



Industrial Pretreatment Program Update

2020

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1. Categorical Standards/Rules Update
2. PFAS / EPA Action Plan
3. Guidance and Training
4. Questions and Answers



Categorical Standards Update



- Part 423 – Steam Electric Power
 - Update to the 1982 regulation was finalized 9/30/2015.
 - Establishes PSES / PSNS standards for toxic metals.
 - Rule required compliance by 11/1/2018.
 - Rule received legal challenge.

Categorical Standards Update



- Part 423 – Steam Electric Power

August 2017 – EPA announced a new rulemaking, reconsidering the more stringent BAT and **PSES** effluent standards in the challenged 2015 rule.

The standards applied to bottom ash transport water and flue gas desulfurization (FGD) wastewater.

Categorical Standards Update



- Part 423 – Steam Electric Power

August 2020 – EPA finalized the “**Steam Electric Reconsideration Rule**” that will soon be published/effective:

www.epa.gov/eg/2020-steam-electric-reconsideration-rule-documents

PSES compliance date – 3 years from date of publication

- ***For FGD wastewater:*** revises PSES for mercury, arsenic, selenium, and nitrate/nitrite-N. No TSS or bromide limitations were included.

Categorical Standards Update



- Part 423 – Steam Electric Power
 - ***For bottom-ash transport wastewater:*** Best achievable technology is a high recycle system. The concentrate discharged to POTW must be $\leq 10\%$ vol/day (on 30-day rolling avg). Additional limits can be local limits.
 - Requires data reports.
 - CIU must submit an initial certification statement to the control authority with the expected volume and frequency of each concentrate discharge event and other information (423.19).
 - CIU that is also required to submit a BMP plan by control authority must initially report and annually report certain additional data as well as updates to the plan.

Categorical Standards Regulations Under Review:

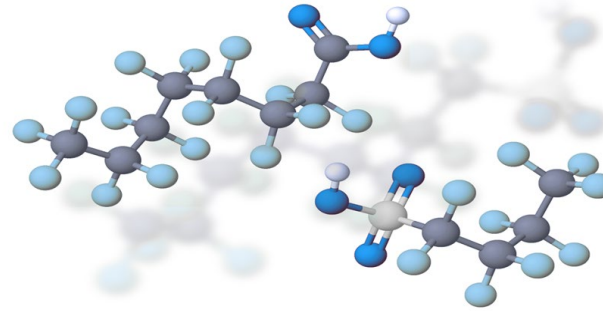
Prelim
2020 Plan (# 14)



- Part 469 – E-Components Manufacturing
 - Detailed Study initiated:
 - Looking to identify the facility population. Relying on trade groups. As of 2019, conducted two facility site visits to evaluate technologies.
 - Wastewater likely contains new pollutants that may not be controlled by the existing standards (e.g. PFAS).
- Petroleum-related categories

PFAS...

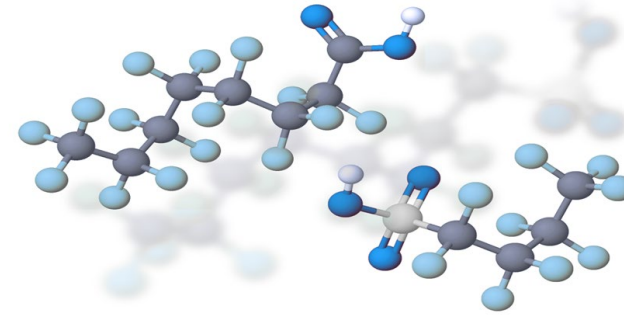
What are they?



- **Per- and polyfluoroalkyl substances (PFAS)** are a group of man-made chemicals that have been in use since the 1940s. There are approximately 1,200 types with PFOA (phase-out began 2015) and PFOS, and GenX (PFOA replacement) being the most well-known.
- PFAS are/were found in a wide array of non-stick products like cookware and food packaging, and in stain and water repellants used in fabrics, carpets, waxes, and cleaners.
- PFAS chemicals can last for long periods of time and bioaccumulate.
- Because of their widespread use and environmental persistence, most people have been exposed to PFAS chemicals.

PFAS...

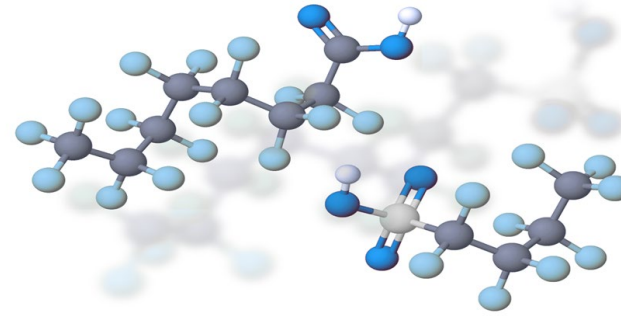
What are the risks?



