

**Env-Wq 1600**  
**Septage Management Rules –  
past, present, and future**

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# Outline

- **Who is RMS?**
- **Clean Water Act**
- **History of Septage Rules**
- **2024 Env-Wq 1600 Revisions**
- **PFAS**
- **The future for sludge and septage**

# NHDES Residuals Management Section

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# Our Rivers prior to the Clean Water Act



A Cuyahoga River fire in 1952. Courtesy of Cleveland State University, Michael Schwartz Library, Special Collections.



The Cuyahoga River in 1968. Alfred Eisenstaedt/The LIFE Picture Collection/Getty Images

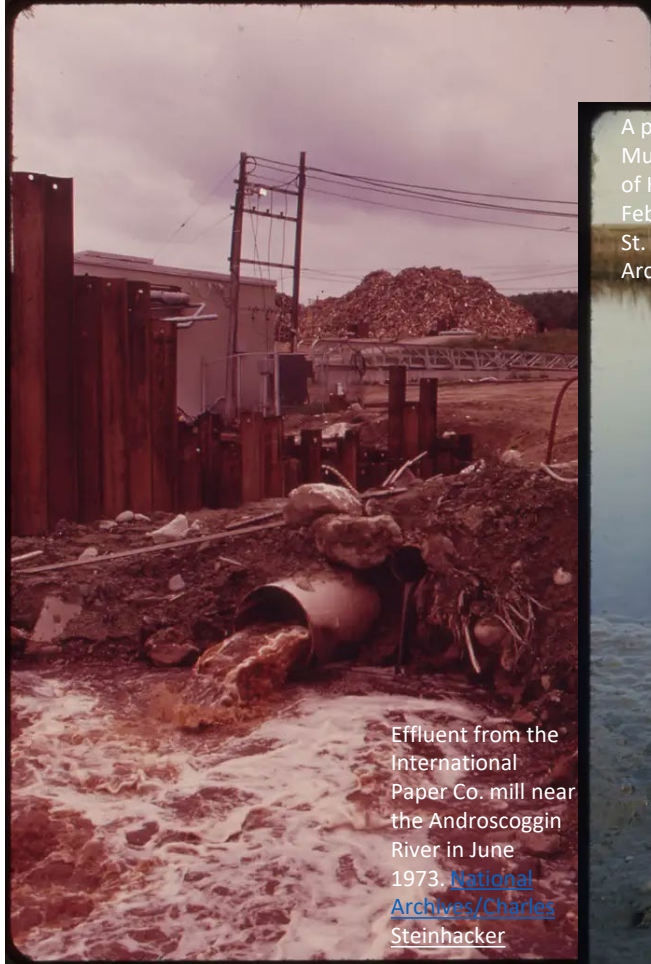


Automobile wreckage near Jaite, Ohio, in 1968. Alfred Eisenstaedt/The LIFE Picture Collection/Getty Images



An oil slick creeps up on the Statue of Liberty in 1973. Chester Higgins/Documerica/US National Archives

