Route 31 Sludge Disposal Site Overview

Washington Township, Warren County, NJ

Margaret Gregor & Jon Byk, On-Scene Coordinators

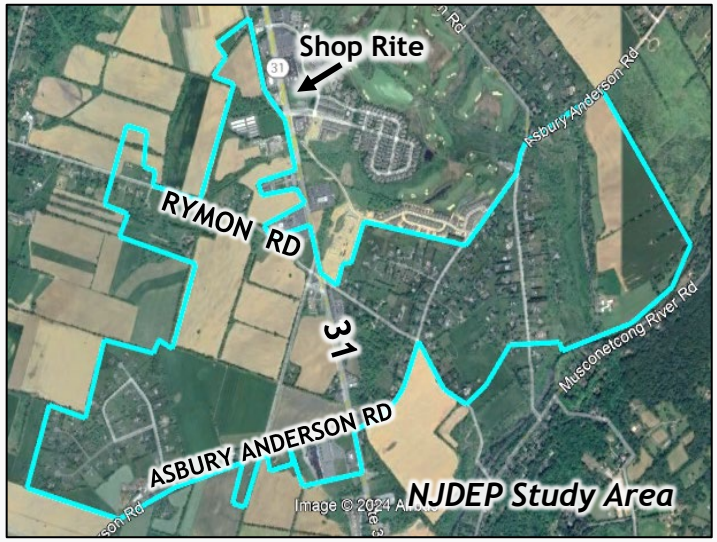
June 12, 2025 RRT Meeting

AGENDA

- Site background & history
- Ongoing removal action
- Ongoing drinking water & soil assessment
- Upcoming work & next steps
- Q&A

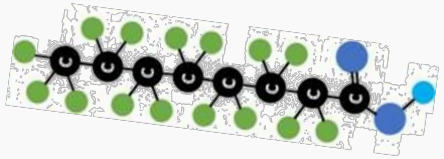
Site Background

- **2019**: annual drinking water sampling at a local business detected high levels of PFAS in groundwater
- **PFAS** = per & polyfluoroaklyl substances, or "forever chemicals," are a newly studied class of widely-used, long-lasting manmade chemicals which break down very slowly, typically used to repel oil & water
- **2020-2024**: NJ Department of Environmental Protection (DEP) investigated extent & source; found high PFAS levels in dozens of residential wells and in soil at several farm properties
  - Some treatment systems installed, waterline planned



PFAS Overview

- PFAS have unique chemical properties, are extremely toxic and generally are highly mobile
  - PFOA = perfluorooctanoic acid
  - PFOS = perfluorooctanesulfonic acid



- PFAS are newly studied “emerging contaminants” linked to harmful health effects

- EPA now has the full legal authority under the Superfund program to take action to protect people from certain PFAS from industrial sources, and recover costs
  - Currently, there are federal drinking water standards, Maximum Contaminant Levels (MCLs), for 12 PFAS
  - NJ to adopt federal MCLs by 2027; drinking water systems have until 2031

PFAS	EPA MCL (ppt*)
PFOA	4
PFOS	4
PFNA	10

**parts per trillion*

Site Background & History

- ***NJDEP Conclusion***: main PFAS source is historic sludge disposal from a *former textile facility* in Washington Borough, which was spread as fertilizer over 45+ acres of farmland ~2 miles away
- **1946-1974:** Castle Creek Fabrics & Northern Dyeing Corp. cloth dyeing, screen printing & fabric finishing

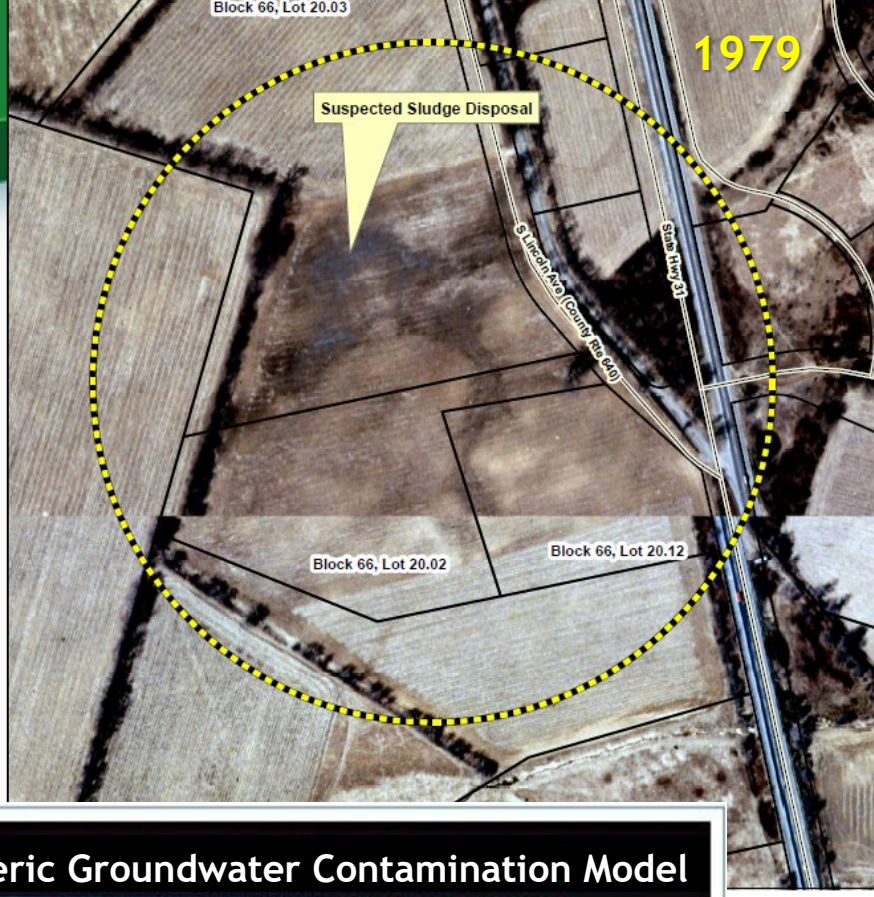
Facility Photo from DuPont Magazine, 1965

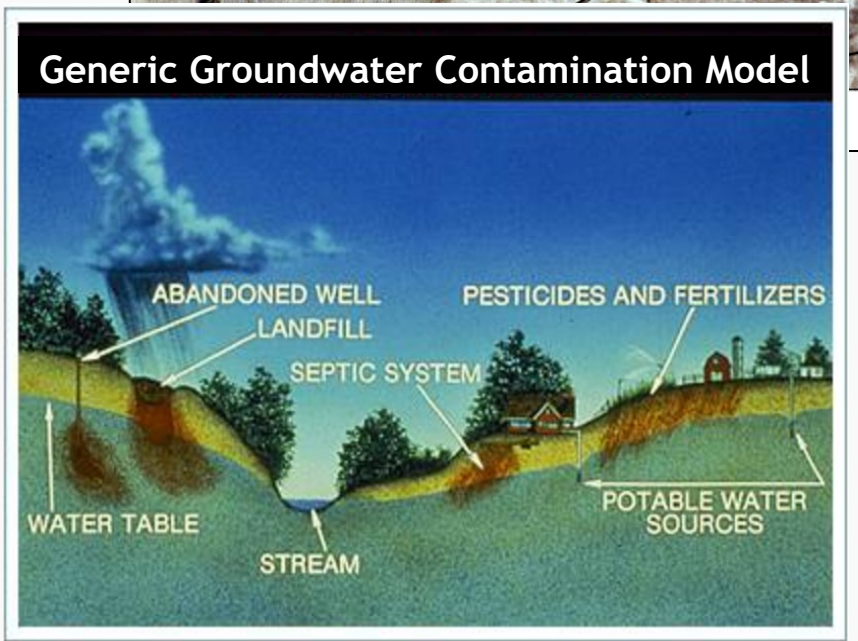
- **PFAS** was a component of textile production chemicals & processes like those at this facility to impart water, oil & stain repellence/resistance

