Middletown Township
Environmental Advisory Council Meeting
September 16, 2025

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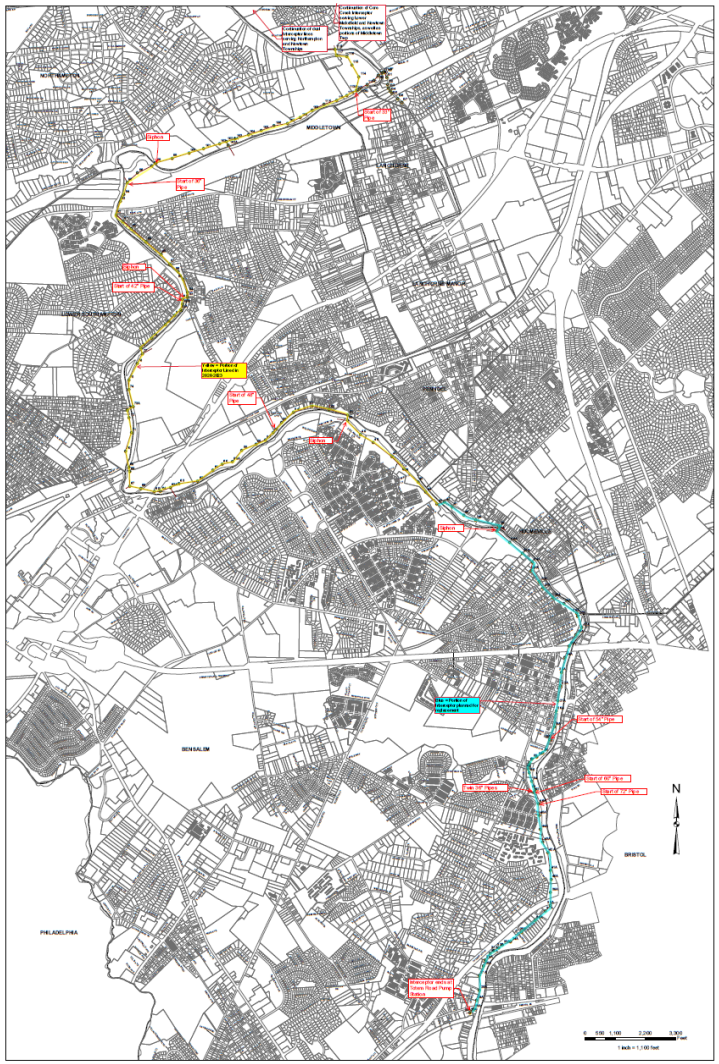
Neshaminy Interceptor Replacement

- A replacement of the existing Interceptor (not including the portion recently lined) is currently in its design stages.
- Even with the planned Interceptor Replacement Project, it is still required that all sewer systems tributary to the Interceptor reduce their maximum daily, hourly and instant flows to predefined agreement limits.
- Below is a list of actions performed to date.
    - Assembled and reviewed available documents, including recent and historic plans and mapping, to develop concept planning for the replacement of the Neshaminy Interceptor through Lower Bucks County.
    - Initiated land survey of the entire interceptor project area including adjacent areas and tributary sewers, with the first step being completion of a comprehensive aerial survey in February 2023 and development of an initial base survey plan.
    - Completed processing of aerial survey data including field establishment of ground controls, and distributed notices to area property owners and residents in advance of field survey of interceptor facilities and project area.
    - Field survey for the project area was initiated in early 2023, with support from BCWSA Operations Staff for location of and access to sewer facilities as needed.
    - Progressive phases of preliminary survey base drawings for the Neshaminy Interceptor have been completed, and PDF copies have been generated for progress review and use by design engineers. Base plans for all completed field work are generally finished.
    - Initial concept layouts for the interceptor replacement are being developed for the section of the interceptor from its downstream endpoint at the Totem Road Pump Station on Haunted Lane in Bensalem Township up to the endpoint of recent rehabilitative pipe lining work completed by BCWSA above Hulmeville Road; design completion for this section is targeted for spring of 2026.

