighting operations or testing purposes in a facility equipped with proper treatment, containment and disposal measures.**
- A person who uses or discharges a fluorinated firefighting foam notify the DNR of the discharge as soon as practicable in an emergency situation and immediately in a testing situation, respectively.
- Anybody that possesses fluorinated firefighting foam for emergency purposes must request and retain any safety data sheets (SDS) relating to the foam and make them available to the DNR for examination after providing a notification of discharge.

GENERAL APPROACH TO AFFF RELEASES - RESPONSIBILITY

Responsibility – Wis. Stat, 292.11(3)

- A person who **possesses** or **controls** a hazardous substance which is discharged or who **causes** the discharge of a hazardous substance 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.
  - If fluorinated foam is discharged as a result of a fire suppression activity, the person that owns the vehicle, structure and/or property that was on fire may be considered the responsible party (RP) as the **possessor** of a discharge of a hazardous substance.
  - The person or entity that caused the fire would be considered an RP as a "**causer**" of the incident that led to a hazardous substance discharge. Whenever possible, the DNR requires the person or entity that causes the discharge of a hazardous substance to take the appropriate response actions.

GENERAL APPROACH TO AFFF RELEASES - RESPONSE

Chapter NR 708 – Immediate and Interim Actions

- EMERGENCIES. For hazardous substance discharges that pose an imminent threat to public health, safety or welfare or the environment, responsible parties shall conduct all necessary emergency immediate actions. Once the emergency situation is responded to, responsible parties shall conduct any further response actions needed to restore the environment to the extent practicable, unless the department determines that no further response is necessary in accordance with s. NR 708.09.

CASE STUDIES
ATC/MG&E TRANSFORMER SPILL
MADISON, WI

JULY 19, 2019

CASE STUDIES – ATC/MG&E TRANSFORMER SPILL, MADISON, WI

- MFD used 59g of Class A/B Foam (AFFF) mixed w/ 120,000 g of water. Entered storm sewer.

Not Available	<1.2	proprietary foamer blend (water, amphoteric copolymer, amphoteric polymer, C6 fluorosurfactant, acrylic copolymer, propylene glycol, ethanol)

CASE STUDIES – ATC/MG&E TRANSFORMER SPILL, MADISON, WI

- Oil "non-PCB" – 14,000g removed from oil/water separation
- 60,000g of water from cable vaults and nearby catch basins
- 80,000g of water from storm sewers
- 40,000g of water from later skimming, utility vault dewatering, & oil/water separation (installing replacement transformer)
- 170,000 g treated with GAC (zeolite+3 x 1,000 lb.), reanalyzed, and disposed

CASE STUDIES – ATC/MG&E TRANSFORMER SPILL, MADISON, WI

Proposed Work (2019)

- Soil Sampling (grid across substation)
- Storm Water (catch basins & outlets)
  - look for trends
- Groundwater (2 sumps & 1 temp well)
  - 3 quarterly rounds
- All samples analyzed for 36 PFAS compounds

Site Update

- Transferred to Environmental Repair Case (ERP)
- Moving through NR700 process
  - Site Investigation Submitted – December 2020

Table 3
Detected PFAS in Water Samples
ATC Blount SS-Environmental Emergency Spill Response
60611431; 722 E. Main Street Madison, WI 53703