Site History

- **Mid-1950s to mid-1970s**: Castle Creek/Northern Dyeing reportedly discharged 300,000 gallons of wastewater per day + **12-14,000 gallons sludge per day, sprayed or dumped over farm fields** & plowed in once dry

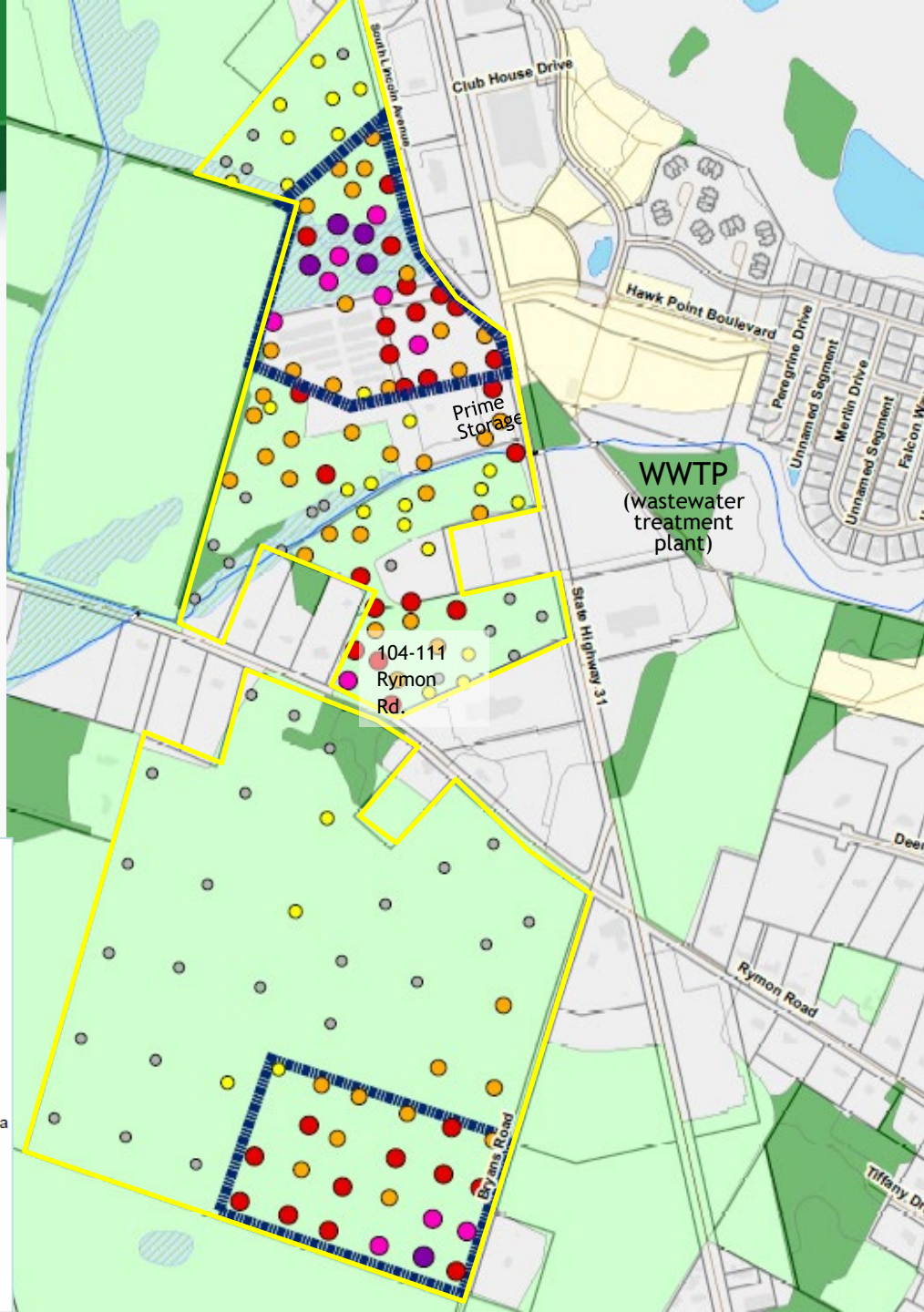
- **1966-1994**: Concerns over stressed vegetation documented in several investigations, but there was a lack of high contaminant detections, receptors, and documented migration of contaminants; *we now realize PFAS toxicity*





NJDEP Soil Results

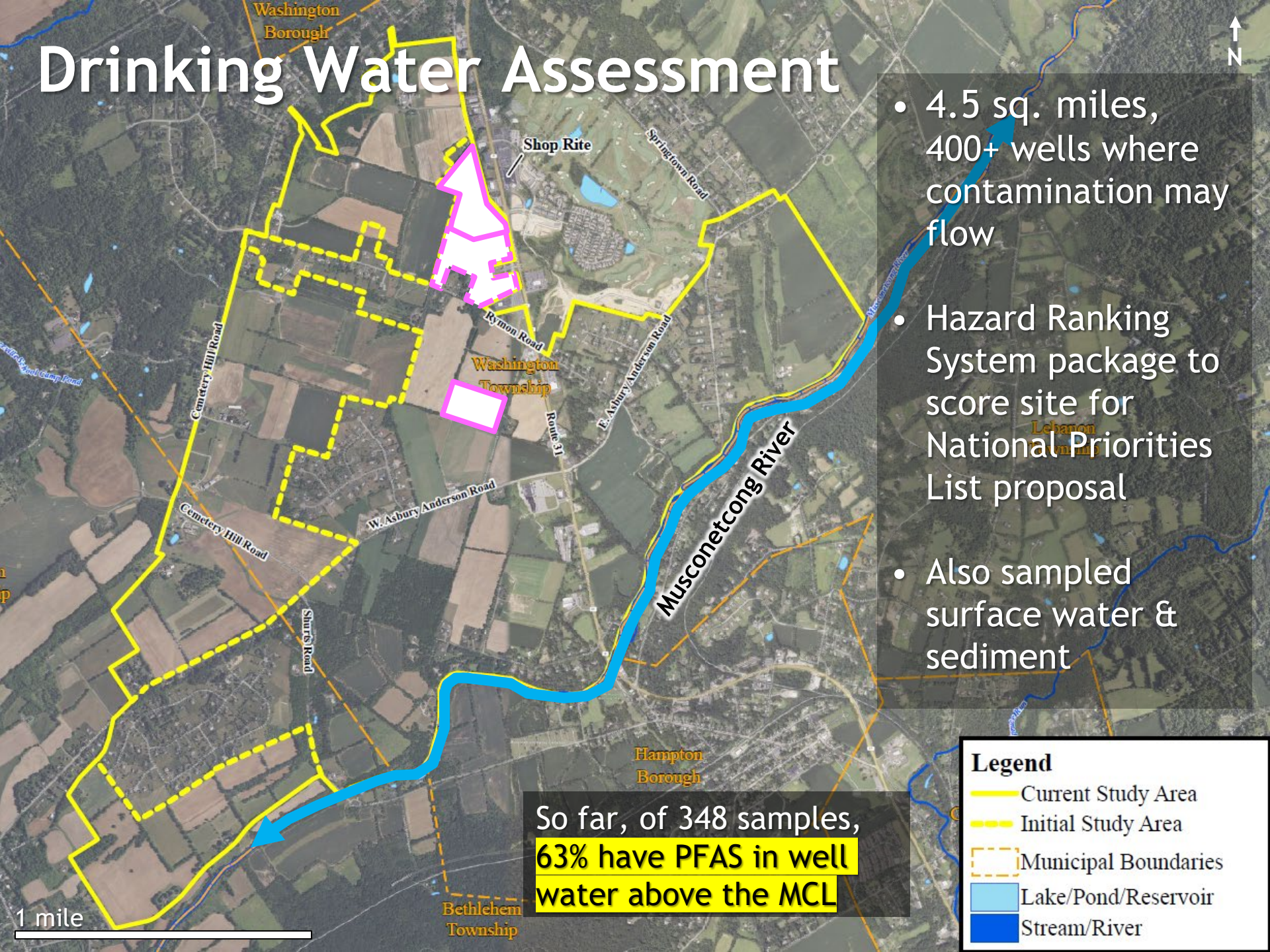
- **Nov. 2022 – May 2023**: 169 soil samples and several groundwater samples collected
- Highest PFAS in soil coincides with known sludge disposal areas and highest private well impacts
- Secondary source: WWTP