MAP OF THE PROPOSED NESHAMINY INTERCEPTOR REPLACEMENT PROJECT



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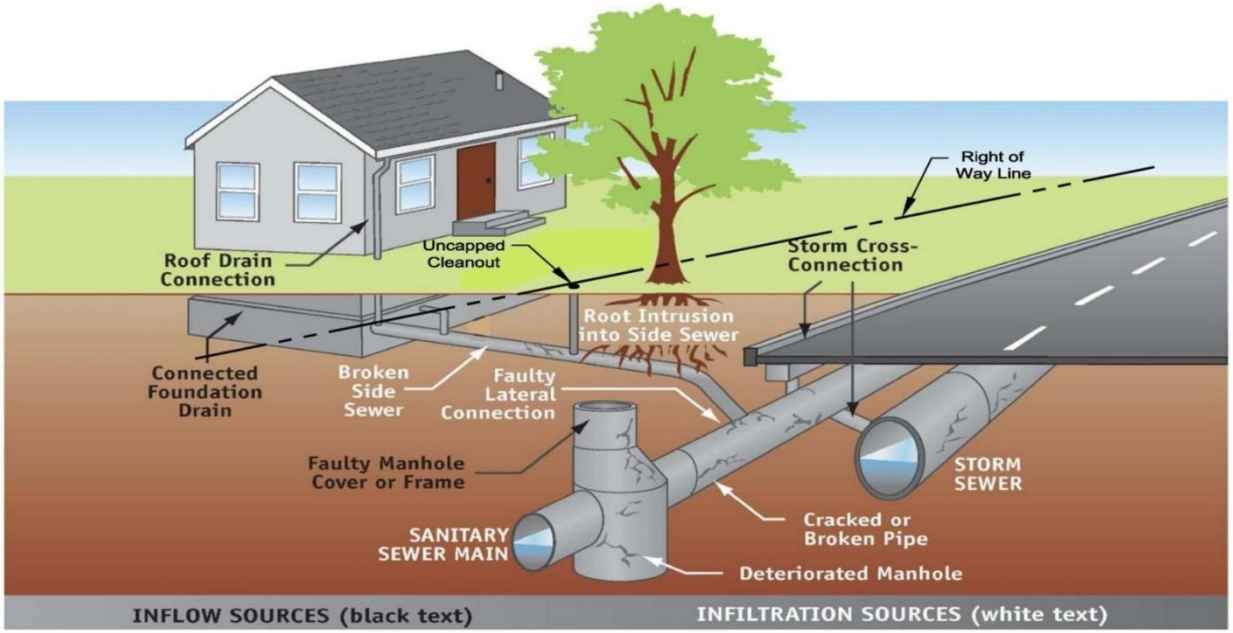
Infiltration and Inflow

- Inflow is stormwater runoff that enters the sanitary sewer system through inappropriate openings in the sanitary sewer facilities at or near the ground surface.

- Infiltration is groundwater that enters the sanitary sewer system through inappropriate openings in the sanitary system, below the ground surface.