							ABBR.	8:2 FTS	PFNA	PFDA	10:2 FTS	PFTeDA	PFOSA	NEtFOSE	Sum of 6 Analytes (1)	Total PFAS
							Analyte:	8:2 FTS	Perfluorononanoic acid (PFNA)	Perfluorodecanoic acid (PFDA)	10:2 FTS	Perfluorotetradecanoic acid (PFTeA)	Perfluorooctanesulfonamide (FOSA)	NEtFOSE		
							CAS:	39108-34-4	375-95-1	335-76-2	120226-60-0	376-06-7	754-91-6	1691-99-2	Comb_6_PFAS	TPFAS
							Units:	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L	ng/L
							Proposed ES:	--	30	300	--	10000	See Combined Limit	See Combined Limit	20	--
							Proposed PAL:	--	3	60	--	2000			2	--
Order	Location	Location Type	Field ID		Sampling Company	Sample Date	Sample Type									
1	Surface Water	East	Surface Water	Surface Water	NSEC	7/19/2019	N	21	0.60 J	0.68 J	1.1 J	0.60 J	< 0.32	NA	16	890
2	North Power Pole	East	North Power Pole	North Power Pole	AECOM	7/24/2019	N	17 J	6.0 J	5.1 JI	< 0.95	< 1.5	< 1.8	NA	55	5600
3	Trans Sump	East	Trans Sump	Trans Sump	AECOM	10/28/2019	N	< 39	3.8	1.6 J	< 3.7	< 0.28	< 0.34	< 0.82	29	9300
4	Trans Sump	East	Trans Sump	Trans Sump	AECOM	5/21/2020	N	< 92	7.6	2.7	< 8.7	< 0.27	0.43 J	< 0.78	55	12000
5	Trans Sump	East	Trans Sump	Trans Sump	AECOM	10/2/2020	N	< 8.8	7.5 J	< 5.9	< 13	< 14	< 19	< 16	19	9500
6	ETW-1	East	ETW-1	ETW-1	AECOM	10/28/2019	N	< 9.7	1.9	1.4 J	< 0.92	< 0.28	< 0.34	< 0.82	30	4000
7	MW-1	East	MW-1	MW-1	AECOM	5/21/2020	N	< 19	1.7 J	1.3 J	< 1.8	< 0.28	0.34 J	< 0.82	14	1300
8	MW-1	East	MW-1 FD	MW-1 FD	AECOM	5/21/2020	FD	< 19	2.0	1.1 J	< 1.8	< 0.27	0.43 J	< 0.80	15	1200
9	MW-1	East	MW-1	MW-1	AECOM	8/20/2020	N	< 2.0	1.6 J	1.1 J	< 0.19	< 0.28	< 0.34	< 0.83	15	4500
10	Storm Ceptor	East	Catch Basin	Catch Basin	NSEC	7/19/2019	N	19	0.43 J	0.35 J	1.5 J	< 0.26	< 0.32	NA	8.8	280
11	Storm Ceptor	East	Storm Ceptor	Storm Ceptor	AECOM	7/25/2019	N	< 20	0.77 J	0.82 J	< 1.9	< 0.29	< 0.35	NA	12	570
12	Storm Ceptor	East	Storm Ceptor	Storm Ceptor	AECOM	10/28/2019	N	3.2 J	0.74 J	0.48 J	0.35 J	< 0.28	1.7 J	0.89 J	13	710
13	Storm Ceptor	East	Storm Ceptor	Storm Ceptor	AECOM	8/20/2020	N	< 20	< 2.8	< 3.2	< 1.9	< 3.0	< 3.6	< 8.7	< 200	980
14	LVN-6	East	LW1	LW1	SCS	7/19/2019	N	< 17	< 2.3	< 2.7	< 1.6	< 2.5	< 3.0	NA	< 16	270
15	LVN-6	East	LW (Basin)	LW (Basin)	NSEC	7/19/2019	N	2.5 J	< 0.25	< 0.28	0.87 J	< 0.26	< 0.32	NA	4.5	100
16	LVN-6	East	LW2	LW2	SCS	7/19/2019	N	2.8 J	< 0.23	< 0.27	0.90 J	< 0.25	< 0.30	NA	0.96	110
17	LVN-6	East	LVN-6	LVN-6	AECOM	7/25/2019	N	< 2.0	0.36 J	< 0.31	< 0.19	< 0.29	< 0.35	NA	2.4	18
18	LVN-6	East	LVN-6	LVN-6	AECOM	10/28/2019	N	< 1.9	0.66 J	0.41 J	< 0.18	< 0.28	0.76 J	< 0.82	6.8	270
19	LVN-6	East	LVN-6	LVN-6	AECOM	8/20/2020	N	< 1.9	0.92 J	0.82 J	< 0.18	< 0.27	< 0.33	< 0.80	9.2	620
20	River Outlet	East	River Outlet	River Outlet	AECOM	7/25/2019	N	< 1.9	0.54 J	< 0.29	< 0.18	< 0.27	< 0.33	NA	2.9	15
21	River Outlet	East	River Outlet	River Outlet	AECOM	10/28/2019	N	< 1.9	0.47 J	< 0.30	< 0.19	< 0.28	< 0.34	< 0.83	4.0	20