EPA Removal Action

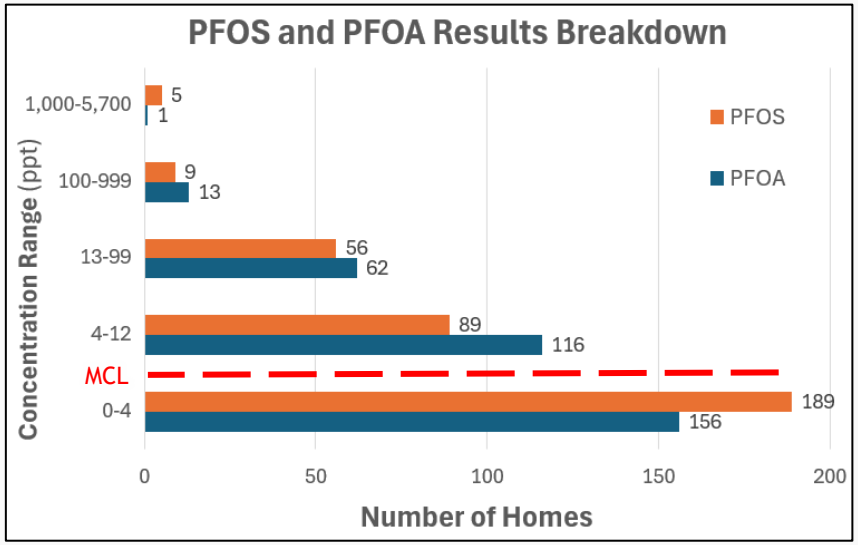
- **<u>November 7, 2024</u>: Site referral to EPA**
  - Integrated assessment for removal action & National Priorities List (NPL) consideration
  - Assess PFAS uptake in crops & use of crops for livestock & human consumption
- **<u>November 19, 2024</u>: emergency removal action initiated**
  1. Provision of **bottled water** where PFAS levels > MCL
  2. Installation of individual whole-house water **treatment systems** to filter out PFAS & other contaminants
- **<u>December 9, 2024</u>**: bottled water provision began – now at 186 properties
- **<u>Ongoing</u>**: procurement of subcontractor for treatment systems

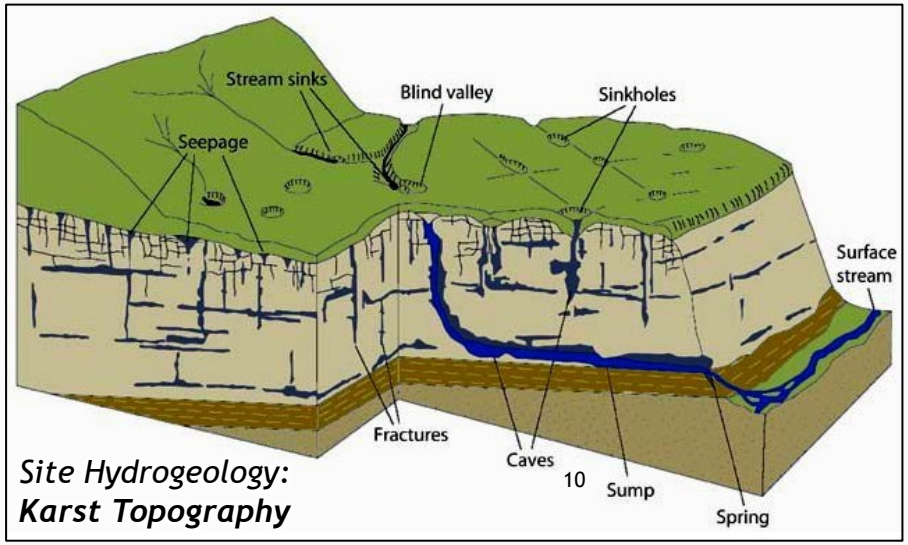
Typical Point-of-Entry Treatment (POET) system


Drinking Water Assessment
Washington Borough
Shop Rite
Springtown Road
Rymon Road
Washington Township
Cemetery Hill Road
Route 31
E. Asbury Anderson Road
W. Asbury Anderson Road
Cemetery Hill Road
Shurts Road
Musconetcong River
Hampton Borough
Bethlehem Township
1 mile
N
• 4.5 sq. miles, 400+ wells where contamination may flow
• Hazard Ranking System package to score site for National Priorities List proposal
• Also sampled surface water & sediment
So far, of 348 samples, 63% have PFAS in well water above the MCL
Legend
Current Study Area
Initial Study Area
Municipal Boundaries
Lake/Pond/Reservoir
Stream/River

EPA Drinking Water Results

- Generally, highest levels near source areas, decreasing toward river
- Varied results due to complicated geology - fractured bedrock
- All residents notified