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Infiltration and Inflow

Illegal Sump Pump Connections

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Infiltration and Inflow

Damaged Cleanout Lids

Infiltration and Inflow

Slotted Cleanout Lids

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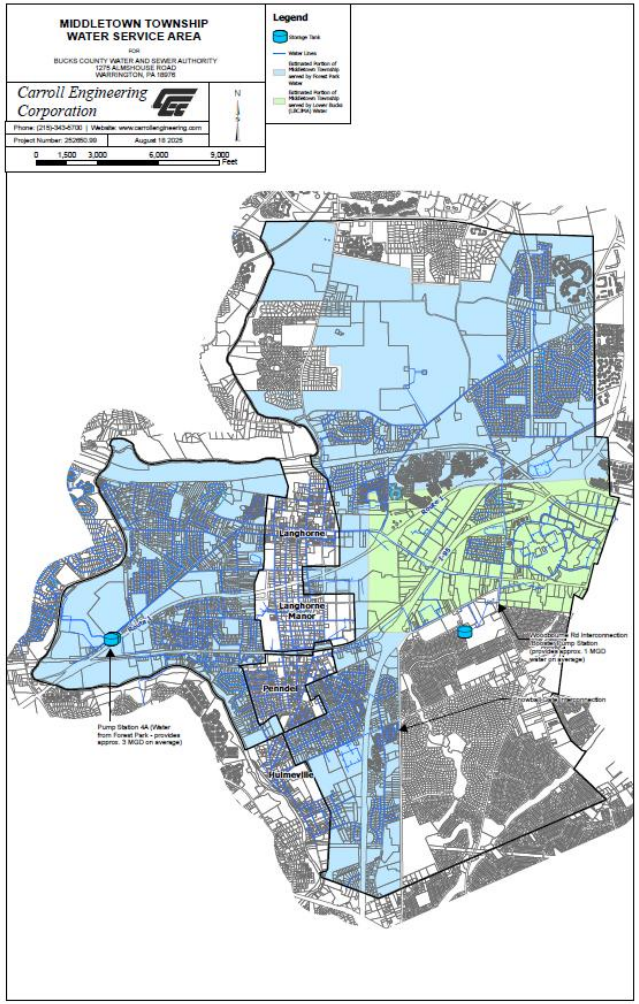
MAP OF WATER SYSTEM



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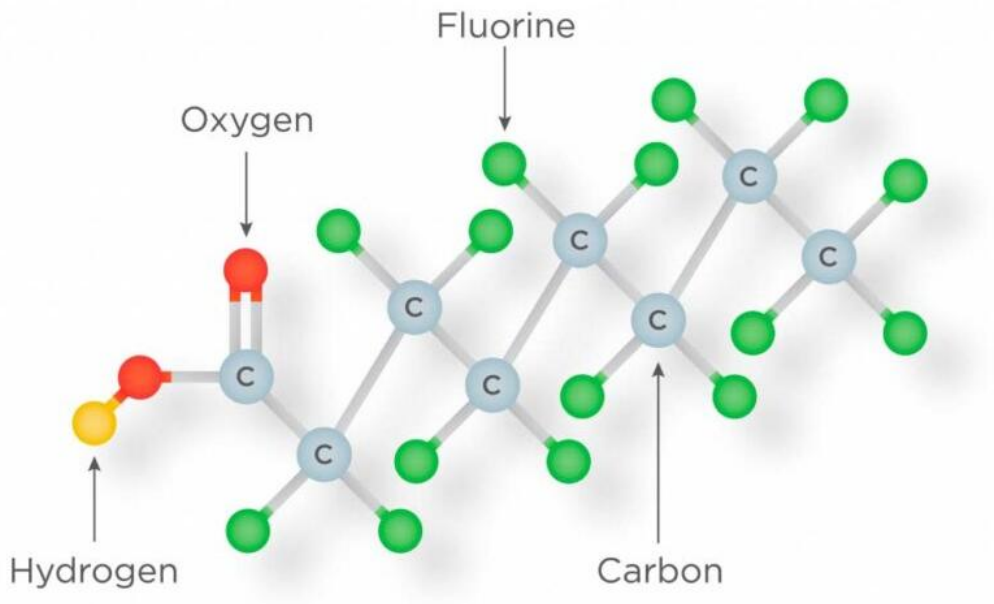
PFAS
FOAM

What are PFAS?

- Polyfluoroalkyl Substances (PFAS)
  - Man-made chemicals
  - Produced for decades in the US
  - Break down slowly in the environment due to structure and strong chemical bonds - coined “forever chemicals”



