

# Planning Lunches at Noon (PLAN) Monthly Webinar Series

Welcome to the December 2024 PLAN Webinar!

“Addressing PFAS in Conditional Use Permits:  
NHDES Zoning Guidance to Protect Groundwater”

Check out OPD’s [Planning and Zoning Training webpage](#) for:

- Slides and recording of past PLAN Webinars and conferences
- Planning Board and Zoning Board 101 slides and recordings
- Planning Board and Zoning Board Handbooks
- Optional Tests and Certificates

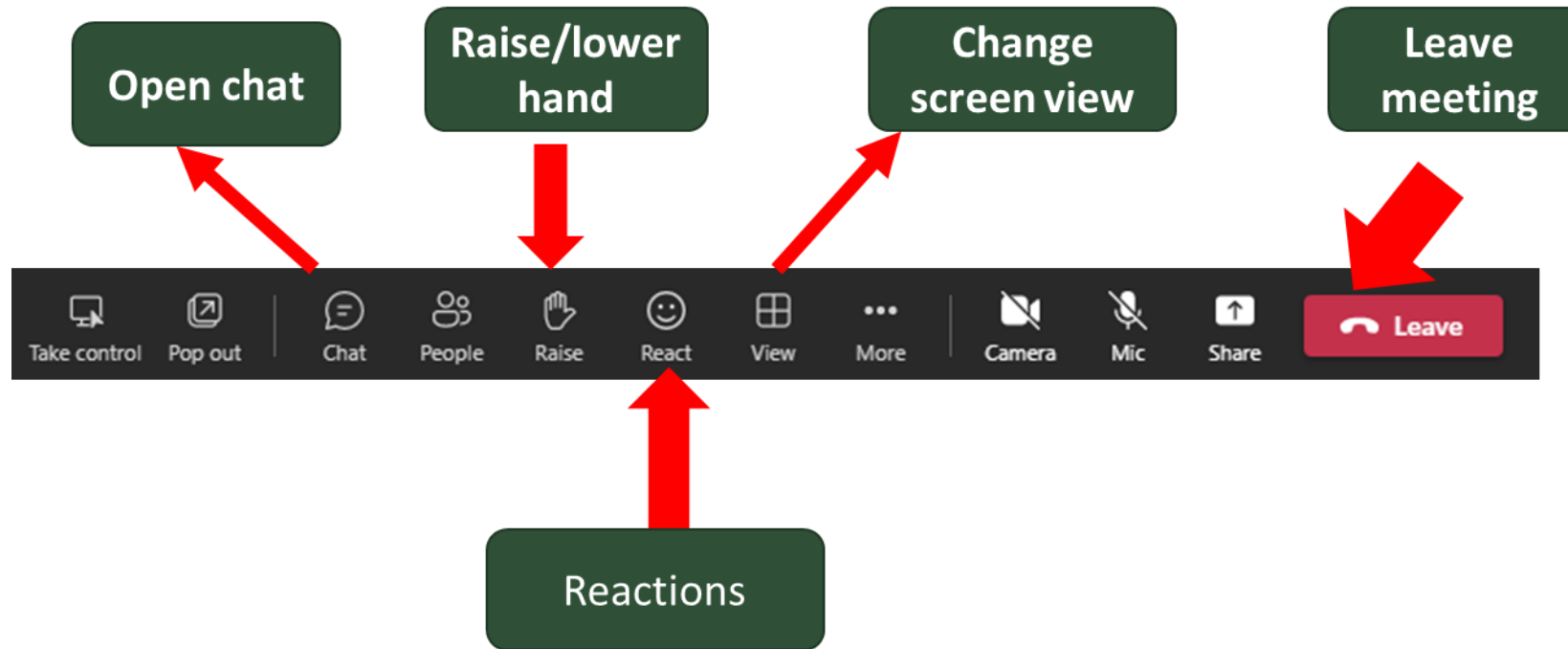
# Addressing PFAS in Conditional Use Permits: NHDES Zoning Guidance to Protect Groundwater

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Source Water Protection Program  
Supervisor, NH Department of Environmental Services

December 19, 2024

# How To Participate

- ▶ For questions, type them into the chat box
- ▶ We will do our best to answer all questions by the end of the webinar