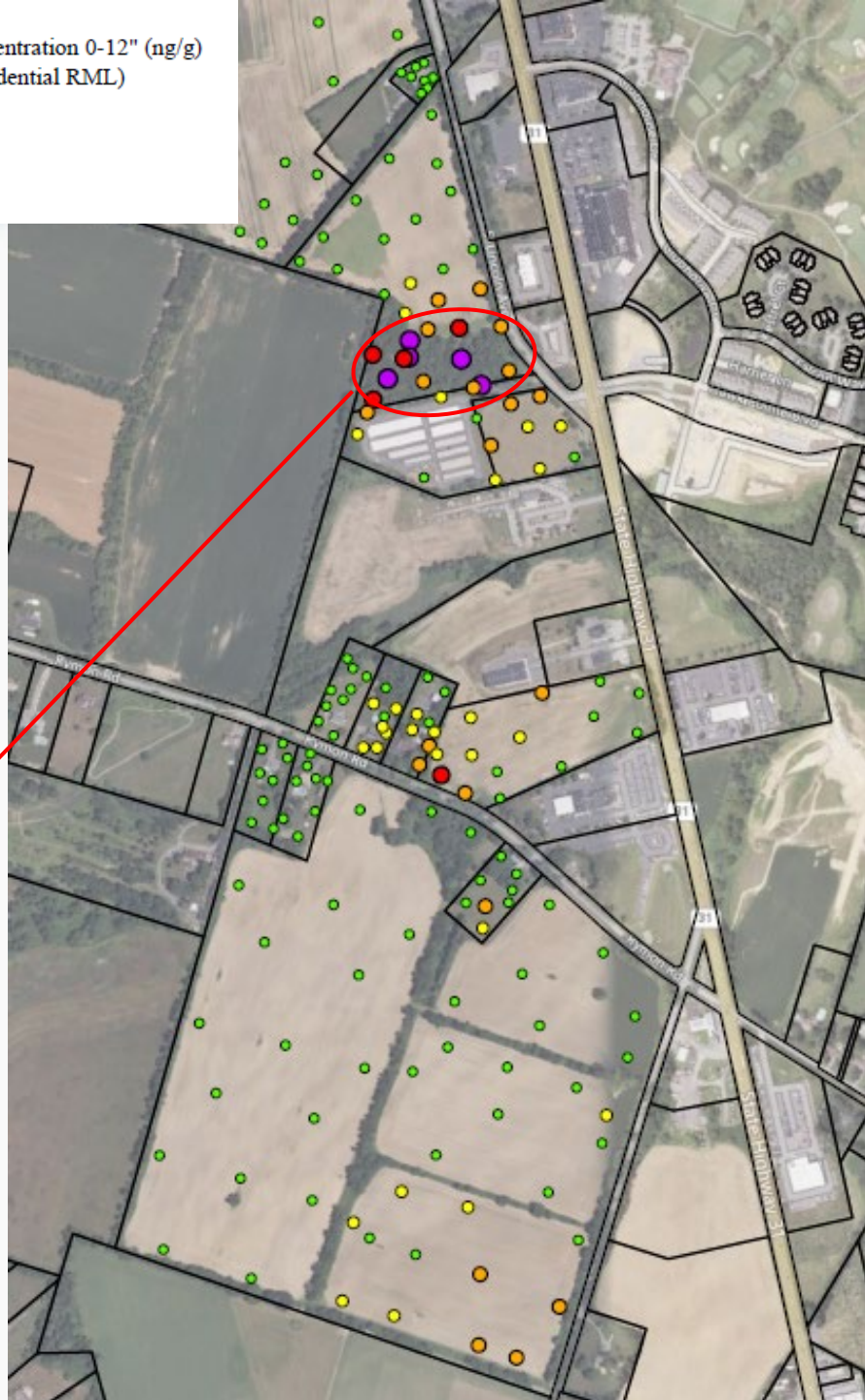


Site Hydrogeology:
Karst Topography

Soil Assessment

- *March-April*: 815 samples from 5 active farmlands & 7 residences
  - Approx. 133 acres, upper 2’ + some to 10’
- Risk assessment
- Work with Dept. of Agriculture, FDA, USDA & others on impacts to crops and potentially other farms

Source Material



Upcoming Work

- Data provision, continued outreach & community involvement
- Installation of individual treatment systems
- Potential expansion of drinking water assessment, including forensics analysis
- Evaluation of soil, surface water & sediment data
- Evaluate crop uptake
- Monitoring well installation?
- Potential proposal to National Priorities List

Thank you!

QUESTIONS?

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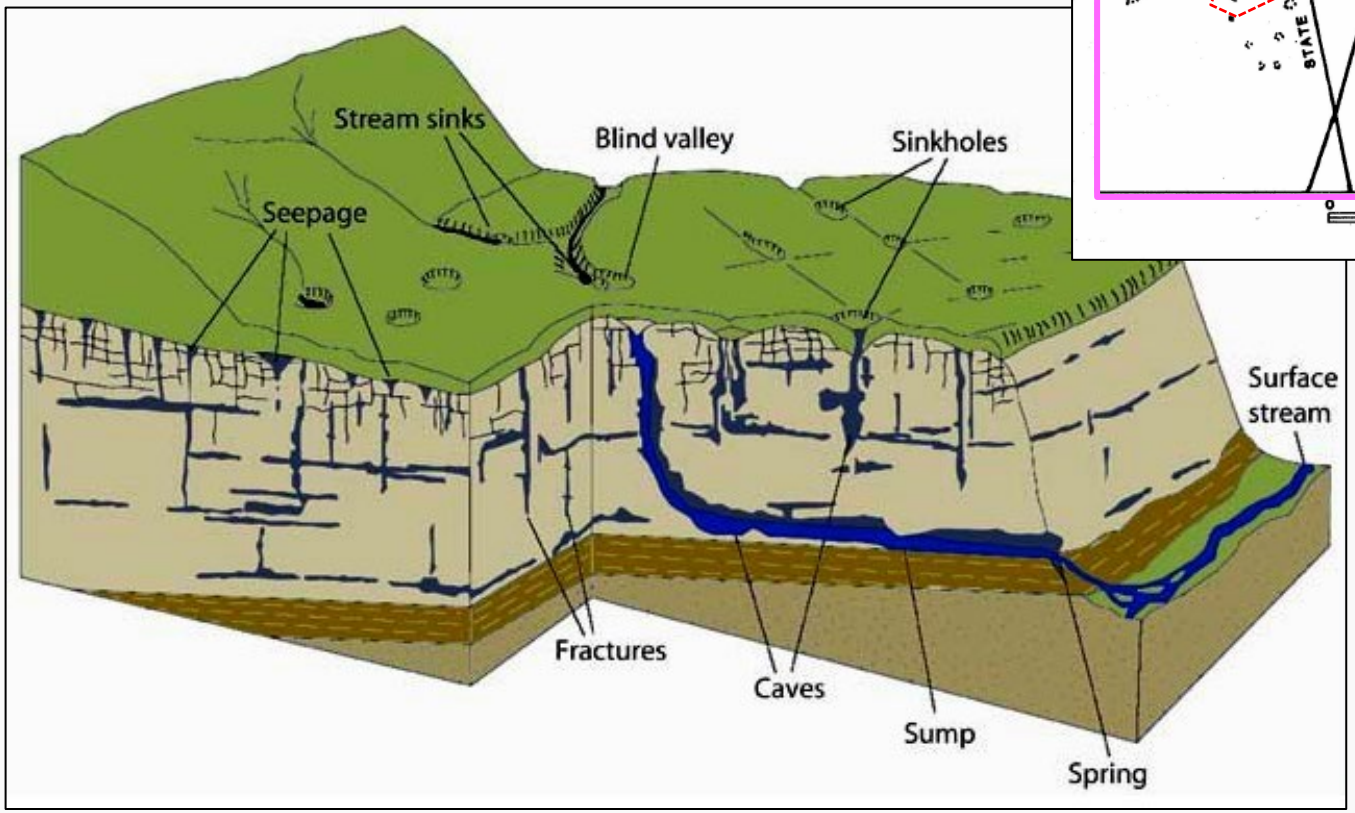
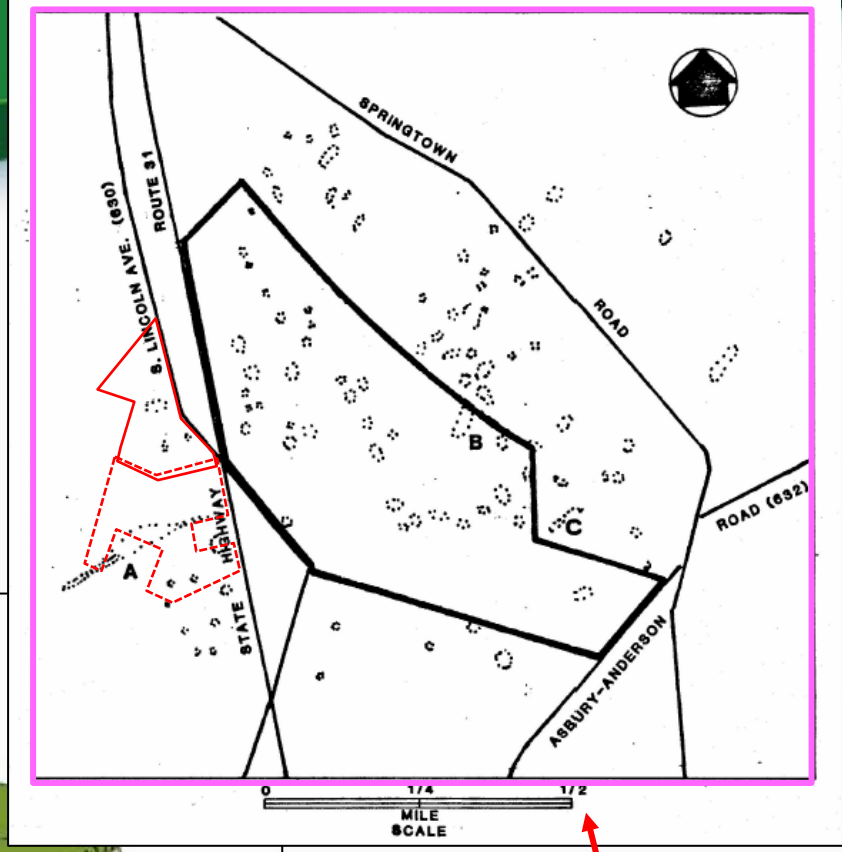
response.epa.gov/Route31Sludge