22	River Outlet	East	River Outlet	River Outlet	AECOM	8/20/2020	N	< 2.0	0.34 J	< 0.30	< 0.19	< 0.28	0.51 J	< 0.83	1.7	13
50	WCB Sump	West	WCB Sump	WCB Sump	AECOM	10/28/2019	N	< 1.9	0.68 J	0.54 J	< 0.18	< 0.28	< 0.34	< 0.82	6.5	25
51	WCB Sump	West	WCB Sump Dup	WCB Sump Dup	AECOM	10/28/2019	FD	< 1.9	0.59 J	0.55 J	< 0.18	< 0.28	< 0.34	< 0.83	5.9	24
52	WCB Sump	West	WCB Sump	WCB Sump	AECOM	5/21/2020	N	< 1.9	0.57 J	0.49 J	< 0.19	< 0.28	0.51 J	< 0.83	6.2	32
53	WCB Sump	West	WCB Sump	WCB Sump	AECOM	8/20/2020	N	< 1.9	1.2 J	0.81 J	< 0.18	< 0.28	0.98 J	< 0.81	10	42
54	WCB Sump	West	WCB Sump FD	WCB Sump FD	AECOM	8/20/2020	FD	< 1.9	1.2 J	0.75 J	< 0.18	< 0.28	1.2 J	< 0.82	11	42
55	BNT-3	West	BNT-3	BNT-3	AECOM	7/25/2019	N	< 2.0	1.0 J	0.71 JI	< 0.19	< 0.29	< 0.34	NA	19	110
56	BNT-3	West	BNT-3	BNT-3	AECOM	10/28/2019	N	< 1.9	0.86 J	0.80 J	< 0.18	< 0.27	< 0.33	< 0.79	15	280
57	BNT-3	West	BNT-3	BNT-3	AECOM	8/20/2020	N	< 1.9	0.92 J	< 0.30	< 0.18	< 0.28	0.37 J	< 0.82	18	49
58	BNT-4	West	BNT-4	BNT-4	AECOM	7/25/2019	N	< 25	< 3.4	< 3.9	< 2.4	< 3.6	< 4.4	NA	26	99
59	BNT-4	West	BNT-4	BNT-4	AECOM	10/28/2019	N	< 1.9	0.56 J	0.70 J	< 0.18	< 0.28	0.34 J	< 0.82	8.4	68
60	BNT-4	West	BNT-4	BNT-4	AECOM	8/20/2020	N	< 1.9	0.56 J	< 0.29	< 0.18	< 0.27	0.89 J	< 0.80	17	48
61	BNT-8	West	Blount	Blount	NSEC	7/19/2019	N	1.7 J	0.55 J	0.90 J	0.28 J	< 0.24	< 0.29	NA	8.6	82
62	BNT-8	West	Blount Street	Blount Street	NSEC	7/19/2019	N	1.9 J	0.55 J	0.73 J	0.28 J	0.44 J	< 0.30	NA	9.3	86
63	BNT-8	West	BNT-8	BNT-8	AECOM	7/25/2019	N	< 2.0	0.74 J	0.84 J	< 0.19	< 0.30	< 0.36	NA	17	110
64	BNT-8	West	BNT-8	BNT-8	AECOM	10/28/2019	N	< 2.0	0.56 J	0.90 J	< 0.19	< 0.29	0.39 J	< 0.84	9.4	60
65	BNT-8	West	BNT-8	BNT-8	AECOM	8/20/2020	N	< 1.9	< 0.25	< 0.29	< 0.18	< 0.27	0.61 J	< 0.79	17	46
66	Blount St Outlet	West	Blount St.Outlet	Blount St.Outlet	AECOM	7/25/2019	N	< 1.9	0.60 J	0.75 J	< 0.18	< 0.28	< 0.34	NA	18	79
67	Blount St Outlet	West	Blount St.Outlet FD	Blount St.Outlet FD	AECOM	7/25/2019	FD	< 2.0	0.66 J	0.94 J	< 0.19	< 0.30	< 0.36	NA	17	92
68	Blount St Outlet	West	Blount St Outlet	Blount St Outlet	AECOM	10/28/2019	N	< 2.0	0.57 J	< 0.31	< 0.19	< 0.29	0.4 J	< 0.84	16	45
69	Blount St Outlet	West	Blount St Outlet Dup	Blount St Outlet Dup	AECOM	10/28/2019	FD	< 1.9	0.58 J	0.34 J	< 0.18	< 0.27	< 0.33	< 0.79	18	47
70	Blount St Outlet	West	Blount St. Outlet	Blount St. Outlet	AECOM	8/20/2020	N	< 1.9	0.51 J	< 0.30	< 0.18	< 0.28	0.78 J	< 0.82	17	46
71	Blount St Outlet	West	Blount St. Outlet FD	Blount St. Outlet FD	AECOM	8/20/2020	FD	< 2.0	0.38 J	< 0.31	< 0.19	< 0.29	0.42 J	< 0.85	18	47
72	Path Outlet	West	Path Outlet	Path Outlet	AECOM	7/25/2019	N	< 1.9	0.67 J	0.62 J	< 0.18	< 0.28	< 0.34	NA	22	59
73	Path Outlet	West	Path Outlet	Path Outlet	AECOM	10/28/2019	N	< 1.9	0.71 J	0.47 J	< 0.18	< 0.28	0.37 J	< 0.81	16	50
74	Path Outlet	West	Path Outlet	Path Outlet	AECOM	8/20/2020	N	< 2.0	0.61 J	< 0.30	< 0.19	< 0.28	0.88 J	< 0.83	20	50