Ability to Repel Oil & Water, Reduce Friction and Heat

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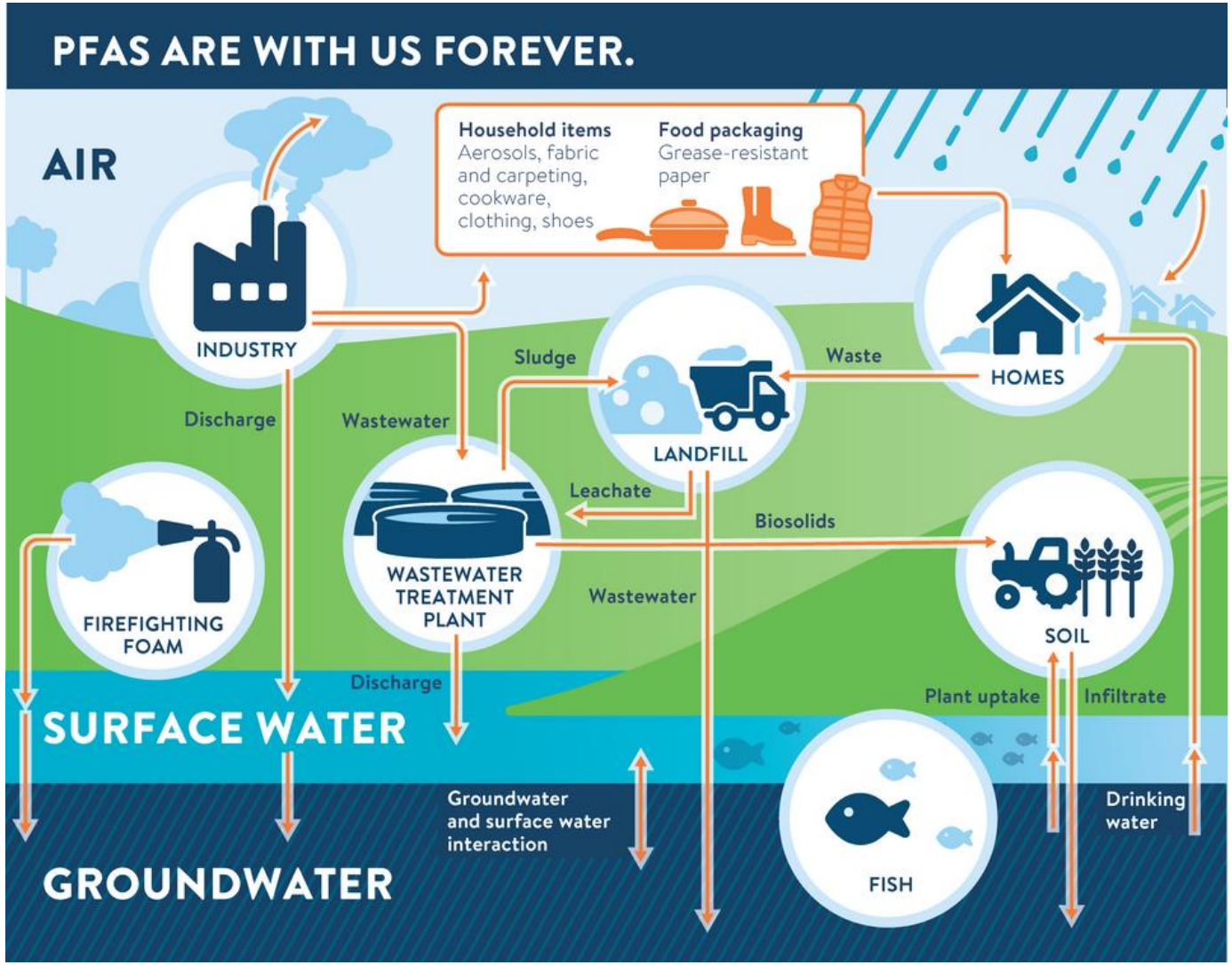
PFAS and the Environment

- Water
- Soil
- Air
- Food

- Consumption
- Inhalation



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PFAS and the Human Body

- Linked to variety of serious health effects in both children and adults
- The Agency for Toxic Substances and Disease Registry (ATSDR) has identified the following health effects as potential outcomes from exposure to PFAS:
  - Changes in cholesterol and liver enzyme levels
  - Small changes in infant birth weight
  - Changes in the immune system and response to certain vaccines
  - Increased risk of preeclampsia or high blood pressure in pregnant women
  - Increased risk of certain cancers (i.e., kidney and testicular)