NH DEPT. OF BUSINESS AND  
ECONOMIC AFFAIRS  
OPD PLANNING DIVISION

PLANNING WEBINAR  
12/19/24

*ADDRESSING PFAS IN CONDITIONAL USE PERMITS:  
NHDES ZONING GUIDANCE TO PROTECT  
GROUNDWATER*

PIERCE RIGROD, SOURCE WATER PROTECTION PROGRAM,  
SUPERVISOR, NHDES

## Outline for Today

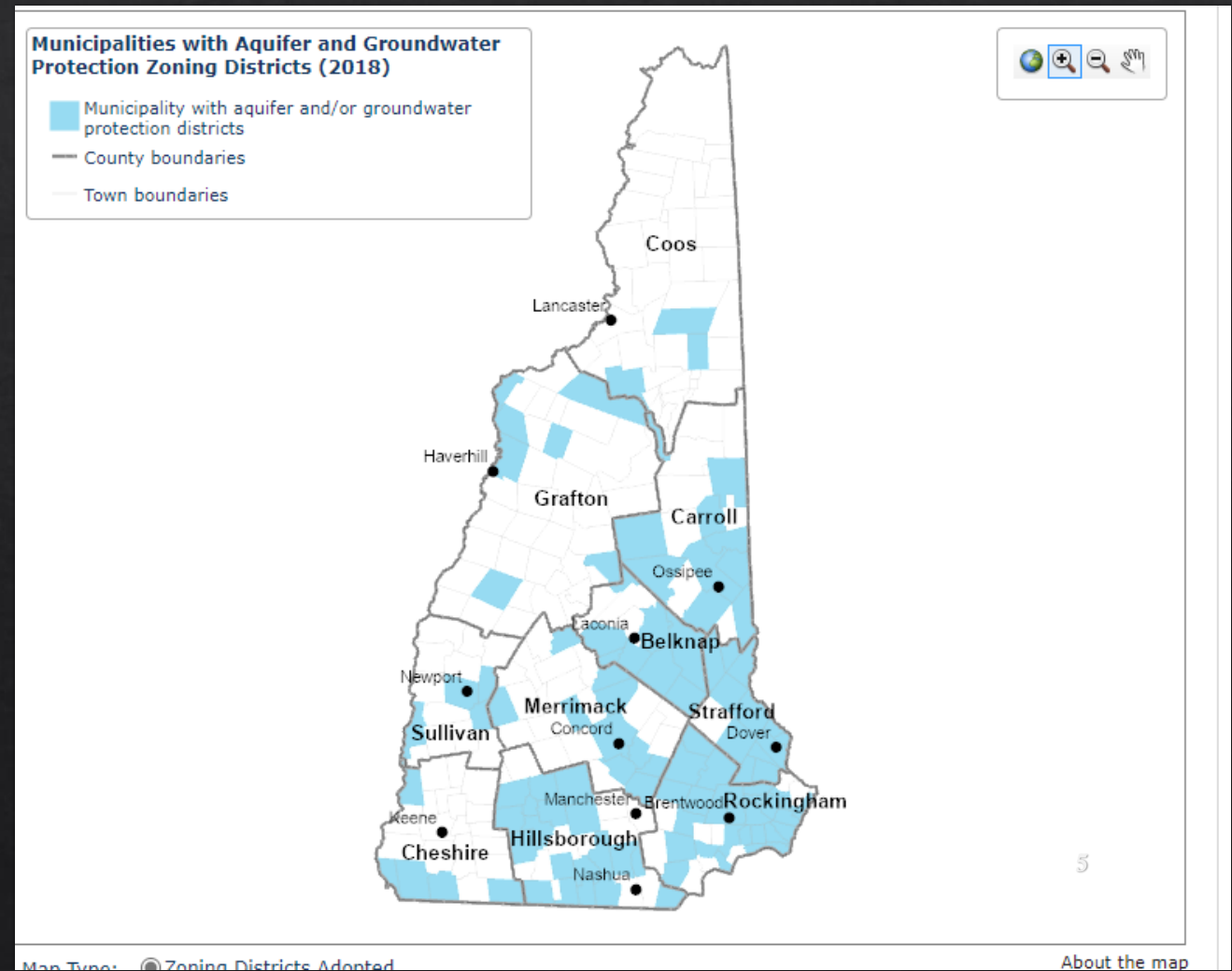
- PFAS Experience
- Policy Shifts to reduce PFAS
- Model Updates involving PFAS

Protection Ordinance

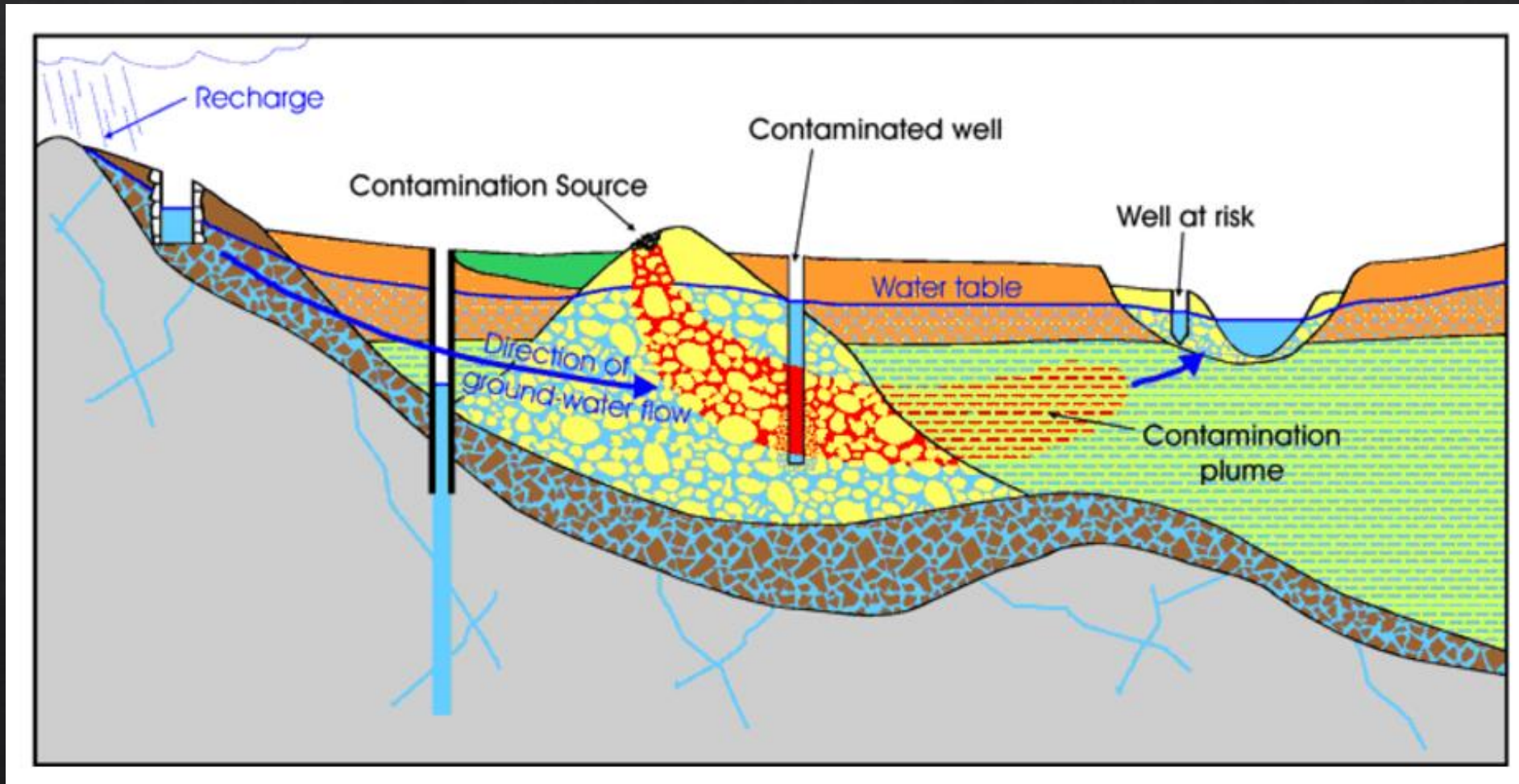


# What is NHDES's “model” groundwater protection ordinance?

- ◆ Developed for municipal planners.
- ◆ Contains template zoning language, statutory authorities and state rule references.
- ◆ Focuses protections in “stratified drinking aquifers” and “wellhead protection areas (WHPAs) for community wells.
- ◆ Many of the 114 municipalities having groundwater/aquifer zoning districts have used this model.