- There is evidence that exposure to certain PFAS may lead to adverse health effects. The toxicity science is ongoing, but so far:
 - In people, a high correlation with increased cholesterol levels.
 - In people, some correlations with low infant birth weights, immune disorders, thyroid disorders (PFOS), and cancer (PFOA).
 - In lab animals, adverse effects on reproduction, development, liver/kidney function, and immune responses have been observed.

PFAS...

Control Authority Concerns

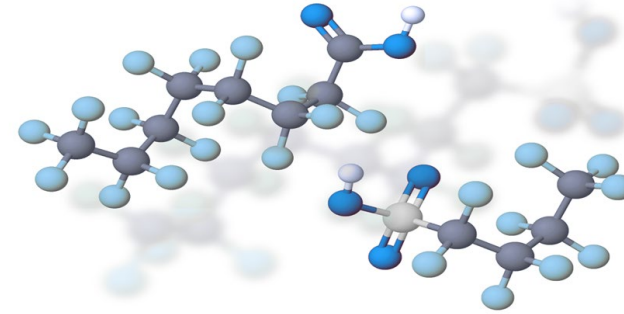


Many industrial users can discharge PFAS, but a few more likely to have elevated levels:

- Part 414 organic chemical and plastics manufacturers (producers and importers)
- Leachate from landfills where PFAS-containing products have been disposed.
- Aqueous film-forming foams (AFFF) used in fire-fighting and at airports and military bases.
- Paper and Paperboard manufacturers
- Textile/carpet manufacturers
- Semiconductor manufacturers

PFAS...

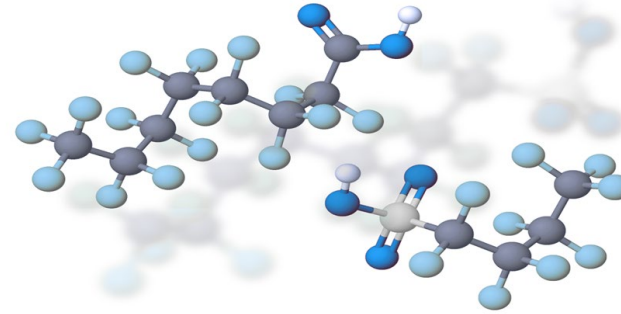
Control Authority Concerns



- The two most common long-chain PFAS (PFOS and PFOA) have been mostly phased out of production in the United States. Some companies are still using existing PFOS and PFOA stocks or are producing or importing other long-chain PFAS. Domestic manufacturers have been developing and commercializing shorter-chain PFAS as replacement chemicals; some have a similar persistence.
- The water solubility of some PFAS allows them to pass through POTW/LAS processes undeterred.
- Some PFAS can concentrate in biosolids and soils.
- PFAS levels may also be higher in some POTW/LAS effluents than their influents due to the formation of longer chain PFAS through chemical reactions within the POTW/LAS.
- Some treatment processes have been effective at treating PFAS in drinking water including reverse osmosis, nanofiltration, ion exchange, and granular activated carbon filtration, but limited data exists on their efficacy in treating PFAS-laden industrial wastewater.

PFAS...

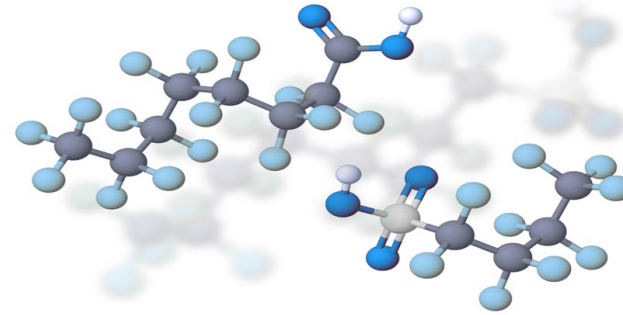
Control Authority Concerns



- PFAS are thus “*pollutants*” that may cause “*pass-through*” of a POTW, or “*interference*” with a POTW/LAS, as those terms are defined in 40 CFR 403.3. “*Pass-through*” involves a numeric or narrative violation of a NPDES permit. “*Interference*” involves the same, or a disruption to biosolids use/disposal. Most NPDES permits have a narrative standard for “no discharge of toxics in toxic amounts” that could be a qualifier.
- Any POTW/LAS (whether it has a pretreatment program or not) that is experiencing pass-through or interference must develop and enforce local limits for the pollutants of concern, per 40 CFR 403.5(c).
- To develop local limits, state WQS or federal water quality criteria are helpful if/when available. In their absence, the EPA Local Limits Development Guidance (2004) advises that a narrative/numeric local limit for users can be derived using system design (p.9-5) and/or site-specific data (p.9-13).
- To develop local limits, and perhaps require pretreatment by the IU, a POTW/LAS also needs sufficiently sensitive, validated, test methods to detect the pollutant in the wastewater influent and effluent, and/or the biosolids.