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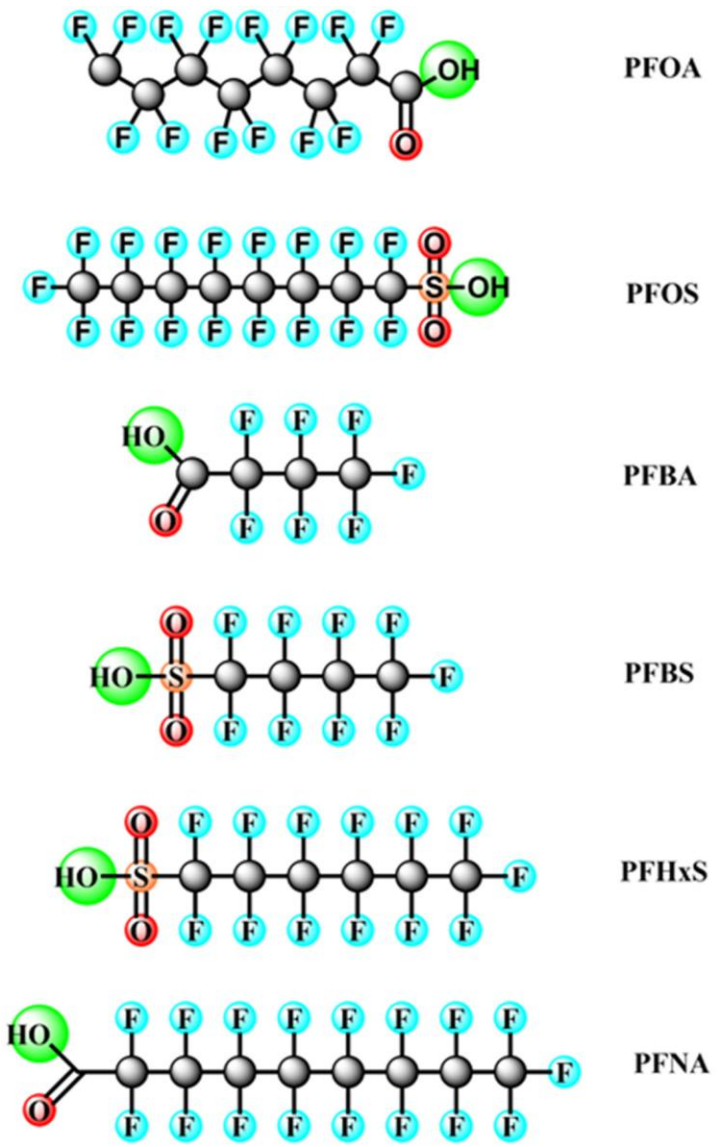
PFAS Compounds

- Many different chemicals – nearly 15,000 different PFAS compounds
- Contains at least one fully fluorinated carbon atom
  - Carbon atom where all hydrogen atoms have been replaced by fluorine atoms
- Strong carbon-fluorine bonds
- Most cited are perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA)



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Definitions

- **Maximum contaminant level (MCL)** is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

- **Maximum Contaminant Level Goal (MCLG)** is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

- **Parts per trillion (ppt)** is a unit of measure. Also known at nanograms per liter (ng/L). One ppt equals about 1 ounce in 7,500,000,000 gallons of water or a single drop of water in 20 Olympic-sized swimming pools.

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PFAS and Drinking Water Regulations

- Environmental Protection Agency (EPA)
  - April 2024 finalized primary drinking water regulations for 6 PFAS
  - Public water suppliers have until 2027 to complete initial monitoring

Compound	MCLG	MCL
Perfluorooctanoic acid (PFOS)	0 ppt	4.0 ppt
Perfluorooctanesulfonic acid (PFOA)	0 ppt	4.0 ppt
Perfluorohexanesulfonic acid (PFHxS)	10 ppt	10 ppt
Perfluorononanoic acid (PFNA)	10 ppt	10 ppt
Hexafluoropropylene oxide dimer acid (HFPO-DA)	10 ppt	10 ppt
Mixtures containing two or more PFHxS, PFNA, HFPO-DA and perfluorobutane sulfonic acid (PFBS)	1 Hazard Index	1 Hazard Index

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PFAS and Drinking Water Regulations

- Pennsylvania Department of Environmental Protection (PA DEP)
  - 2023 finalized enforceable Maximum Contaminant Levels (MCL) for 2 PFAS
  - Testing began in 2024

Compound	MCLG	MCL
Perfluorooctanoic acid (PFOS)	14 ppt	18 ppt
Perfluorooctanesulfonic acid (PFOA)	8 ppt	14 ppt

  - EPA's MCLs are lower than PA DEP's MCLs. Public water suppliers in PA currently need to comply with PA DEP's MCLs. By 2029 they need to comply with EPA's MCLs.