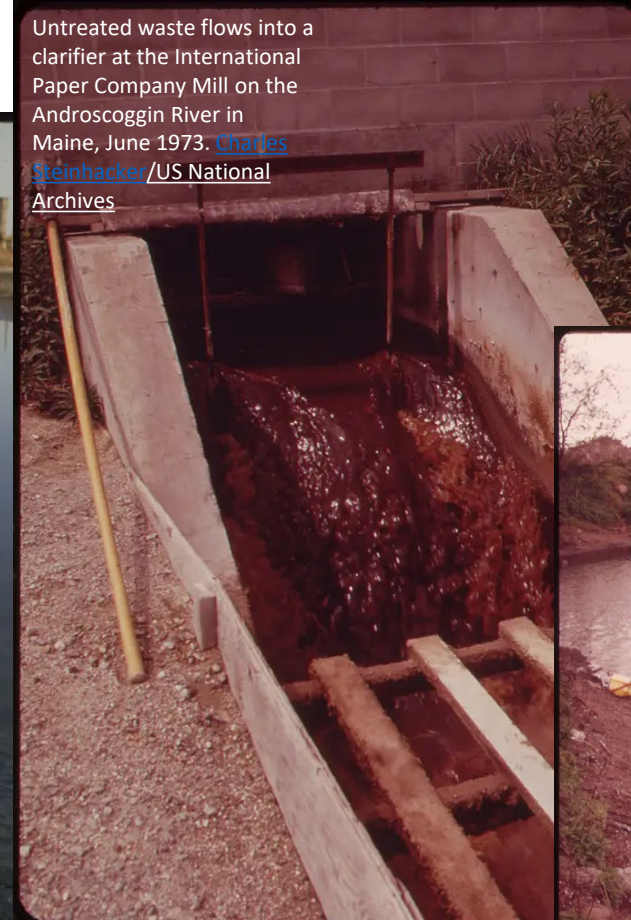
# Our Rivers prior to Clean Water



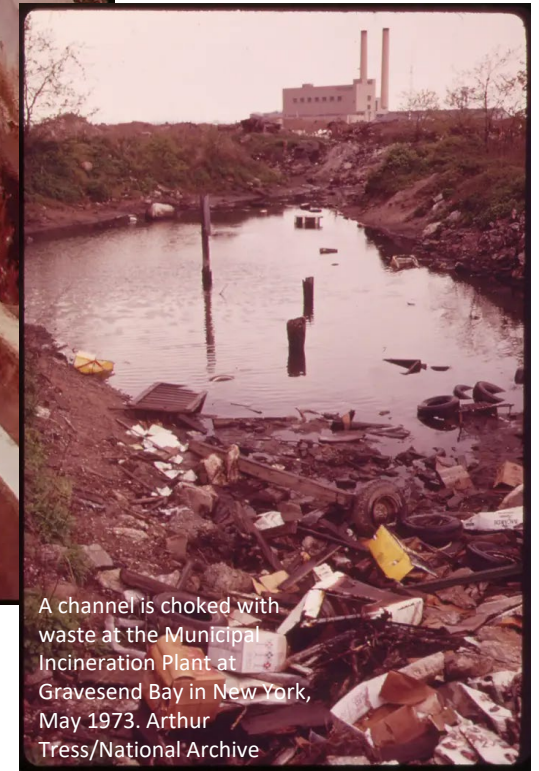
Effluent from the International Paper Co. mill near the Androscoggin River in June 1973. [National Archives/Charles Steinhacker](#)



A polluted area on Mustang Island, south of Houston, Texas, in February 1972. Marc St. Gil/National Archives

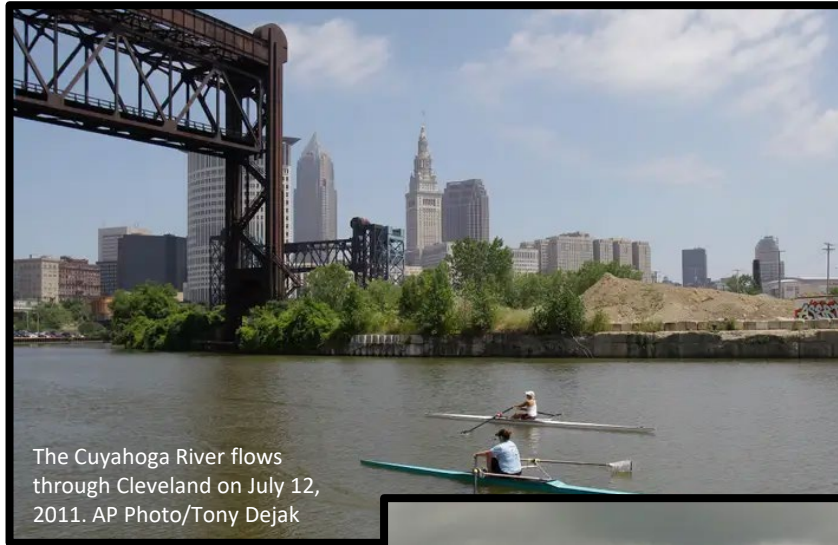


Untreated waste flows into a clarifier at the International Paper Company Mill on the Androscoggin River in Maine, June 1973. [Charles Steinhacker/US National Archives](#)