It's a Source Water Protection Tool -  
*Keeping "stuff" out of drinking water resources.*







FIREFIGHTING  
FOAMS



MICROWAVE  
POPCORN BAGS



WATER RESISTANT  
CLOTHING



PAINT



STAIN RESISTANT  
PRODUCT



PERSONAL  
CARE PRODUCTS

# PFAS IN PRODUCTS



COSMETICS

Per- and polyfluoroalkyl substances (PFAS) also known as perfluorinated chemicals or PFCs, are synthetic, man-made chemicals that include more than 4,000 individual compounds.



NON-STICK  
COOKWARE



FAST FOOD  
PACKAGING



STAIN RESISTANT  
FURNITURE



PHOTOGRAPHY



PESTICIDES

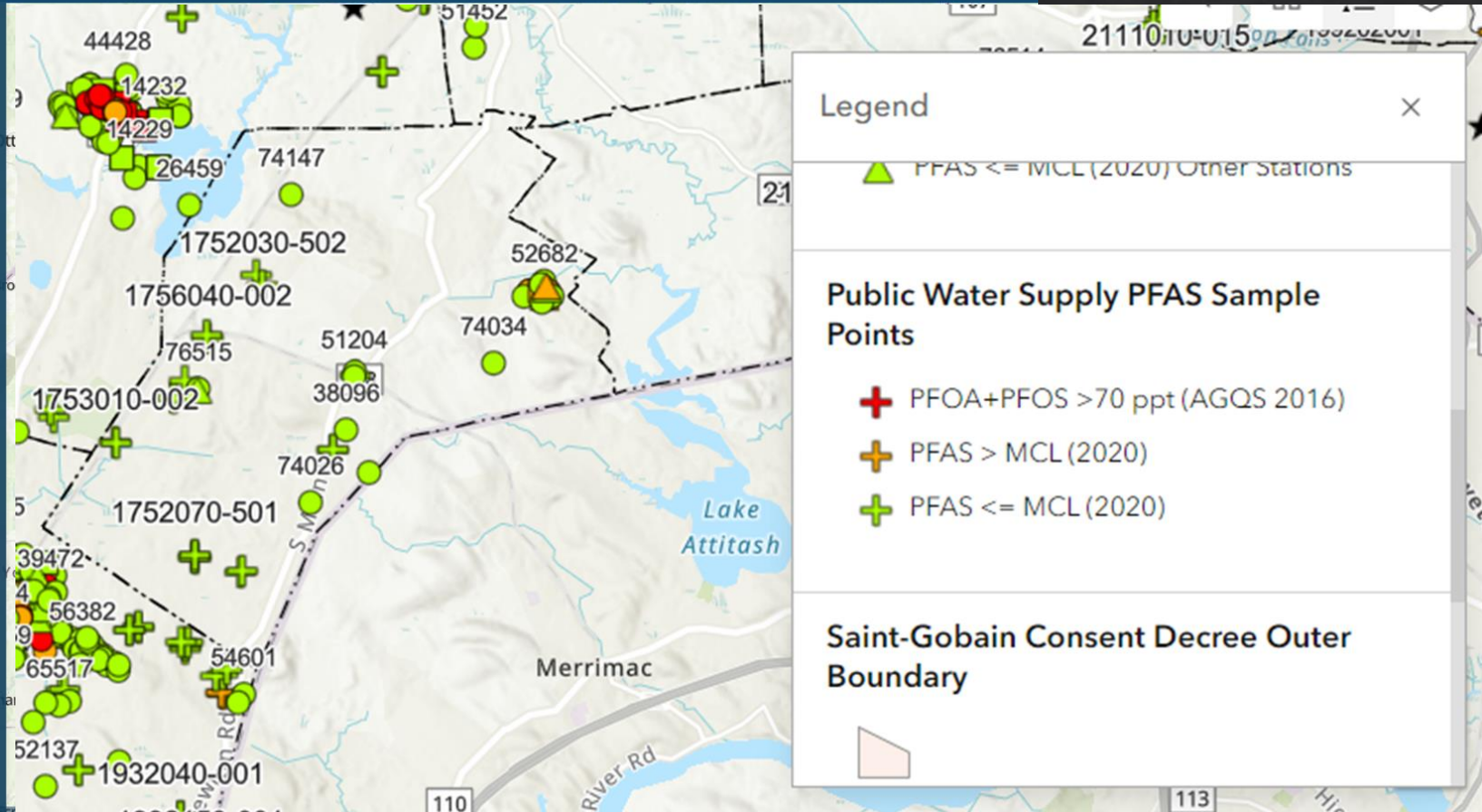
# However...

## (>12,000 wells; 27% exceed Health-Based Standards

### PFAS Sampling Dashboard

This interactive map displays PFAS water quality data that exist in the NHDES Drinking Water Database and the Environmental Monitoring Database (EMD), which includes NHDES samples as well as those submitted from external entities. A user can look up information by EMD station, public water supply source and site screening location. To date, 12,288 wells have been sampled on at least one occasion.

Of those wells tested, 3,369, or 27%, exceed the New Hampshire MCLs for PFOA and/or PFOS (see





# Policy Changes are in Motion...

HB 1649-FN

- ◆ Federal Action (EPA's strategic roadmap); Toxic Substances Control Act
- ◆ State Action – NH bans the sale of certain products with intentionally added PFAS; groundwater; DW quality standards.
- ◆ Local review of potential PFAS releases?

- (1) Carpets or rugs
- (2) Cosmetics
- (3) Fabric treatments
- (4) Feminine hygiene products
- (5) Fluorine-treated containers
- (6) Food packaging and containers
- (7) Juvenile products
- (8) Personal protective equipment
- (9) Dental floss
- (10) Upholstered furniture.