CASE STUDIES – HUSKY REFINERY, SUPERIOR, WI

- April 26, 2018, incident occurred causing explosion at the refinery and spill of nearby asphalt tank
- Firefighting efforts included putting out fires with water and firefighting foam, some of which had intentionally added PFAS
- Run-off water entered nearby ditches, retention ponds, and nearby Newton Creek

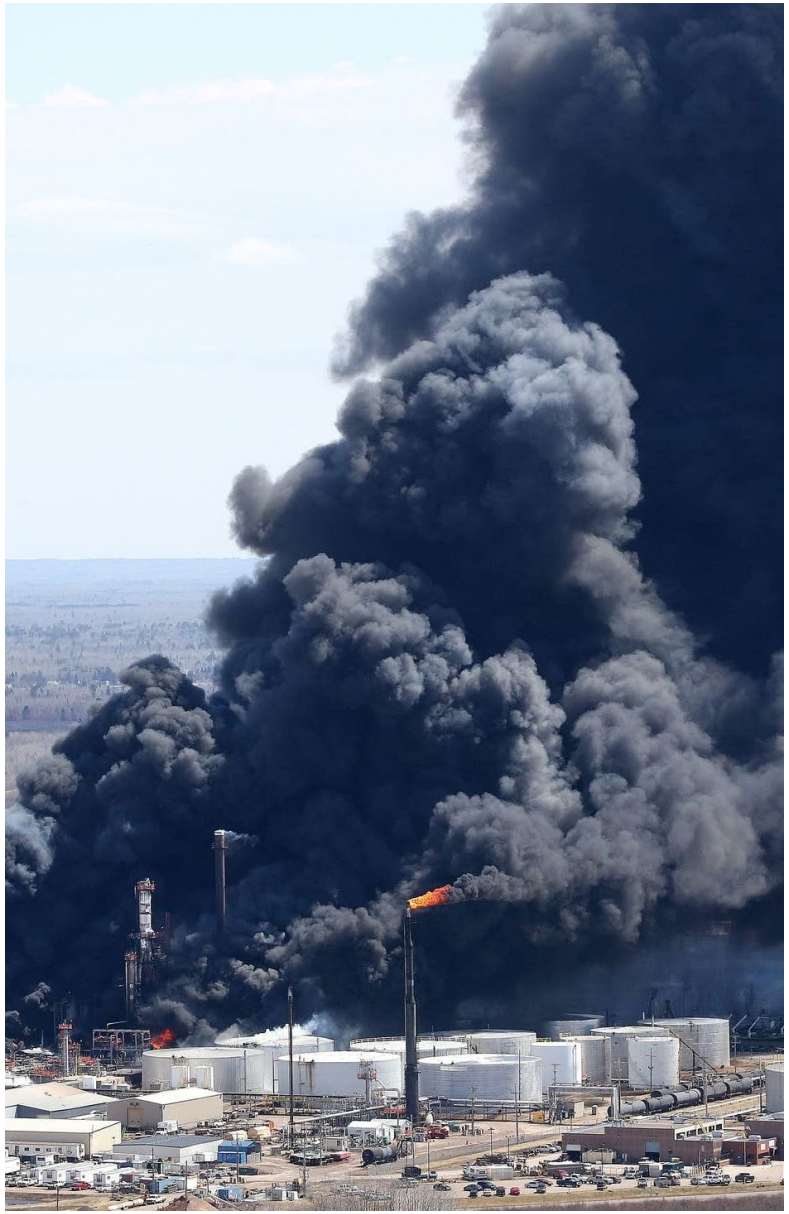


Photo:
Bob King,
Duluth News Tribune

Photo:
USEPA pres.