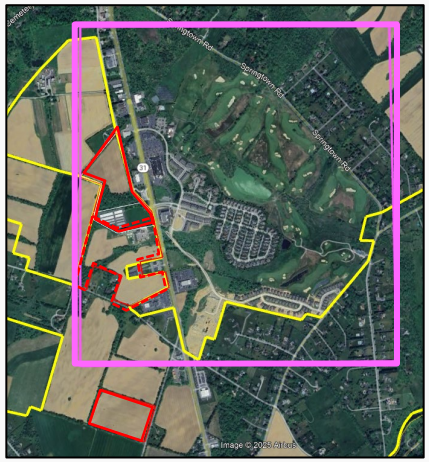
Extra Slides for Reference

Site Hydrogeology

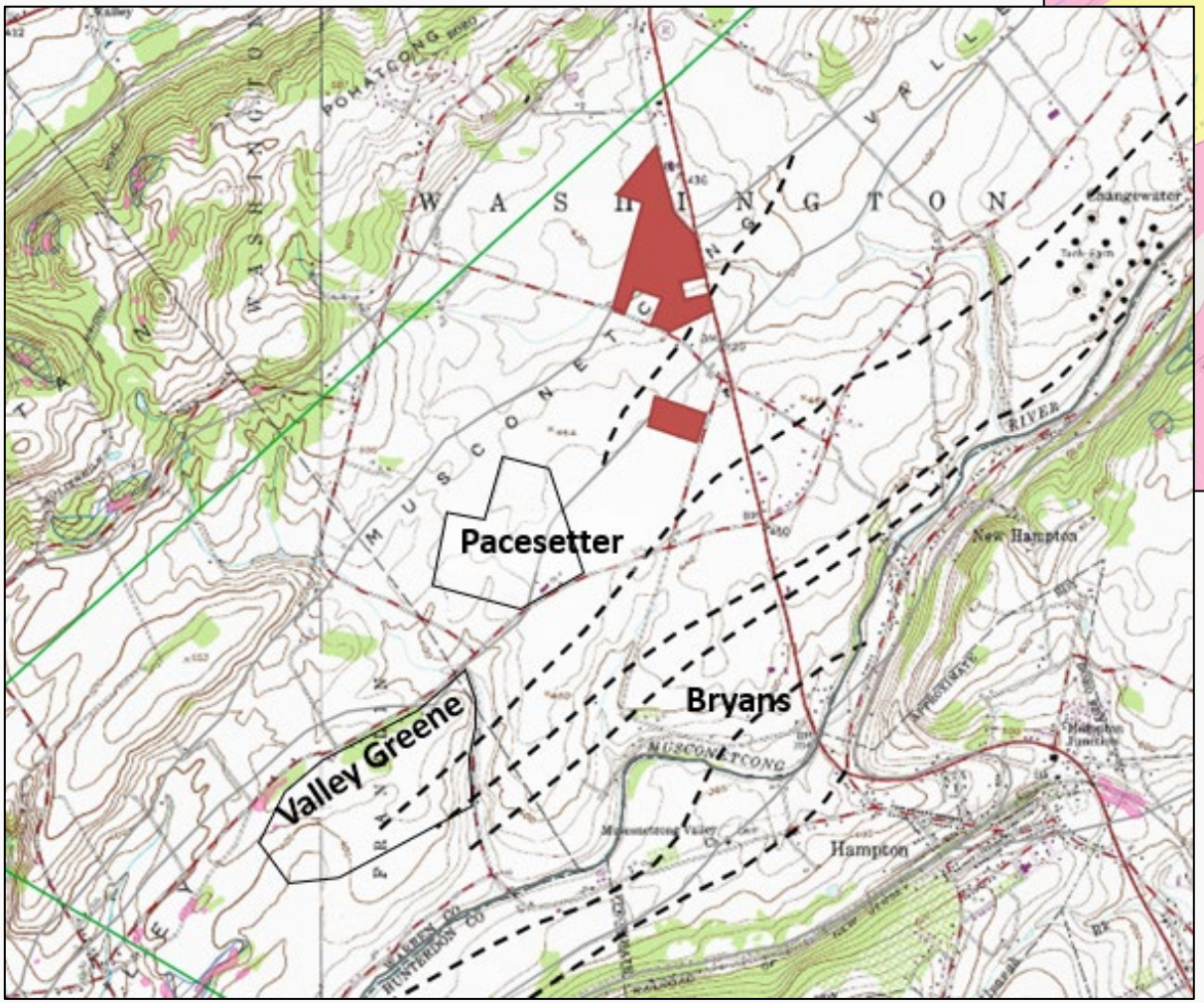
- Karst geology – uncertainty in subsurface pathways