A channel is choked with waste at the Municipal Incineration Plant at Gravesend Bay in New York, May 1973. Arthur Tress/National Archive

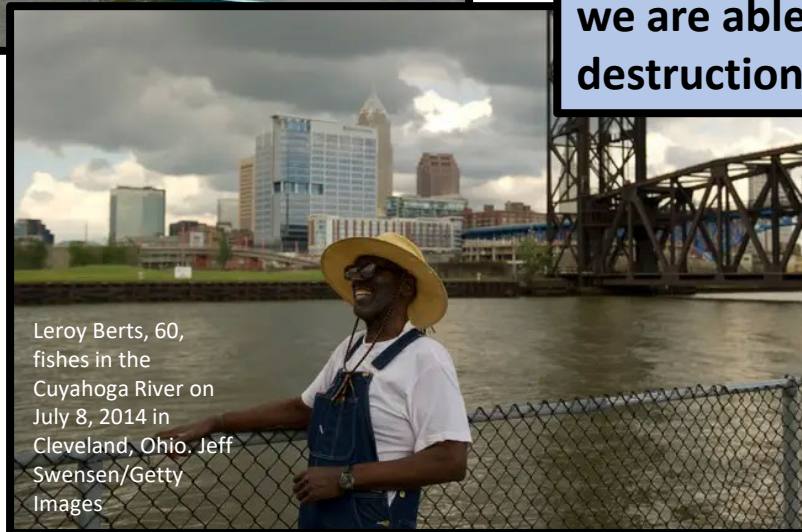
# Today is a different story – but we are not finished



The Cuyahoga River flows through Cleveland on July 12, 2011. AP Photo/Tony Dejak

As President Ronald Reagan put it in his 1984 State of the Union address: "Preservation of our environment is not a liberal or conservative challenge, it's common sense."

Congress passed the Clean Water Act in 1972 to protect all "waters of the United States." Fifty years later, the law is still the main way we are able to safeguard our nation's waters from pollution and destruction, protecting public health and wildlife habitat. - NWF



Leroy Berts, 60, fishes in the Cuyahoga River on July 8, 2014 in Cleveland, Ohio. Jeff Swensen/Getty Images



<https://umlconnector.com/2022/01/diving-into-the-threats-to-the-merrimack-river/>

# Applicable Laws and Rules for Residuals Management Options

Federal Law : Clean Water Act

State Law: RSA 485-a : Water Pollution and Waste Disposal Act

❖ Federal Regulation on Sludge Management : 40 CFR part 503

❖ Land Application:

❖ Env-Wq 800 – sludge management rules

❖ *Env-Wq 1600 – septage management rules*



# History of Regulations

- **1972** – Adoption of federal Clean Water Act
- **Before 1990** – Sludge regulated as solid waste
- **1990** – Statute shifts regulatory responsibility to Water Division/DES



# History of Regulations

- *1991 – Rules promulgated as Env-Ws 800 for both septage and sludge*
- **Before 1993** – DES considers more comprehensive regulation of both
- **Feb. 1993** – After adoption of 40 CFR Part 503 (federal EPA rules), DES drops rulemaking and regulation of biosolids

# History of Regulations

- **Aug. 1993** – DES amended Env-Ws 800
- **1994 & 1995** – Sludge land application complaints increased
- **Nov. 1995** – Adopted “Emergency Rules” to address key public concerns

# History of Regulations

- **March 1996** – Adopted permit regulations
- **March 1999** – Readopted Env-Wq 800 as the Sludge Management Rules
- ***May 1999*** – ***Adopted Env-Ws 1600 as the Septage Management Rules***

# History of Regulations

- *Oct. 2005 – Readopted Env-**Ws** 1600 as Env-**Wq** 1600*
- **May 2007** – Readopt Sludge Management Rules as Env-Wq 800
- *2013 – Readopted Env-Wq 1600*

# Brief History of Regulations

- **January 1, 2016** – Readopted Env-Wq 800
- *May – June 2024 - Readopted Env-Wq 1600*
- **2026** – Readoption of Env-Wq 800???