# “There are unknown unknowns” (PFAS)

Here’s a few...

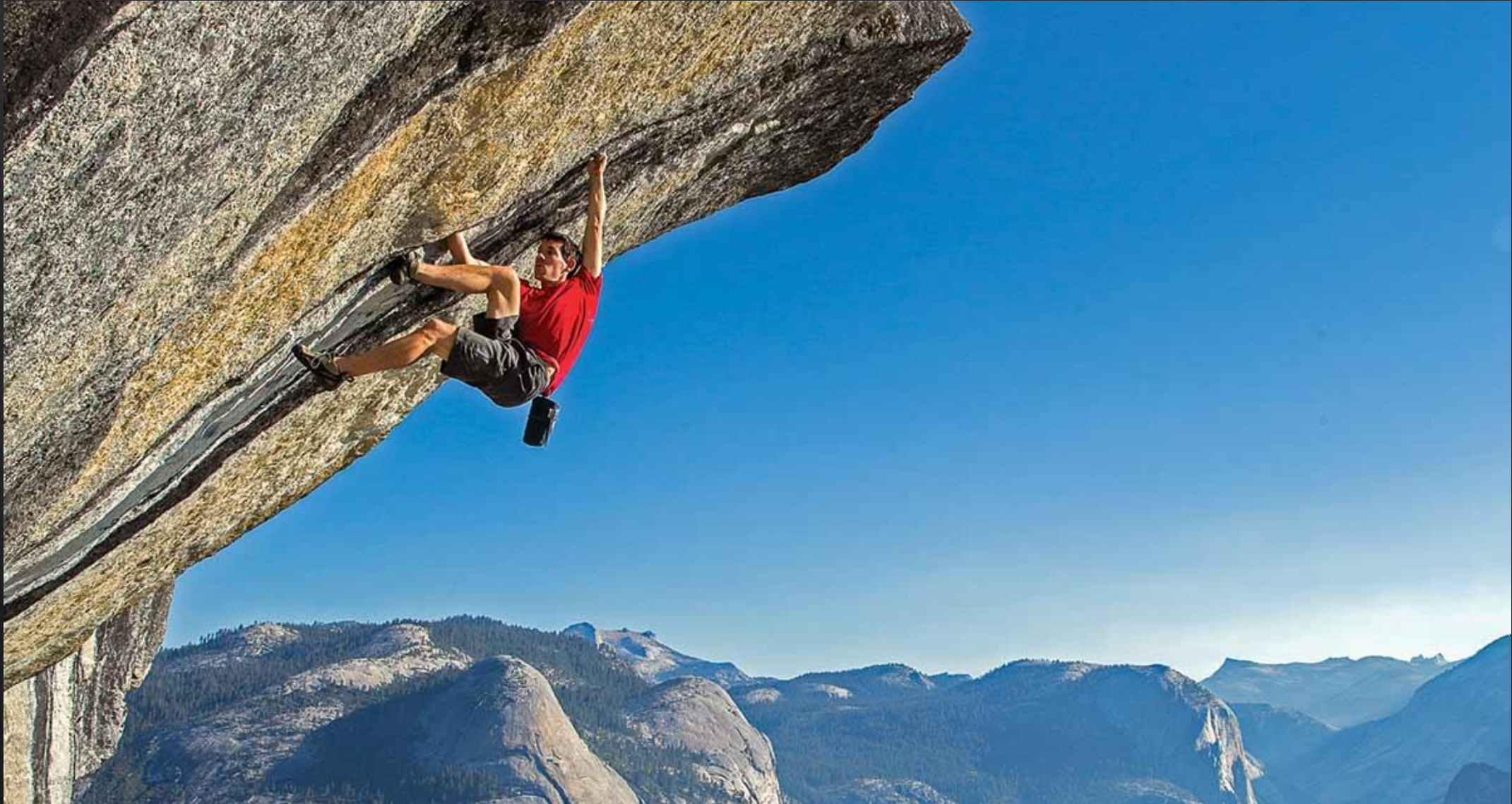
- ❑ The full universe of PFAS (>9,000 compounds)?
- ❑ How do they transform in the environment? (precursors, long to short chain compounds)
- ❑ What are the health implications based on exposure?



**“More recently developed PFAS are poorly characterized, and some novel compounds even lack defined chemical structures, much less know toxicological endpoints.” National Institute of Health (NIH, online)**



# The PFAS Challenge...





# The Bar for Contamination of Groundwater: Ambient Groundwater Quality Standards

Table 600-1  
 AMBIENT GROUNDWATER QUALITY STANDARDS

Chemical Name	CAS No.	AGQS μg/L (ppb)
Perfluorohexane sulfonic acid (PFHxS), total of all isomers	355-46-4	0.018
Perfluorononanoic acid (PFNA), total of all	375-95-1	0.011
Perfluorooctane sulfonic acid (PFOS), total of all isomers	1763-23-1	0.015
Perfluorooctanoic Acid (PFOA), total of all isomers	335-67-1	0.012

PPT


18

11

15

12

# The Higher Bar: National Drinking Water Standards for PFAS

- **4.0** parts per trillion for PFOA and PFOS
  - **10** parts per trillion for PFNA, PFHxS, and HFPO-DA (GenX Chemicals)
  - Public water systems must meet these standards.
- 
- The bottom half of the slide features a dark blue background with several concentric white circles of varying sizes, resembling ripples on water, positioned in the lower right and bottom center areas.

# Awareness of Major Sources PFAS Releases to the Environment

Products containing PFAS are used in a variety of domestic, commercial, institutional and industrial settings. Groundwater contamination has been associated with certain land use activities and the following activities are considered “major sources:”

- Industrial facilities that produce PFAS or process PFAS, or facilities that use PFAS chemicals or products in manufacturing or other activities.
- Areas where fluorine-containing Class B firefighting foams are stored, used or released.
- Waste management facilities, such as landfills.
- Domestic and non-domestic wastewater disposal areas.
- Wastewater treatment residuals and areas of biosolids production and application.