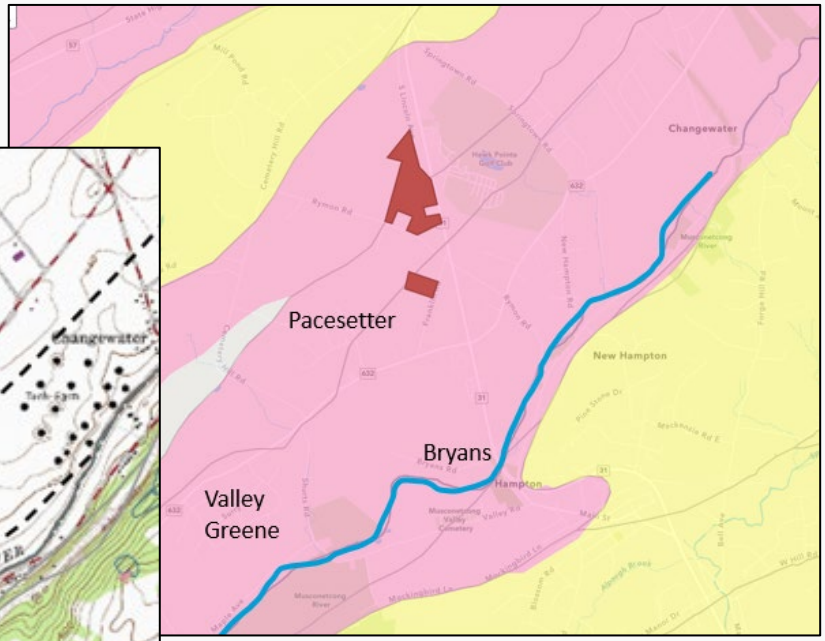






Site Hydrogeology

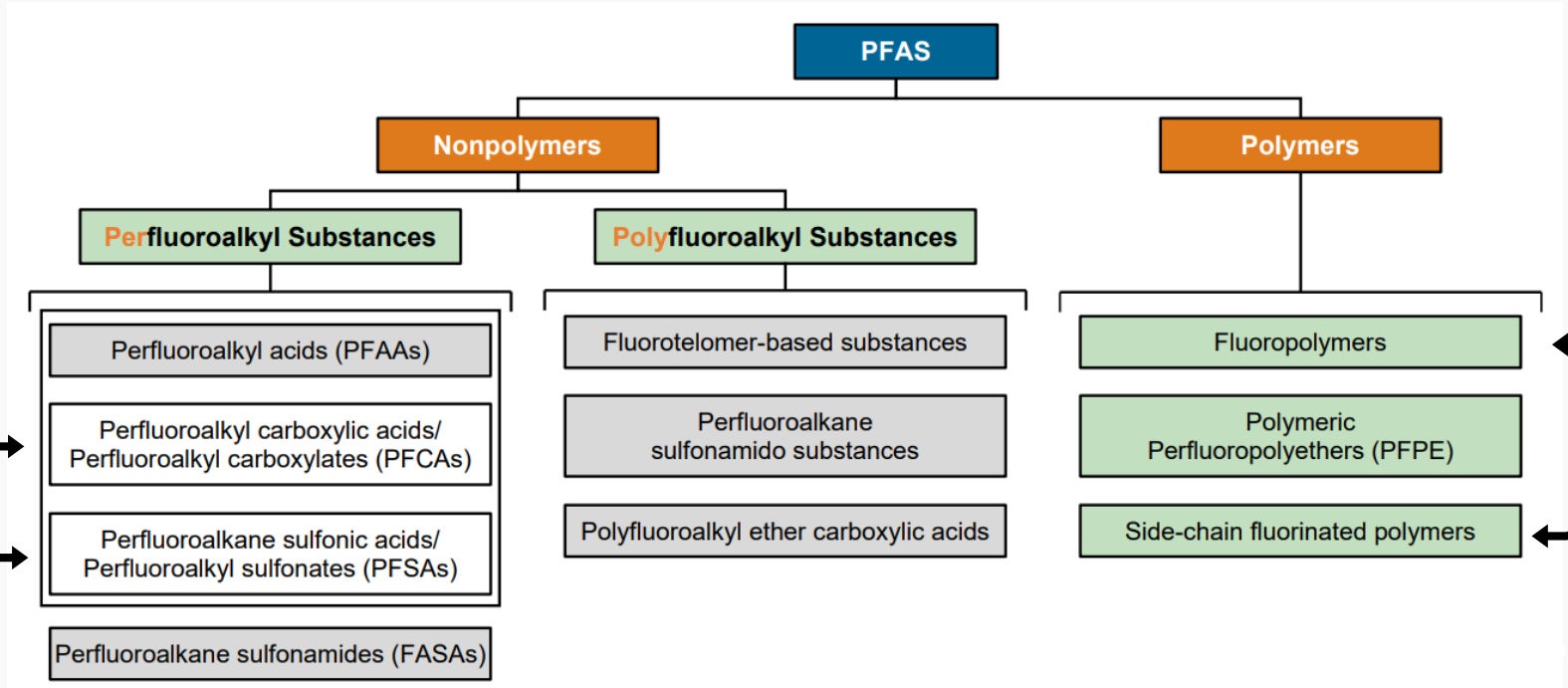




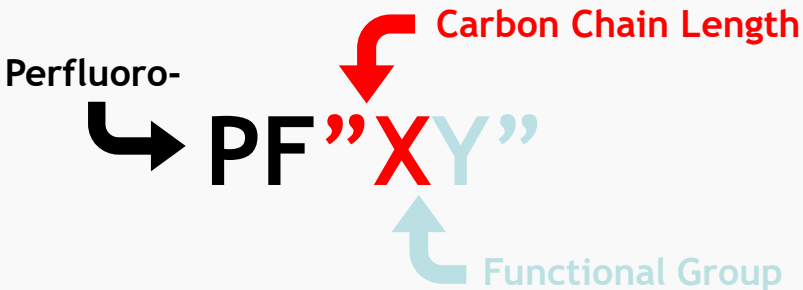

State Highway 57
Pohatcong Creek
Butler Park
State Highway 31
Changewate
Hawk Pointe
Golf Club
E Asbury Anderson Rd
Buttermilk
Bridge
632
31
Asbury Anderson Rd
Main St
State Highway 31
Hampton Borough
Glen Gardner Borough
River
Asbury
Charlestown
Reserve

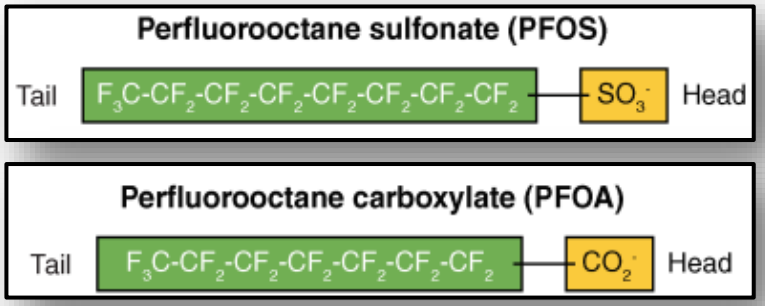
Per- and Polyfluoroalkyl Substances (PFAS) History and Uses

Per- and Polyfluoroalkyl Substances (PFAS): Meet the Family!