CASE STUDIES – HUSKY REFINERY, SUPERIOR, WI

Immediate Response

- Attempt to contain runoff onsite and to ditches
  - Closed weir at Stinson Ave. Ditch
  - Use berms, sand bags, etc. to contain material
  - 23,000,000 g water recovered
- Contain and recover material in Newton Creek
  - Monitor Newton Creek over response period
- Vac trucks used to recover material
- Recovered wastewater treated with GAC and Ion Resin treatment systems

Continued Response

- Stormwater / wastewater continue to be collected and sent to onsite wastewater treatment plant
  - Continue to be treated with GAC and Ion Resin treatment systems.
  - Treated to below 10 ppt PFOS/PFOA

Photo: DNR pres.

CASE STUDIES – HUSKY REFINERY, SUPERIOR, WI

Continued Response

- Surface water sampling began immediately the day of the fire
- Samples were collected several times a week for the first few weeks following the fire
- Initial spike in petroleum compounds and fluorinated fire fighting foam compounds that decreased fairly rapidly
- Monitoring has continued

Photos: DNR pres.

CASE STUDIES – HUSKY REFINERY, SUPERIOR, WI

Photo:
USEPA pres.

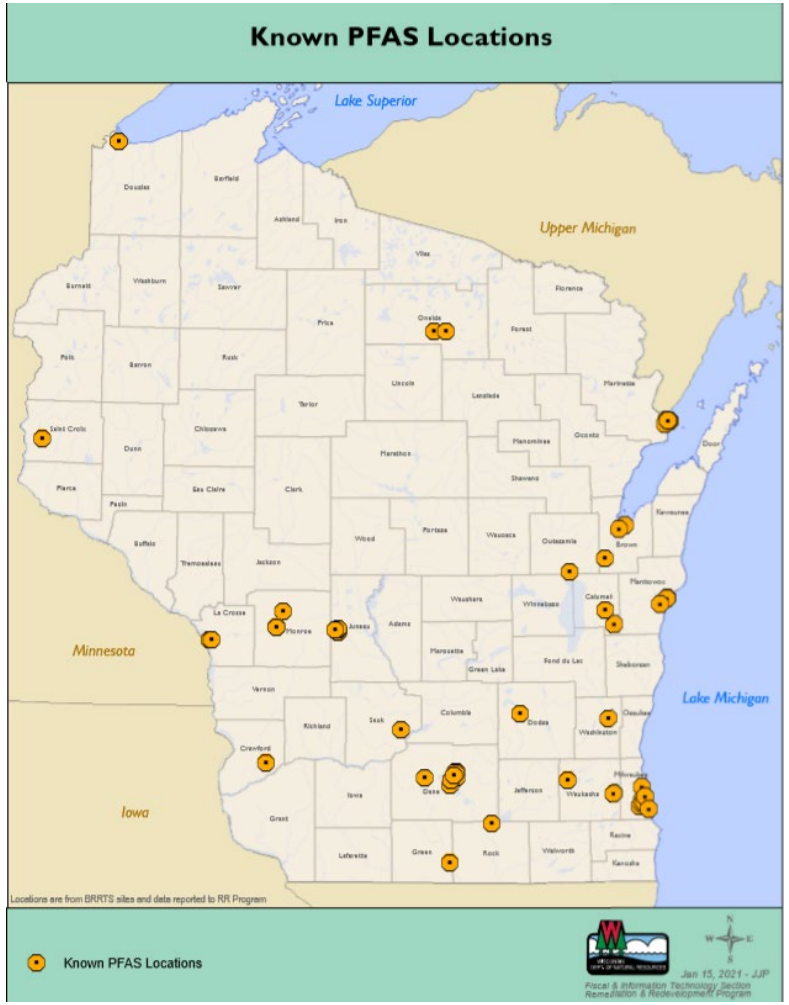
Site Update

- Transferred to Environmental Repair Case (ERP)
- Moving through NR700 process
  - Site Investigation Submitted – February 2020
    - Additional investigation needed
  - Site Investigation Work Plan Submitted – August 2020

Investigation, Remediation, and Monitoring

- Excavation of impacted soil / repair excavations
- Soil Investigation focused on impacted fire area
  - Fire location
  - Impacted gravel roadways
  - Runoff areas
- Surface water investigation and monitoring focused on key areas
  - Newton Creek
  - Retention Ponds – Firefighting Ponds

WISCONSIN DNR – PFAS SITES



	Spill	ERP
Open	~ 5	~ 45
Closed	~ 10 - 15	~ 0

- Spills
  - Mainly fire fighting response
  - Some facility suppressant malfunctions
    - Increased reporting
- Environmental Repair
  - Foam Manufacturing
  - Airports
  - National Guard Air Bases

PFAS FOAM RESTRICTIONS – SECTION 299.48 AND NR 159

2019 Wis. Act 101 was codified into Wisconsin law as Wis. Stat. § 299.48 in February 2020 and became effective on September 1, 2020. The law required that Wisconsin DNR to draft an emergency rule and subsequent permanent rule to implement the measures in Wis. Stat. § 299.48.