# Industries Using PFAS

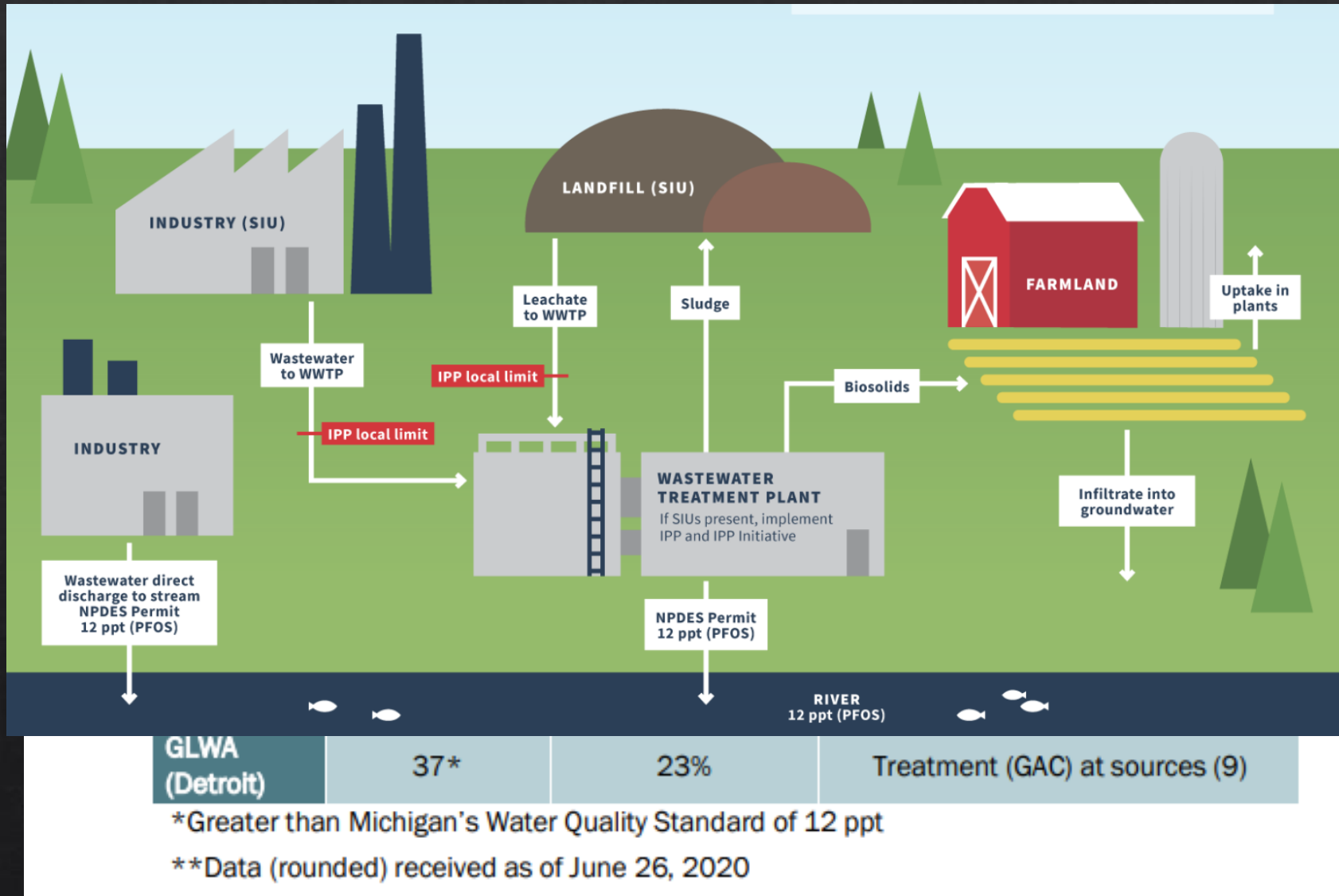


## APPENDIX I: GENERAL INDUSTRIAL USES AND APPLICATIONS INVOLVING PFAS (IRTC, 2022)

Note: Information presented in this table captures potential instances of use but is not intended to indicate universal use nor suggest that every land use proposal involving these industries/applications presents a high-risk for groundwater contamination. In addition, the table is not exhaustive in terms of PFAS use in various industries.

Industry/Application	PFAS Type	Documented Use and Examples
Aviation and Aerospace	Polymer	Mechanical components made of fluoropolymers (such as PTFE and PFA tubing, piping, seals, gaskets, cables and insulators)
	<u>Nonpolymers</u>	Hydraulic fluid additives made from PFSA salts (such as PFOS at about 0.1%) to prevent evaporation, fires and corrosion
Automotive	Polymer	Mechanical components made of fluoropolymers, including wiring and cable, fuel delivery tubing, seals, bearings, gaskets and lubricants and some polymer coatings on carpets
	<u>Nonpolymers</u>	Surface treatment for textiles, upholsteries, carpets, leather and exterior surfaces
Biocides (Herbicides and Pesticides)	Polymer	None reported
	<u>Nonpolymers</u>	Active ingredients such as short-chain sulfonamides in plant growth regulators and herbicides, and <u>EtFOSA (sulfluramid)</u> in ant and termite baits; inert enhancing ingredients in pesticides; PFPAs and <u>PFPiAs</u> as anti-foaming agents in solutions
Building and Construction	Polymer	Fluoropolymer membranes and coatings (such as PTFE, PVDF and/or <u>side-chain</u> fluorinated polymers) in architectural materials (like fabrics, roofing membranes, metals, stone, tiles, concrete, <u>radomes</u> ); adhesives,

# Minimization Plans and PFAS (hold this thought)



## Pollutant Minimization Plans for Wastewater...

- Identify industrial sources
- Require source reduction
- Monitor compliance

# Wisconsin PFAS Action Plan

## Issue/Problem Statement

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*Brief summary of issue, concerns, etc.*

Provide assistance for Local Government Units (LGUs) to develop a PFAS Pollutant Minimization Program (PMP).