PFAS...

EPA's Actions (in part)



- **SDWA:**
 - EPA will propose including PFAS in the next UCMR monitoring cycle under the SDWA (2021).
 - EPA is initiating the process to regulate two PFAS in drinking water (PFOA and PFOS).
 - EPA developed three drinking water tests (Methods 537, 537.1 and 533) to detect 29 types of PFAS.
- **CWA:**
 - EPA is developing reliable test methods for wastewater and biosolids. In the interim, Method 537 and variations are being used by some authorized states to develop NPDES limits and monitoring requirements. EPA has cautioned such reliance given the methods are not validated.
 - EPA R4 presently uses [ASTM D7979](#) for testing PFAS in wastewater. It is the basis for the recently validated [SW-846 Method 8327](#) that is in the public comment phase of the EPA approval process.
 - EPA is studying industrial sources of PFAS, developing risk assessment studies for biosolids, and plans to develop national human health and aquatic life criteria (as data supports).

Updated EPA Pretreatment Program Guidance

- **Industrial User Inspection & Sampling Manual for POTWs –**
January 2017, EPA 831-B-17-001 (Supersedes 1994 version)
 - **Industrial User Permitting Guidance Manual –**
September 2012, EPA 833-R-12-001A (Supersedes 1989 version)
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- **Memo Addressing Zirconization Process (4/2016)**
www.epa.gov/eg/metal-finishing-effluent-guidelines-background-and-guidance-documents
 - **FAQ's for Dental Discharger and for Control Authority (2018)**
www.epa.gov/eg/dental-effluent-guidelines



EPA Planned Guidance Updates :

- Enforcement Response Plan Guidance Manual (1989)
- Guidance Manual for POTW Program Development (1983)
- Appendices to Industrial User Permitting Guidance
- Guidance Manual for the Control of Wastes Hauled to POTWs (1999)
- Procedures Manual for Reviewing a POTW Program Submission (1983)

Useful Tools for Control Authorities

- **TRI Search Plus:**

- Toxic Release Inventory – Local industries' reported releases of toxic pollutants, including discharges to POTWs.

- **IWTT:**

- Industrial Wastewater Treatment Technology – searchable treatment studies/methods by industry sector/pollutant.