The law includes the following requirements:

- **Prohibits the use of PFAS-containing (fluorinated) foam, with exceptions only for its use in emergency firefighting operations or testing purposes in a facility equipped with proper treatment, containment and disposal measures.**
- A person who uses or discharges a fluorinated firefighting foam notify the DNR of the discharge as soon as practicable in an emergency situation and immediately in a testing situation, respectively.
- Anybody that possesses fluorinated firefighting foam for emergency purposes must request and retain any safety data sheets (SDS) relating to the foam and make them available to the DNR for examination after providing a notification of discharge.

PFAS FOAM RESTRICTIONS – CURRENT ISSUES

The Wisconsin legislature's Joint Committee for the Review of Administrative Rules (JCRAR) suspended the following portions of the rule during their December 16 hearing:

- References to foam contaminated materials
- **Table 1, which provided parameters for foam treatment systems**
- The "treatment" definition – "so as to immobilize, remove, or destroy the contaminant"
- References to ch. NR 706; ch. 283, Stats.; and applicable requirements in chs. NR 700 to 754

INDICATOR PARAMETERS (SUSPENDED) FOR TESTING FACILITIES

Indicator Parameter	Action Levels (ng/L)
PFBA	960
PFPeA	197

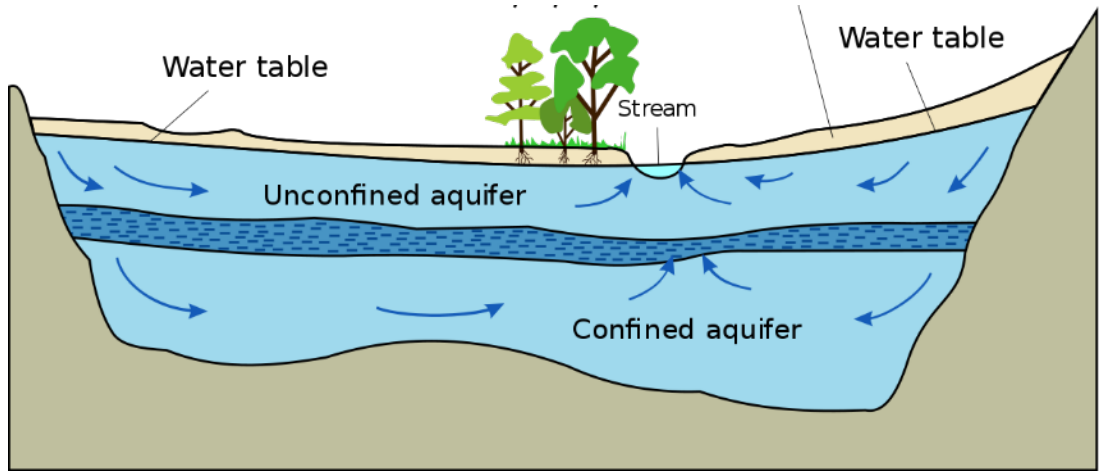
1.3 to 4.9 n/L for 4:2 FTS, 6:2 FTS, 8:2 FTS, PFBS, PFPeS, PFHxA, PFHxS, PFHpA, PFHpS, PFOA, PFOS and FOSA

FIRE DEPARTMENT COLLABORATION

- Several questions pertaining to fluorinated foam disposal, non-fluorinated foam selection, and potential state-sponsored disposal program
- Foam web page at https://dnr.wisconsin.gov/topic/Contaminants/AFFF.html
- 16 FAQs
- Poster for fire departments re: Act 101 / Wis. Stat. § 299.48 and basic BMPs
- Conducted survey of fire departments re: fluorinated foams
- Resources on fluorine-free foams and other resources
- Working on more detailed BMP document (several pages)