- Standardized industrial user survey
- Information on products for informed public purchasing
- Model ordinances and state enforcement support

[Wisconsin PFAS Action Plan: Appendix D - Local Government Advisory Group Recommendations](#)



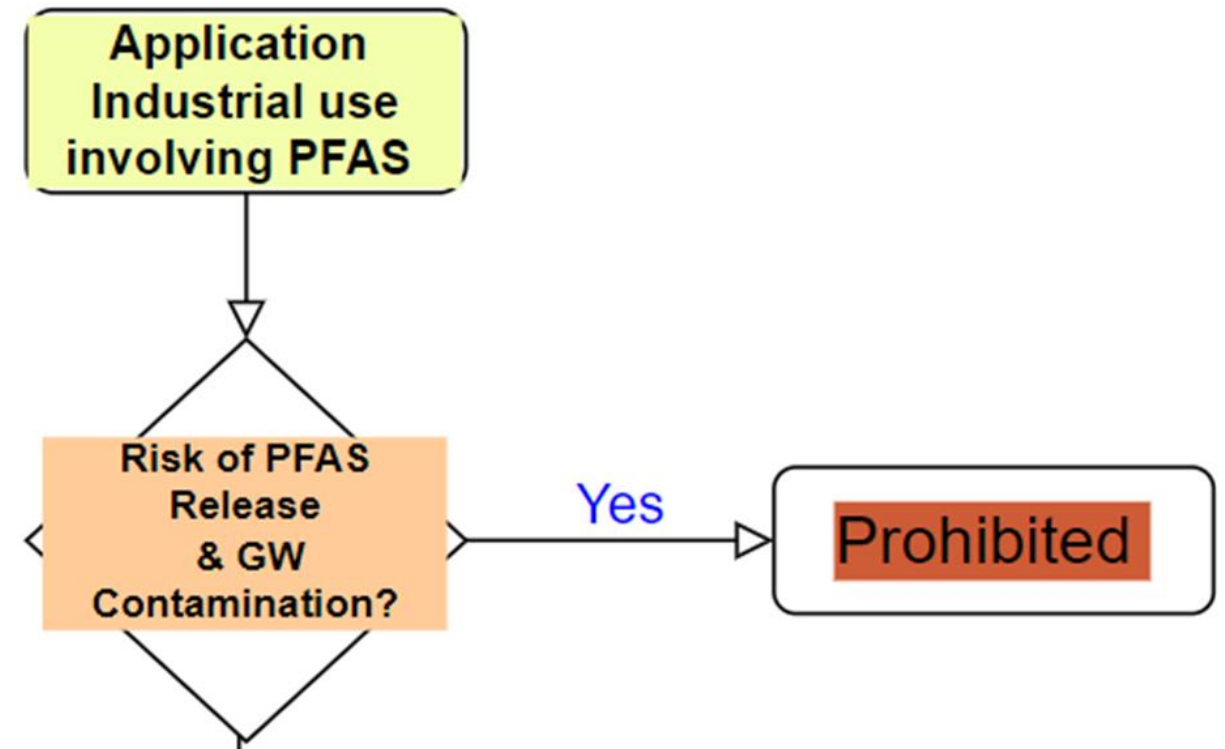
# NHDES Model Zoning

## Prohibited Uses, Section 9, H

H. Industrial facilities that produce PFAS, process PFAS, or facilities that use PFAS compounds in manufacturing that present a risk of release and groundwater contamination.

*Risk of release likely to cause groundwater contamination.*

RSA 72:80(c) "Industrial uses" shall include all manufacturing, production, assembling, warehousing, or processing of goods or materials for sale or distribution, research and development activities, or processing of waste materials.

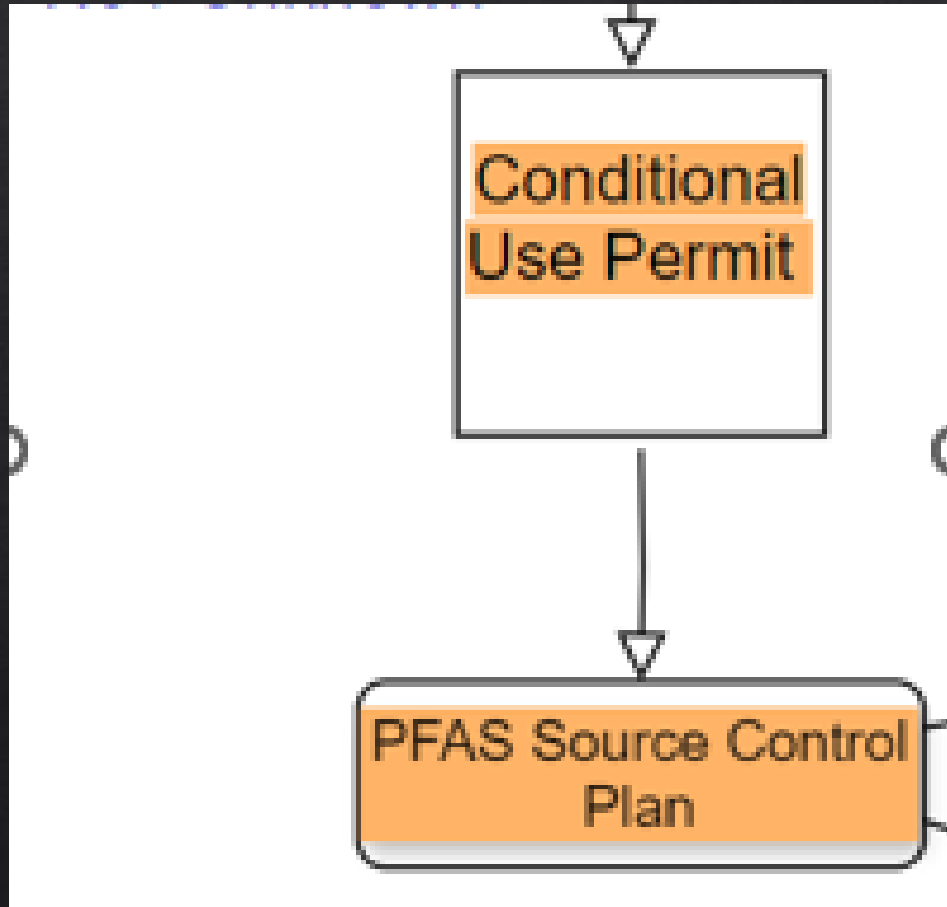


No or Unknown  
Conditional Use Permit



# Conditional Use Process

PFAS risk with an industrial use?