# Sludge & Septage Management:

- Hauling
- Residuals Quality
- Sites/Land – Application
- Facilities
- Recordkeeping
- Reporting to NHDES



# Sludge REGULATION

## Env – Wq 800

- DRINKING WATER TREATMENT
- SHORT PAPER FIBER
- WASTEWATER TREATMENT
  - SLUDGE
  - BIOSOLIDS

# Septage REGULATION

## Env-Wq 1600

- SEPTIC TANK
- GREASE INTERCEPTOR
- PORTABLE TOILETS
- MARINE SANITATION DEVICE

# 2024 Env-Wq-1600 Revisions

- **1601 - Purpose and Applicability**
- **1602 - Definitions**
- **1603 - Permit App. Requirements**
- **1604 - Notification Requirements**
- **1605 – Hauler Section**
- **1606 – Holding Tank Section**
- **1607 – Portables / Marine Section**
- **1608 – Site Permit Section**
- **1609 – Facility Permit Section**
- **1610 – EQ Cert. Section**
- **1611 – EQ Solids Requirements**
- **1612 – Groundwater Section**
- **1613 - Waivers**



# 2024 Env-Wq-1600 Revisions

- Revised Purpose statement
- 60-day time limit to respond to application questions.
- Septage Holding Tank Permit - 30,000 gal limit.
- Phosphorus is limiting nutrient for site permits
- Sunsetting the septage facility permits - septage pits

# 2024 Env-Wq-1600 Revisions

- **PFAS, PCB, & Dioxins included into the EQ Certificate**
- **Septage filtrate from facility processing has been removed**
- **Innovation Technology Section removed**
- **Waiver expiration dates will now match permit expiration**

# How are PFAS used?

## Industrial Applications

- Aqueous Film-Forming Foam (AFFF)
- Chemical production
- Metal plating
- Textiles, upholstery, apparel, carpets
- Paper and packaging
- Rubber and plastics
- Medical devices
- Insect baits
- Semiconductor manufacturing
- Photoimaging

## Commercial Products

- Non-stick cookware
- Fast food containers
- Candy wrappers
- Microwave popcorn bags
- Personal care and cosmetic products
- Paints and varnishes
- Stain-resistant carpet and chemicals
- Water-resistant apparel
- Cleaning products
- Electronics
- Ski wax

# Health Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)

- Increased cholesterol levels
- Changes in liver enzyme levels
- Small changes in infant birth weight
- Altered immune system function
- Increased risk of high blood pressure or pre-eclampsia in pregnant women
- Changes in thyroid and/or reproductive hormones
- Possibly increased risks for kidney or testicular cancer

These health outcomes are being studied nationwide by the Agency for Toxic Substances and Disease Registry (ATSDR), as well as by private and academic institutions.

This is a constantly evolving area of scientific research. For more information from ATSDR, follow this link: <https://www.atsdr.cdc.gov/pfas/index.html>



# What are the drinking water limits for PFAS?

- 4.0 ng/L for PFOA (Perfluorooctanoic acid)
- 4.0 ng/L for PFOS (Perfluorooctane sulfonic acid)
- 10.0 ng/L for PFNA (Perfluorononanoic acid)
- 10.0 ng/L for PFHxS (Perfluorohexane sulfonic acid)
- 10.0 ng/l for HFPO-DA (GenX)

**These limits were developed for sensitive segments of the population.**

- ✓ Pregnant/lactating women and their infants
- ✓ Individuals who consume a lot of water
- ✓ Individuals with chronic exposure (several years to decades)
- ✓ Accounting for additional sources of exposure (e.g. consumer products and food)