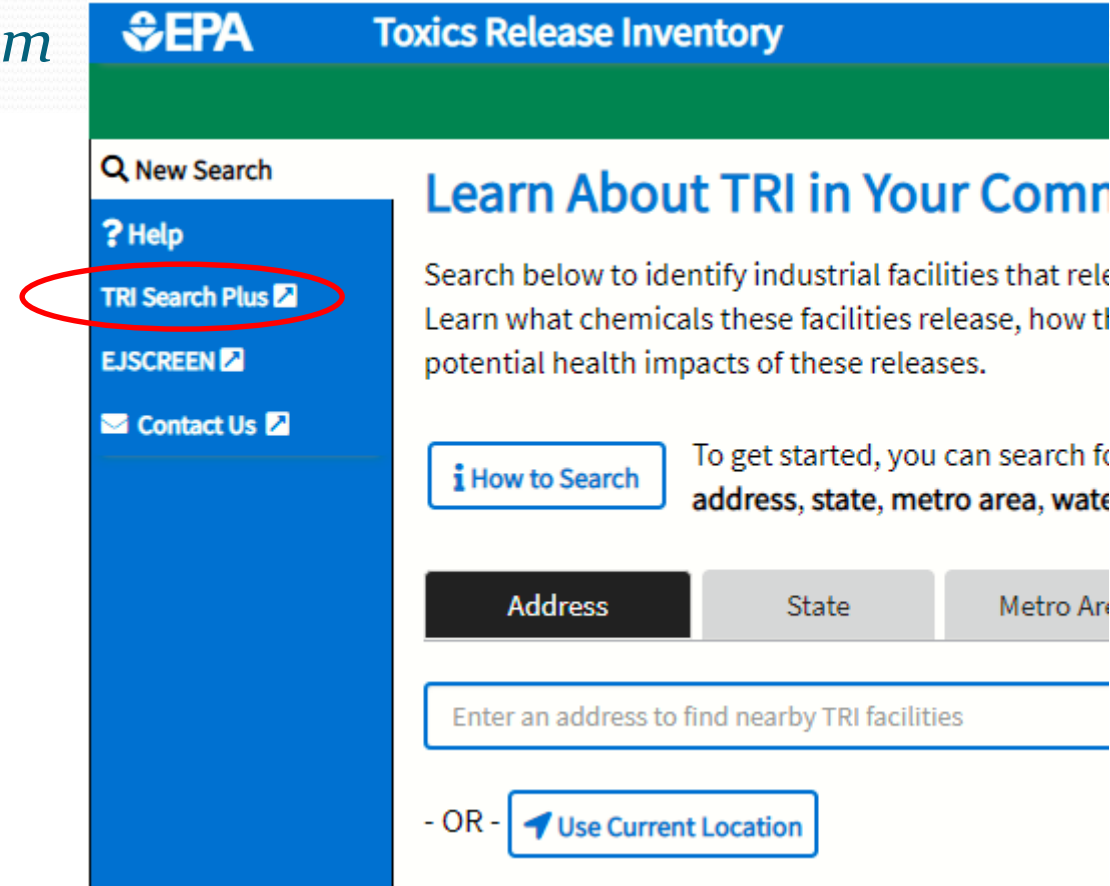
- **ECHO:**

- Enforcement and Compliance History Online – Records for industries (i.e., their locations having NPDES or State-issued SIU permits)

EPA TRI Search+ Web Application

www.epa.gov/toxics-release-inventory-tri-program

- Useful for:
 - Identifying new pollutants of concern to consider for local limits.
 - Investigating major sources of toxics to a POTW and which toxics are most prevalent or have greater dangers.
 - Identifying IUs that are reporting toxics or reporting discharges to a POTW but are not yet controlled by permit or otherwise.
 - Comparing TRI reports with toxics listed in the IU permit application.
 - Monitoring the annual trend of toxics discharged to a POTW by TRI reporters in my area.



EPA IWTT Web Application

www.epa.gov/eg/industrial-wastewater-treatment-technology-database-iwtt

- The information included in IWTT:
 - Includes peer-reviewed journals, conference proceedings, industry-specific and government reports, organized into a usable summary format.
 - Describes pilot-level to full-scale systems treating industrial wastewater.
 - Is easily searchable and meets specified data quality criteria.
- Useful for:
 - Studying the capabilities/deficiencies/cost-efficiencies of an IU pretreatment system in meeting a particular local limit.
 - Identifying a pretreatment train that may help reduce a pollutant in an IU's wastewater.

 United States Environmental Protection Agency
Office of Water
EPA 821-F-17-005
December 2017

Industrial Wastewater Treatment Technology Database (IWTT) Web Application

Summary

EPA has released the Industrial Wastewater Treatment Technology Database (IWTT) as a publicly accessible web application. IWTT presents industrial wastewater treatment technology performance data from peer-reviewed research articles as a web-based database application to provide public access to this useful resource. IWTT can be used for many purposes including investigating established and emerging treatment technologies, identifying technologies that can treat a particular pollutant, and understanding the motivation behind installation of new treatment at and industrial facility.

To use the IWTT Web Application, go to EPA's website at: www.epa.gov/iwtt

What questions can IWTT help me answer?

IWTT can help answer questions like:

- What pollutants can be removed using an existing treatment technology (and what has been the percent removal and/or influent and effluent concentrations)?
- What treatment technology or technologies are being used to remove particular pollutants or categories of pollutants (e.g., metals, priority pollutants) from industrial wastewater?
- What new or existing treatment technologies are being developed or improved by a particular industry?
- What new treatment techniques or strategies are being used to improve treatment performance?
- What is motivating innovation, development, and implementation of new or upgraded treatment systems?

Background

EPA developed IWTT to compile performance data for industrial wastewater treatment technologies into a comprehensive, readily searchable database. IWTT contains information from over 200 peer-reviewed articles that document the performance of new and improved industrial wastewater treatment technologies. Over time, EPA plans to expand the information in the database and improve the web application to make IWTT even more useful.

What types of information can I find in IWTT?

IWTT is a collection of information from peer-reviewed and technical literature containing data from pilot- and full-scale industrial wastewater treatment systems. IWTT data sources include research journals, industry trade group publications, and conference proceedings. IWTT contains comprehensive bibliographic information from each publication and catalogs all technical data available in the publication. You can find more details about the information in IWTT by reading Table 1.

EPA ECHO Web Application

echo.epa.gov/resources/general-info/tool-guide

- Useful for:
 - Evaluating the compliance trends of a local IU's sister facilities having NPDES or State-issued SIU permits.
 - Evaluating an IU's compliance record with RCRA/waste disposal.
 - Looking up other types of permits that an IU holds, and their compliance history with them.



EPA Web-based Training



“Pretreatment 101” Webinar Series:

www.epa.gov/npdes/national-pretreatment-program-training-and-webinars

- Introduction to the National Pretreatment Program
- Industrial User Waste Survey Procedures
- Overview of Pretreatment Standards
- Pretreatment Standards - Local Limits Development
- Industrial User Permitting
- POTW Pretreatment Considerations and Permitting Programs for Hauled Waste
- POTW Procedures for Conducting Compliance Inspections
- POTW Procedures for Conducting Compliance Monitoring

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