Example: New industrial use that makes food packaging w/ PFAS

# Conditional Use Permits, Section 10(A),

## 10. CONDITIONAL USES

The Planning Board may grant a Conditional Use Permit for a use which is otherwise permitted in the underlying district should it find the following:

- A. Industrial uses that control the potential release of PFAS that may contaminant groundwater or drinking water. |

- What controls are effective? (expert Q)

*RSA 674:21(II) states that an innovative land use control ordinance may provide for the granting of conditional or special use permits by any of several different municipal authorities, including planning boards.*

*See Appendix I, General Industrial Uses and Applications that Use PFAS for a listing of categories of industry that may use PFAS.*

*See Appendix H, Supplemental Submittal Requirements for Industrial Uses Involving PFAS, provides a checklist of items to consider when issuing a conditional use permit. Board decisions for conditional permits should be based on technical details presented by applicants in conjunction with third-party consultants, as necessary. [See Trustees of Dartmouth College vs. Town of Hanover \(2018\)](#)*

Supplemental Resources



# Objective Board Decisions

- ◆ The petitioner is responsible to provide the Board with evidence sufficient for it to make a decision. *Summa Humma Enters. v. Town of Tilton*, 151 N.H. 75, 79 (2004)
- ◆ A board is entitled to rely in part on its own judgment and experience but may not deny approval on an ad hoc basis because of vague concerns. • *Derry Senior Development, LLC v. Town of Derry* , 157 N.H. 441 (2008)

# NHDES Model Zoning Ordinance: Appendix H, Supplemental Submittal Requirements for Industrial Uses Involving PFAS

## Checklist for Conditional uses (PFAS)

PFAS? (chem inventory)

PFAS Substitutions?

Process Controls?

Discharge controls?



**PFAS Source Control Plan**  
(guided by checklist)

Potential PFAS Activity	Description of PFAS Reduction and Controls	Information Provided (Yes   No   NA)
1. Chemical Inventory (all products to be used on-site including those that may contain PFAS)	Provided a list of all products and PFAS compounds within those products stored and/or used or may be potentially discharged. Note, most product labels will not indicate specific PFAS compounds, some compounds containing PFAS may be proprietary, and certain PFAS(s) may not have methods to detect them. Confirmation of chemical content based on correspondence with the product manufacturer is acceptable as part of a “good faith” effort by the applicant.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
2. PFAS Product Substitution	Listed all product substitutions proposed to replace products with PFAS compounds. Applicants must propose all feasible substitutions. <sup>13</sup> Applicants must provide published third-party reviews of products to confirm the environmental and health safety of substitutions.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
3. Storage and Containment of Chemicals Containing PFAS	Provided a technical/engineered plan and details for physical storage and containment systems, appropriate to the storage and use.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA



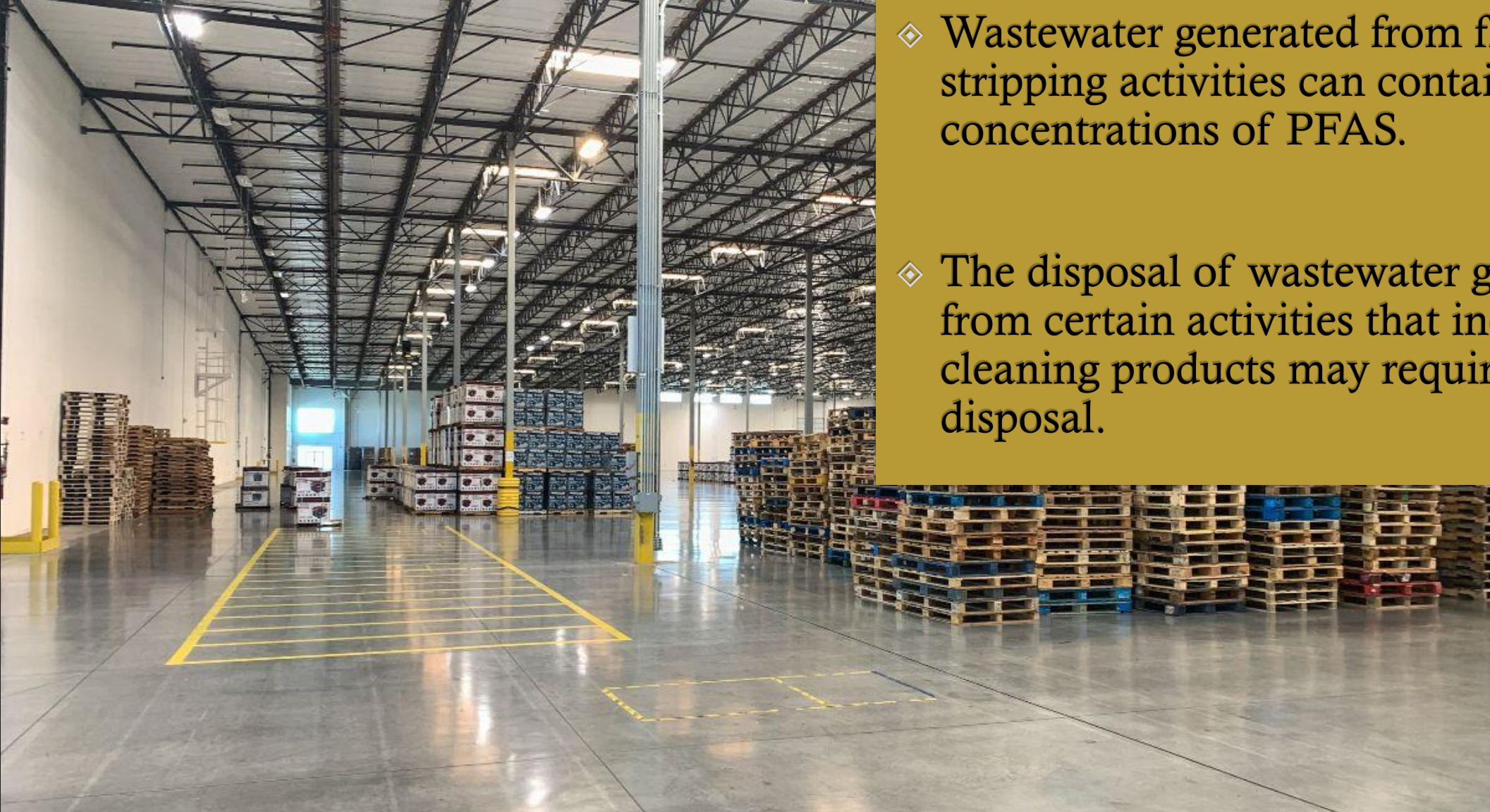
# PFAS Source Control Plan (Checklist) Appendix H