Perfluoroalkyl Acid (PFAA) Chemical Structure

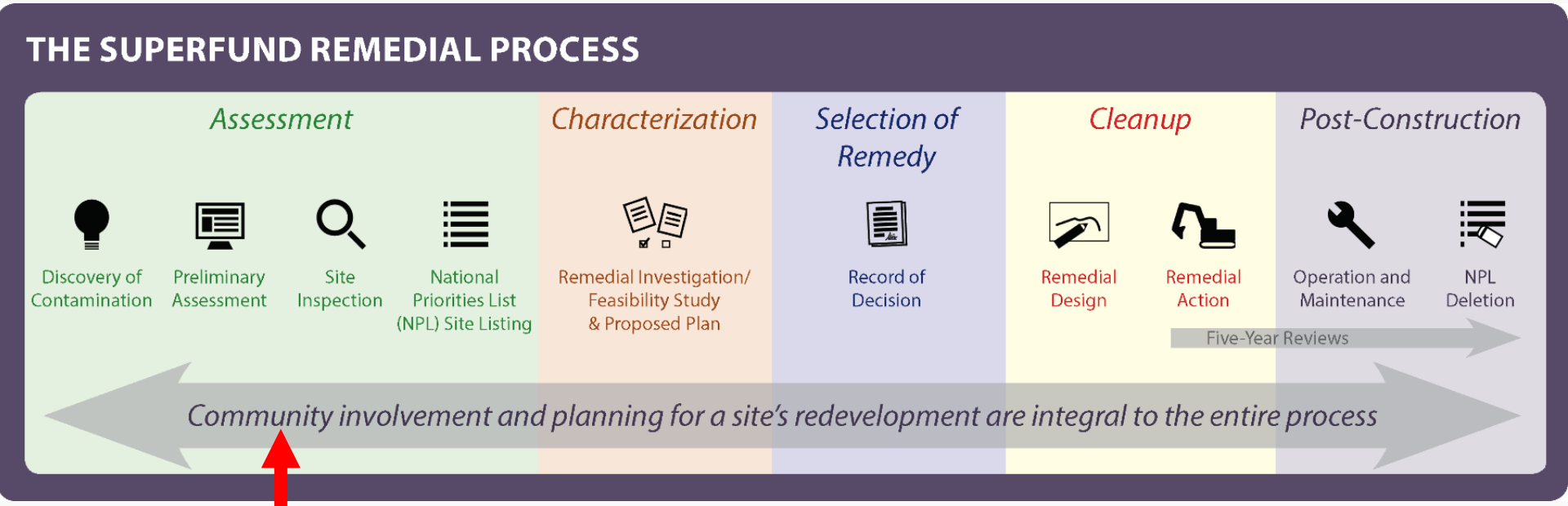




Number of Carbons	4	5	6	7	8	9	10	11	12
PFCAs	Short-chain PFCAs				Long-chain PFCAs				
	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA
PFSAs	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	PFUnS	PFDoS
	Short-chain PFSAs		Long-chain PFSAs						

Source: Interstate Technology and Regulatory Council

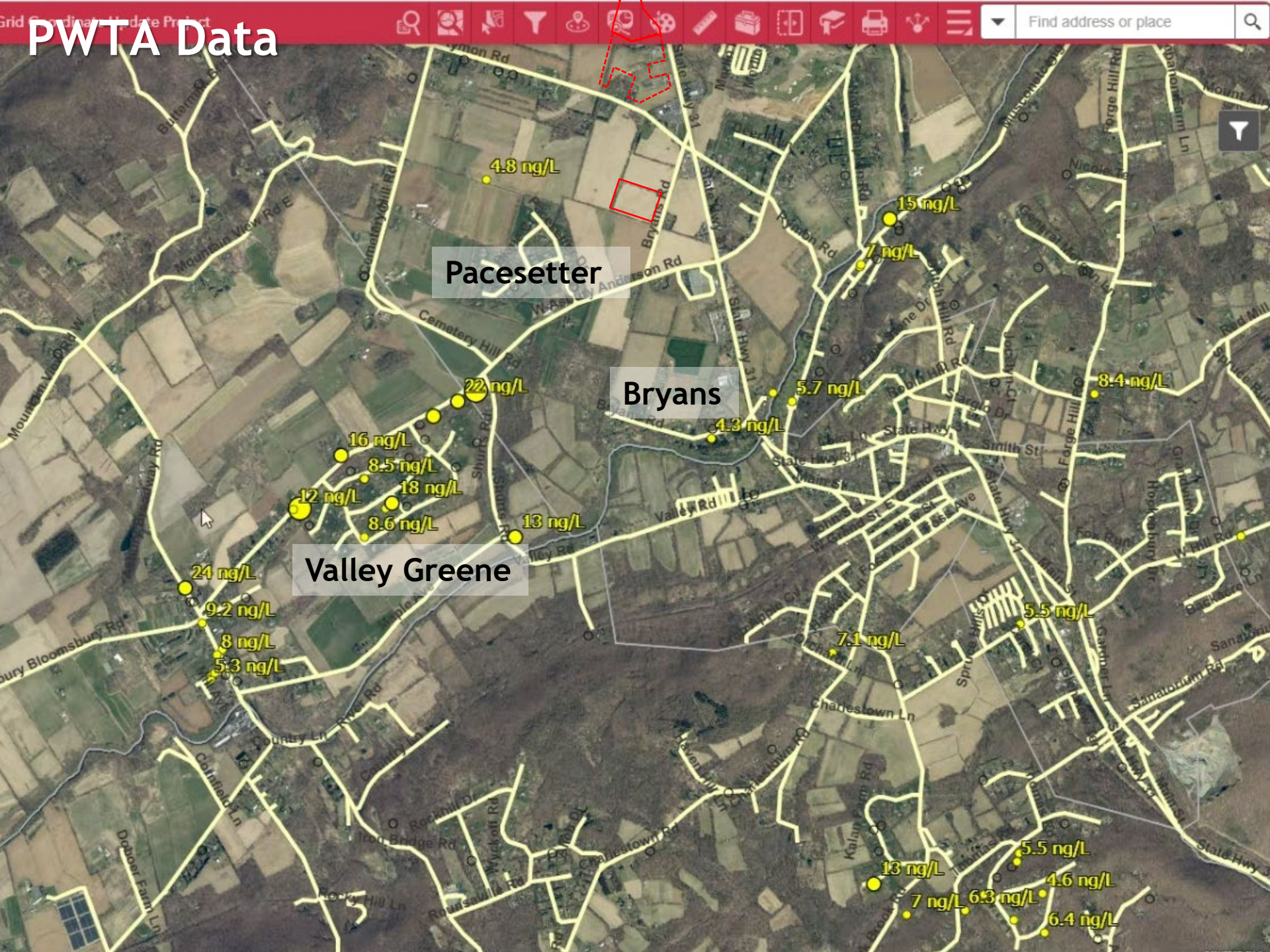
Superfund Removal & Remedial Programs



Current status of the
Route 31 Sludge Disposal Site

NOTE: **removal actions** can occur at any time and simultaneously.