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PFAS and Wastewater Regulations

- There are currently no regulations on PFAS in wastewater for PA
- Slow to regulate as there was no testing methods until recently
- Permit renewals contain monitoring requirements for PFOS and PFOA
- More than likely be regulated through drinking water regulations

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PFAS in Your Water

- Main Lower South Water System
  - Served by three interconnections
    - EP102 – Lower Bucks County Joint Municipal Authority Woodbourne Road
    - EP103 – North Wales Water Authority
    - EP105 – Lower Bucks County Joint Municipal Authority Snowball Gate

- Compliance is based off a running annual average (RAA)

PFAS in Your Water

- EP102 – LBCJMA Woodbourne Road

Compound	MCL	2025 Q1	2025 Q2	2025 Q3	RAA
Perfluorooctanoic acid (PFOS)	18 ppt	1.9	ND	2.14	2.02
Perfluorooctanesulfonic acid (PFOA)	14 ppt	2.8	2.5	2.49	2.60
Hexafluoropropylene oxide dimer acid (HFPO-DA)		ND	ND	ND	ND
Perfluorobutane sulfonic acid (PFBS)		ND	ND	ND	ND
Perfluorohexanesulfonic acid (PFHxS)		ND	ND	ND	ND
Perfluorononanoic acid (PFNA)		ND	ND	ND	ND

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PFAS in Your Water

- EP103 – NWWA

Compound	MCL	2025 Q1	2025 Q2	2025 Q3	RAA
Perfluorooctanoic acid (PFOS)	18 ppt	ND	ND	ND	ND
Perfluorooctanesulfonic acid (PFOA)	14 ppt	ND	2.0	2.17	2.09
Hexafluoropropylene oxide dimer acid (HFPO-DA)		ND	ND	ND	ND
Perfluorobutane sulfonic acid (PFBS)		ND	ND	ND	ND
Perfluorohexanesulfonic acid (PFHxS)		ND	ND	ND	ND
Perfluorononanoic acid (PFNA)		ND	ND	ND	ND

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PFAS in Your Water

- EP105 – LBCJMA Snowball Gate

Compound	MCL	2025 Q1	2025 Q2	2025 Q3	RAA
Perfluorooctanoic acid (PFOS)	18 ppt	2.0	ND	6.87	4.44
Perfluorooctanesulfonic acid (PFOA)	14 ppt	2.8	2.0	7.15	3.98
Hexafluoropropylene oxide dimer acid (HFPO-DA)		ND	ND	ND	ND
Perfluorobutane sulfonic acid (PFBS)		ND	ND	ND	2.19
Perfluorohexanesulfonic acid (PFHxS)		ND	ND	ND	5.99
Perfluorononanoic acid (PFNA)		ND	ND	ND	ND

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PFAS Exceedance

- Options – Remove or Treat

- Removal
  - Take source offline
  - Interconnections
  - Find new source

- Treatment
  - Granular activated carbon (GAC)
  - Ion exchange
  - High-pressure membranes
    - Reverse osmosis
    - Nanofiltration

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PFAS Treatment

- GAC
  - Widely used
  - Competition for adsorption from other organics/contaminants can reduce effectiveness
  - More effective on long-chain PFAS
  - Uses backwash and filter – large quantities of wastewater to be disposed
  - Media disposal issues
- Ion Exchange
  - Lower amounts of wastewater than GAC
  - Disposal and replacement of entire canisters
  - Resin can clog with presence of organics, TDS, minerals
  - More effective on short-chain PFAS
- High-pressure Membrane Filtration
  - Expensive (high energy)
  - Slow – long run times
  - Usually contains GAC pre-filters

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