Office of Water

[www.epa.gov](http://www.epa.gov)

January 2024

## **Method 1633**

# **Analysis of Per- and Polyfluoroalkyl Substances (PFAS) in Aqueous, Solid, Biosolids, and Tissue Samples by LC-MS/MS**



# NPDES PFAS Revisions

Effluent Characteristic	Effluent Limitation			Monitoring Requirements <sup>1,2,3</sup>	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type <sup>4</sup>
Nitrate + Nitrite <sup>9</sup> April 1 – October 31 November 1 – March 31	Report mg/L Report mg/L	--- ---	Report mg/L Report mg/L	1/Week 1/Month	Composite Composite
Total Nitrogen <sup>9</sup>	Report mg/L Report lb/day	---	Report mg/L	1/Month	Calculation
Total Phosphorus <sup>10</sup> , April 1 – October 31	199 lb/day	---	Report lb/day	2/Month	Composite
PFAS Analytes <sup>11</sup>	---	---	Report ng/L	1/Quarter	Grab
Adsorbable Organic Fluorine <sup>12</sup>	---	---	Report ng/L	1/Quarter	Grab

# NPDES PFAS Revisions

Influent Characteristic	Reporting Requirements			Monitoring Requirements <sup>1,2,3</sup>	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type <sup>4</sup>
CBOD <sub>5</sub>	Report mg/L	---	---	2/Month	Composite
TSS	Report mg/L	---	---	2/Month	Composite
PFAS Analytes <sup>11</sup>	---	---	Report ng/L	1/Quarter	Grab
Adsorbable Organic Fluorine <sup>12</sup>	---	---	Report ng/L	1/Quarter	Grab



# NPDES PFAS Revisions

Sludge Characteristic	Reporting Requirements			Monitoring Requirements <sup>1,2,3</sup>	
	Average Monthly	Average Weekly	Maximum Daily	Measurement Frequency	Sample Type <sup>4</sup>
PFAS Analytes <sup>11</sup>	---	---	Report ng/g	1/Quarter	Grab <sup>19</sup>