PWTA Data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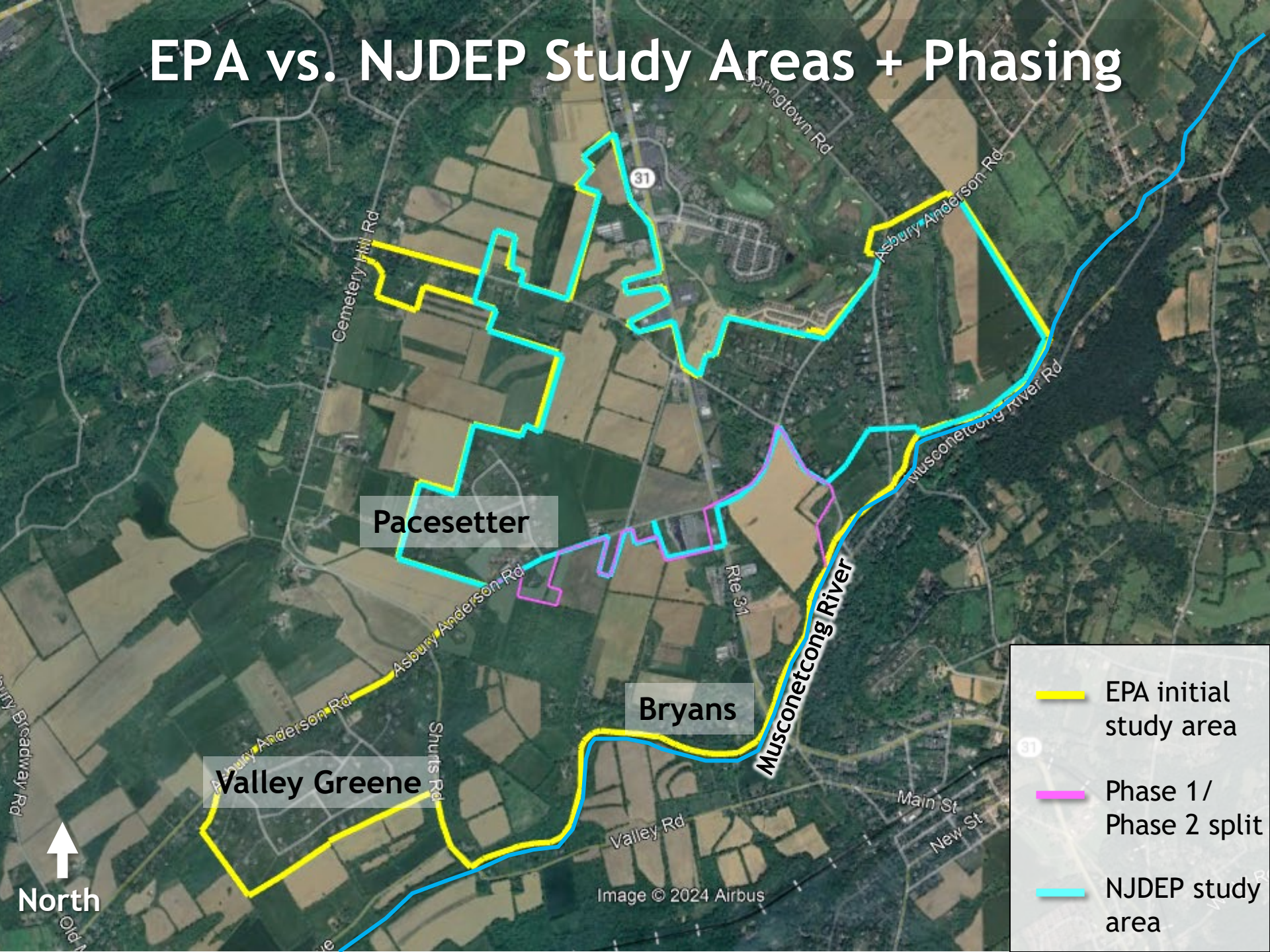
EPA vs. NJDEP Study Areas + Phasing



EPA Initial Drinking Water Study Area

EPA Site Team, Winter/Spring 2024-2025

Superfund – Removal Program

- **Margaret Gregor**, On-Scene Coordinator
- **Jon Byk**, On-Scene Coordinator
- **Pat Ahern**, On-Scene Coordinator
- **Dave Rosoff**, Sr. On-Scene Coordinator
- **Kim Hong**, On-Scene Coordinator
- **Joe Rotola**, Removal Program Supervisor

Superfund – Support

- **Chloe Metz**, Remedy Selection/Design & Construction Manager
- **Ula Filipowicz**, Risk Assessor
- **Jinnie Hanlee**, Risk Assessor
- **John Mason**, Hydrogeologist
- **Rachel Griffiths**, Hydrogeologist

Public Affairs Team

- **Joel Waddell**, Community Involvement Coordinator
- **Shereen Kandil**, Public Affairs Supervisor
- **Stephen McBay**, Press Officer
- **Elias Rodriguez**, Media Relations Supervisor

Superfund – Pre-Remedial Program

- **James Desir**, Site Assessment Manager
- **Veronica Mannillo**, Site Assessment Manager
- **Ilde Acosta**, Pre-Remedial Program Supervisor

Superfund – Enforcement Team

- **Irmee Lopez**, Enforcement Specialist
- **Yvette Hamilton-Best**, Site Attorney
- **Doug Fisher**, Supervisory Attorney

HQ & Contract Support

- Ofc. of Research & Development, Weston Solutions, ER

Coordinating entities

- NJDEP, NJDOH, Washington Township, Franklin Township, Warren County Public Works, Warren County Health, NJ Dept. of Agriculture, ATSDR, Musconetcong Watershed Association, National Park Service

Health Effects of PFAS: Identified for PFOA, PFOS and PFNA

- Non-cancer:
  - Increase in cholesterol levels and/or risk of obesity
  - Lower antibody response to some vaccines
  - Changes in liver enzymes
  - Reproductive effects such as decreased fertility, pregnancy-induced hypertension and preeclampsia
  - Developmental effects or delays in children, including low birth weight, accelerated puberty, bone variations, or behavior changes
- Cancer:
  - Increased risk of kidney and testicular cancer (PFOA) and liver cancer (PFOS)
  - Currently, there is inadequate information on whether PFNA can cause cancer

Resources for PFAS & Health

- EPA “PFAS Explained”
  - https://www.epa.gov/pfas/pfas-explained
- EPA Info on Treatment Technologies & Home Filters
  - https://www.epa.gov/sciencematters/reducing-pfas-drinking-water-treatment-technologies
- Agency for Toxic Substances & Disease Registry (ATSDR) PFAS & Health
  - https://www.atsdr.cdc.gov/pfas/index.html
- NJDOH PFAS Fact Sheet
  - https://www.nj.gov/health/ceohs/documents/pfas_drinking%20water.pdf