WISCONSIN PFAS WORK – GROUNDWATER STANDARDS

- Cycle 11 Proposed Enforcement Standards for Groundwater
  - Total of 18 PFAS compounds (Cycle 10 = PFOA + PFOS)
  - Sum of PFOA, PFOS and precursers FOSA, NEtFOSA, NEtFOSAA and NEtFOSE = 20 ng/L (typical limiting factor)
  - Anticipated promulgation in Fall 2023 (Cycle 11) and/or Summer 2022 (Cycle 10 = PFOA + PFOS)

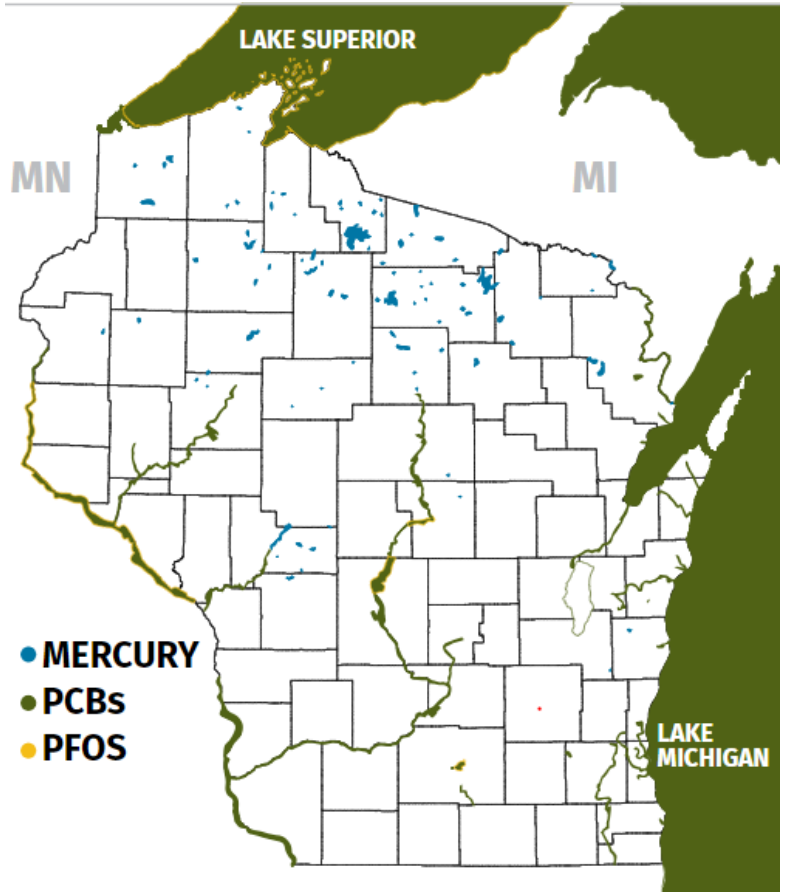


WISCONSIN DRINKING WATER & SURFACE WATER PFAS STANDARDS

- NR 809 Drinking Water Updates – combined 20 ng/L MCL for PFOA + PFOS (based upon Cycle 10). Anticipated to be effective in Summer 2022
- NR 105 Surface Water Updates
  - Numerical standards could be PFOS = 2 ng/L and PFOA = 35-45 ng/L
  - Fish consumption is limiting factor
  - As needed: categorical/technological in rule or narrative standards guidance
  - Expected promulgation Summer 2022
  - Presentation from August 2020

CONSUMPTION ADVISORIES

- Fish: Smelt in Lake Superior – 1x/month
- Fish: Starkweather Creek and Lake Monona (Madison) – generally 1x/month; several species
- Fish: Biron Flowage (WI River, white bass 1x/month) and Petenwell Flowage (WI River, bluegill 1x/week)
- Mississippi River (approximately Stillwater to LaCrosse) – 1x/week for several species
- Source: Choose Wisely Fish Heath Guide
- Deer Liver in 5-mile area surrounding JCI/Tyco site
- More sampling ongoing (samples being submitted from 2020)