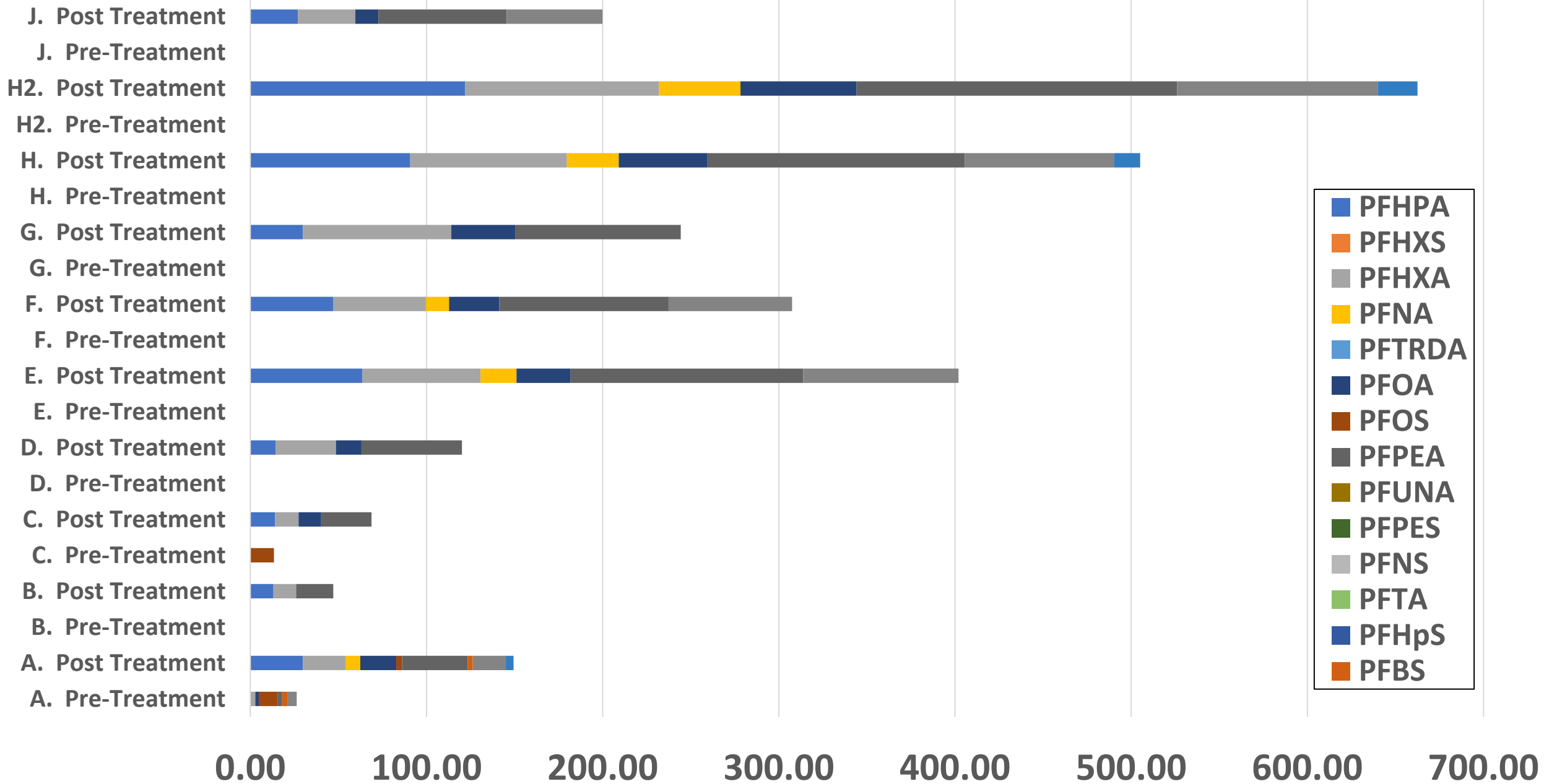
# Average Annual NH Sludge, Septage, and Leachate

- NH Biosolids Recycled to Land Application : **>40,000 wet tons**
- NH Sludge that was disposed at a landfill : **>50,000 wet tons**
- NH Sludge that was incinerated : **>17,500 wet tons**
- Over **>100,000,000 gallons** of septage is managed in NH annually
- 6 Operating lined landfills in NH : **~100,000,000 gallons** of leachate
  - ~80,000,000 gallons** managed at WWTFs within state
  - ~20,000,000 gallons** managed at WWTFs out of state