<p>4. Outdoor use(s) or applications that involve products containing PFAS</p>	<p>Described any activities involving the spreading, spraying or other outdoor use of products containing PFAS and description of source control measures.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>5. Process Flow with respect to the use of PFAS in manufacturing processes</p>	<p>Described all processes (production, sealing, etc.) that involve PFAS, frequency and concentration of potential discharges and internal controls and monitoring of air, waste and/or water discharges within a manufacturing context.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>6. Identify potential release(s) and the most likely media</p>	<p>Described how PFAS may be released, the estimated frequency, volume/concentration to air, water or waste.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>7. Collection and cleaning systems and discharge points that may contain PFAS</p>	<p>Described collection system or production system cleaning (rinse water) or replacement, such as cleaning pipes, tanks, racks, vats, air handling equipment or product storage and handling areas</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>

# PFAS Source Control Plan (Checklist) Appendix H

<p>8. Use of all external feedstocks and sources (e.g., recycled feedstocks)</p>	<p>Listed waste-derived feedstocks containing PFAS and controls.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>9. Elimination/isolation procedures of impacted and non-impacted flows</p>	<p>Described process to separate discharges or reduce flows that may require treatment to remove PFAS. Include all interior and exterior (outside flows).</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>10. PFAS Treatment (if applicable)</p>	<p>Indicated the treatment technology and specifications for PFAS treatment or removal.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>11. Authorized discharge to a public wastewater treatment for sewer flows or removal by third-party authorized agent</p>	<p>Provided an approval granted for the determined PFAS concentration and flow to be discharged to a public sewer, or plan detail showing holding tank and tank service vendor. Note, acceptance by a permitted wastewater treatment plant would be required from the pre-treatment coordinator at the facility.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>
<p>12. Facility &amp; Site monitoring activities (recurring) for potential fugitive releases</p>	<p>Described the monitoring that will be conducted, lab(s) and analytical methods involved, frequency and reporting cycle.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</p>

# Septic Systems, Wastewater and PFAS and discharges



Ex. Floor strippers, polishes and waxes

- ❖ Wastewater generated from floor stripping activities can contain high concentrations of PFAS.
- ❖ The disposal of wastewater generated from certain activities that include cleaning products may require off-site disposal.



# NHDES Model Groundwater Protection Zoning, Section 6

## Performance Standards (cleaning and maintenance)

### Model Language

### Supporting Notes

L. Any industrial use or activity having the potential to release PFAS to the environment, including related activities associated with normal cleaning or maintenance, must develop a source control plan per VI B(2) of this section. A source control plan will include applicable information outlined in the *Supplemental Submittal Requirements for industrial Uses Involving PFAS*.

*Certain high-risk categories of land use that use PFAS are listed as prohibited in Article 9, Prohibited Uses. Other industries that may present a risk of release are listed in Appendix I General Industrial Uses and Applications Involving PFAS for information about uses known to use or generate PFAS compounds.*

*See Appendix H Supplemental Submittal Requirements for Industrial Uses Involving PFAS, contains a checklist for applicants to develop a source control plan as part of a Conditional Use Permit.*

# Opportunities for Safer Choices (USEPA)



## Find Certified Products

- [Browse Safer Choice-Certified Products](#)
- [Browse DfE-Certified Disinfectants](#)

## Safer Chemical Ingredients List

- [Safer Chemical Ingredients List \(SCIL\)](#)
- [How to List on SCIL](#)

Note: Neither EPA or most other NGOs require product testing in a lab but rely on full product ingredient disclosures

# Product Substitution



CASE STUDY | JUNE 2023

**Transene Company Eliminates its  
Use of PFAS and Saves Money**



# Appendix J, PFAS Consulting Services

## NHDES Survey Monkey Survey



**1. Has your firm designed/evaluated/tested PFAS emission controls that protect air, water, or waste streams?**

Yes

No

**2. Has your firm been involved in preparing state permits to control PFAS releases to air, water, or through the waste stream?**

Yes

No

**3. Does your firm offer services to recommend reductions in toxic substances? (e.g. safer ingredients)**

Yes

No

### APPENDIX J: PFAS CONTROL CONSULTING SERVICES

Disclaimer: The following list of companies providing third-party services involving the control or reduction of PFAS is provided only as an informational resource for municipal boards and does not constitute an endorsement of the company or its services by NHDES. Municipalities seeking third-party services should confirm the qualifications, nature and extent of services provided by the consultant. Companies listed and the information below were compiled from NHDES survey responses from consulting companies received in the fall of 2024.

# Special Thanks to:

*Valuable comments to update this document were provided by the following individuals:*

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*Stephen C. Buckley, Esq, Legal Services Counsel, NH Municipal Association*

*Benjamin Frost AICP, Esq. Deputy Executive Director & Chief Legal Officer, NH Housing*


*Noah Hodgetts, Principal Planner, NH Office of Planning and Development*

*Jennifer Rowan, Senior Planner, Rockingham Regional Planning Commission*

*Shanna Saunders, Executive Director, Lakes Regional Planning Commission*

*Kyle Pimental, Ast. Director     · Strafford Regional Planning Commission*

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Welcome your feedback!



## Board Motions on CUPs

◆ Example Motion: Considering the findings of fact from a third-party review of the PFAS Source Control Plan, the Board finds that there [**IS** | **IS** **NOT**] a reasonable risk of groundwater contamination associated with the proposed use, and the CUP is therefore **DENIED** / **APPROVED**.



# Resources

- [NHDES WD-24-02: Model Groundwater Protection Ordinance – revised September 2024](#)

**Q&A**

**THANK YOU**