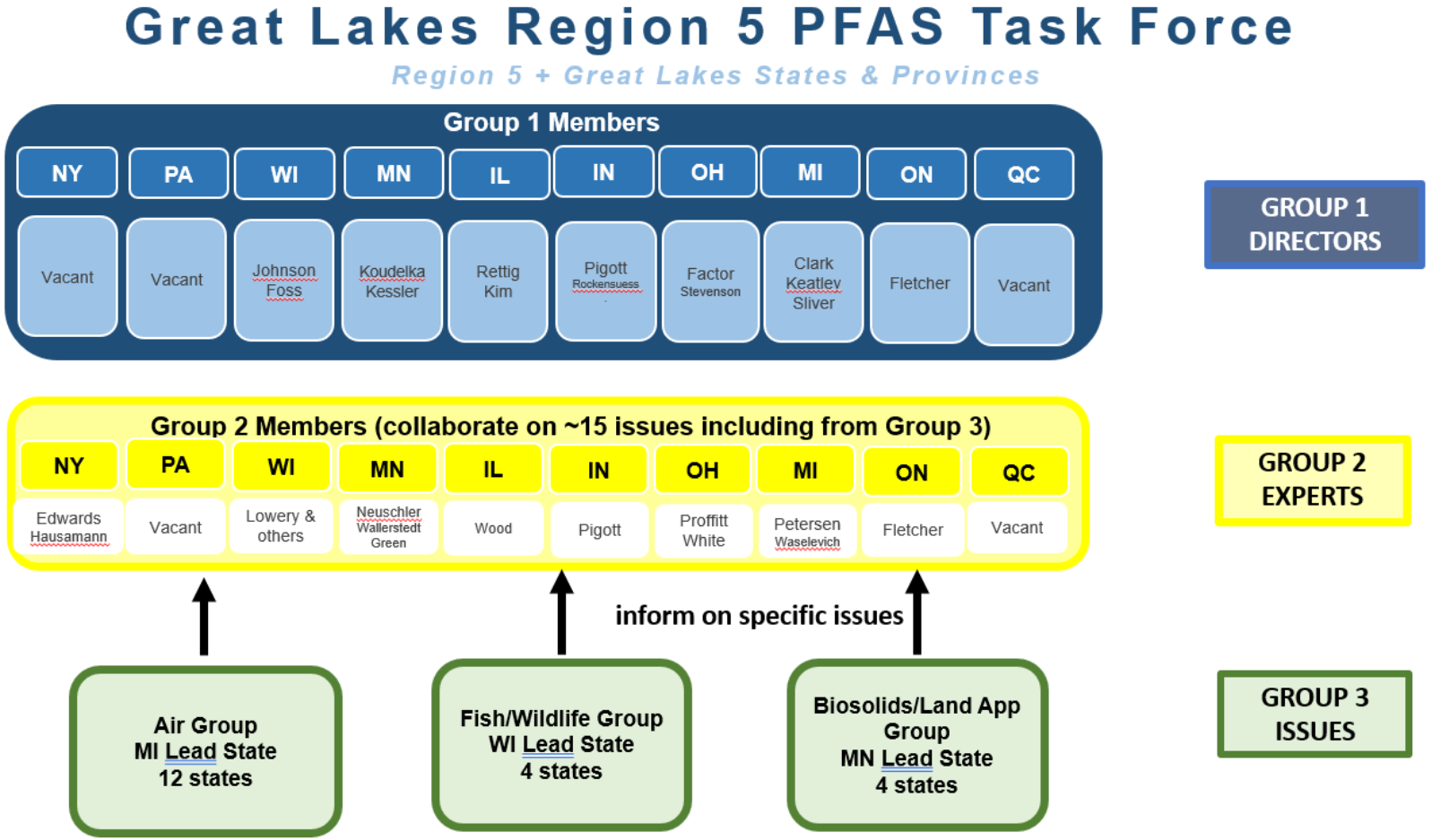
WISCONSIN PFAS ACTION PLAN

- Wisconsin PFAS Action Council (WISPAC) – 17 state agencies involved + DNR with public input
- WisPAC Action Plan released December 2020
- 25 proposed actions categorized into 8 themes
- Guiding principles = environmental justice, health equity, innovation and pollution prevention
- Highlights include more public drinking well sampling, new formal partnerships, foam collection & disposal program and grant programs for local governments to address potential and actual PFAS contamination
- Action Plan is a starting point. Most actions require additional legislation and/or funding
- Forming policy and technical advisory groups and other subcommittees (e.g. health equity, research, outreach)

GREAT LAKES PFAS TASK FORCE

GREAT LAKES ST. LAWRENCE GOVERNORS & PREMIERS

Initiated by Great Lakes St. Lawrence Governors & Premiers in June 2019.



DNR SPILL RESONSE AND PFAS CONTACTS

- Issac Ross, DNR Spill Response Team Leader, 414-750-7140, issac.ross@Wisconsin.gov
- Jason Lowery, DNR Office of Emerging Contaminants Technical Operations Coordinator, 608-228-4737, jason.lowery@Wisconsin.gov