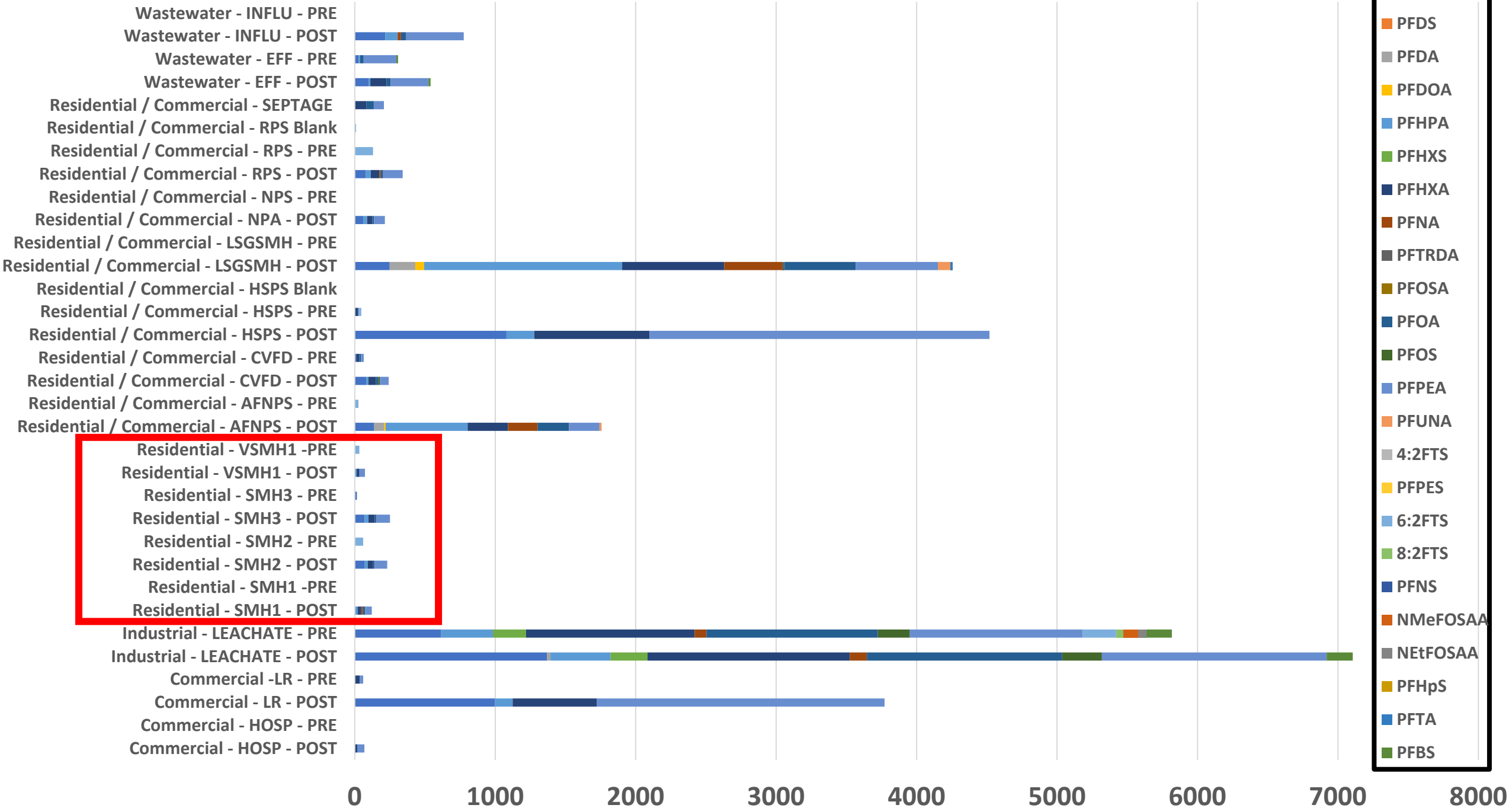


*\*2018 reporting values \*Sludge managed to lagoon systems not accounted for \*\*NH WWTF ONLY, no paper mill or drinking water treatment sludge accounted for*

# WWTF Residential Community Collection System PFAS TOPA (ng/l)

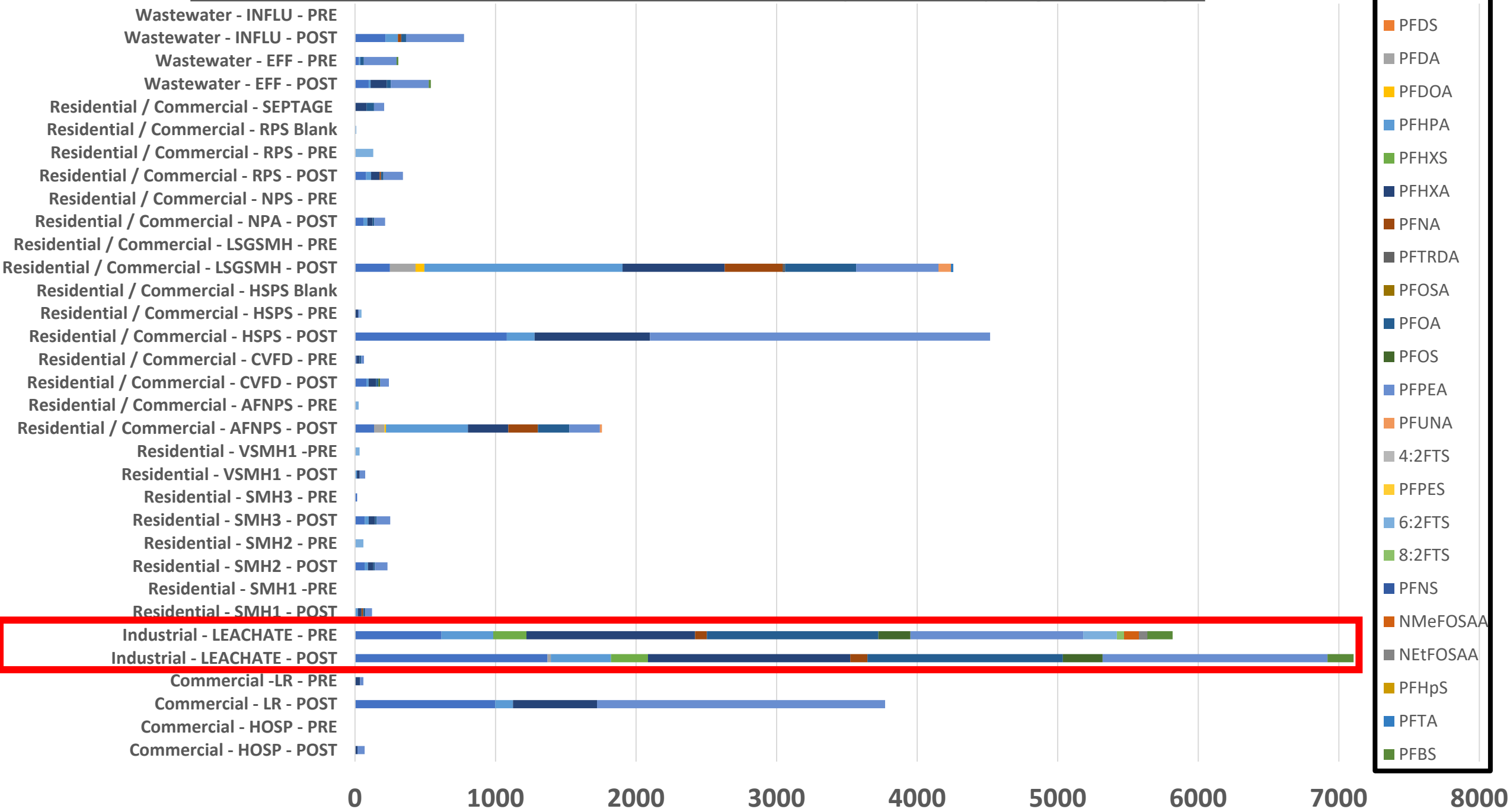


# Residential / Commercial / Industrial Collection System Sampling TOPA (ng/l)





# Residential / Commercial / Industrial Collection System Sampling TOPA (ng/l)



# The Future?



<https://www.renewableenergy.com/biomass/aries-clean-energy-receives-permits-for-worlda-20190716>



<https://rmirecycles.com/shincci-usa/>



<https://www.bioforcetech.com/>



<https://modernpumpingtoday.com/clean-energy-from-landfill-diversion-plus-the-bonus-of-biochar/>

# The Future?



<https://www.google.com/url?sa=i&url=https%3A%2F%2Fwww.ec21.com%2Fproduct-details%2Felectrocoagulation-Water-Treatment-System--4324338.html&psig=AOvVaw13ecRf3aV4hqgGGOzuKemW&ust=1684603362541000&source=images&cd=vfe&ved=0CA8QjhxqFwoTCOjj-93ygf8CFQAAAAAdAAAAABAA>



Thank You !



Any  
Questions?