



# Contaminants of Emerging Concern

For Water & Wastewater

Northern Conference | Illinois Rural Water | Rockford, Illinois  
October 29, 2025 | Presented by Kim Cole, P.E.

# MEET THE AUDIENCE



**Water or  
Wastewater  
Operator**



**I think about  
“emerging”  
concerns**



**Consultant or  
Regulator**



**>20 years in Water  
or wastewater**

# AGENDA



**New Approach to  
Pretreatment  
Programs**



**Tools We Can Use**



**Homework**

# Bigger Picture

- Changing Regulations
- Emerging Pollutants
- Long-Term Planning
- Aging Infrastructure
- WWTP Capacity
- Other Priorities
- One water concepts



# WHAT ARE WE DEALING WITH?



**Nutrient  
Regulations**



**PFAS Impacts &  
Regulations**

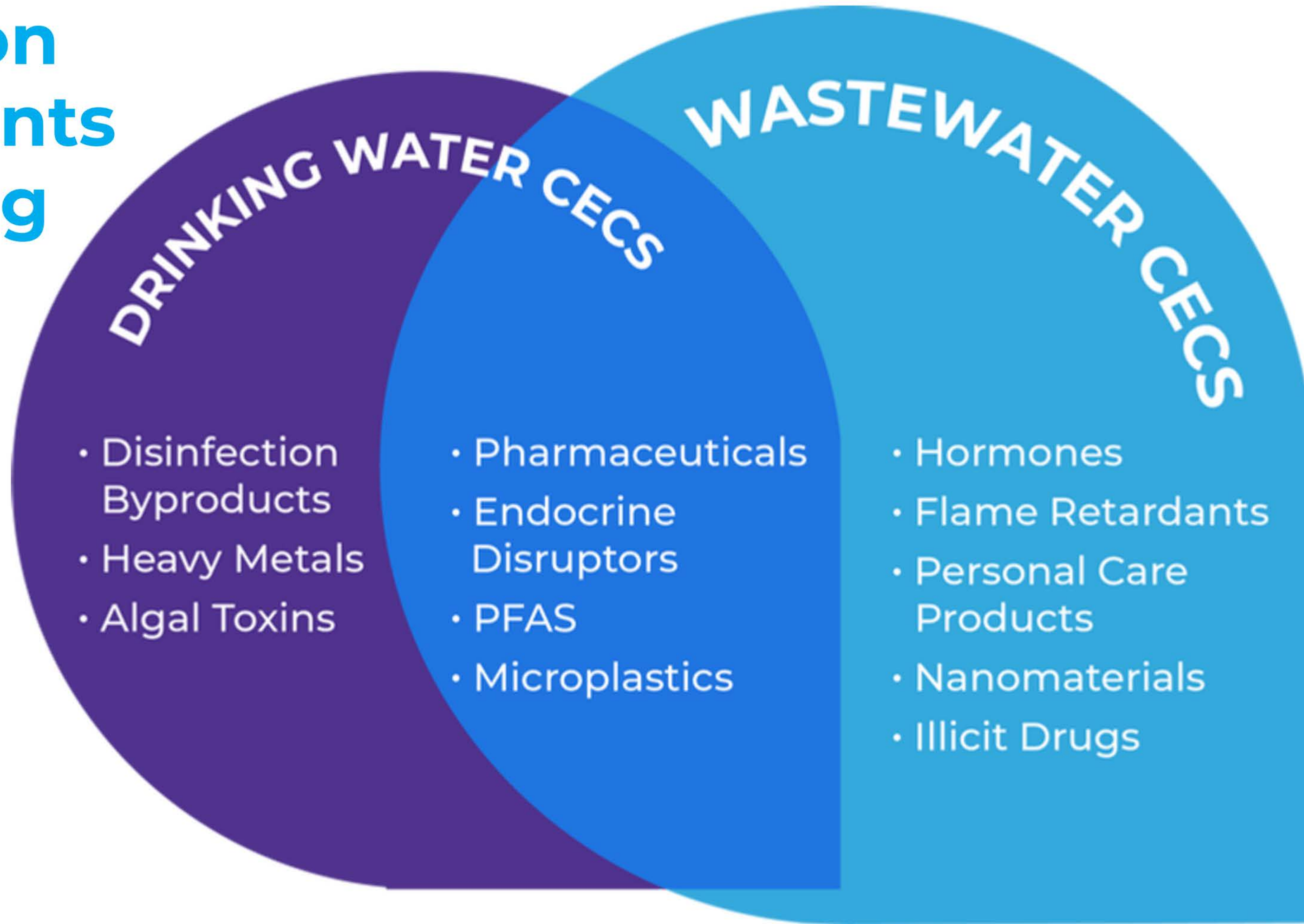


**New Industry  
Types**



**Natural  
Disasters**

# Thoughts on Contaminants of Emerging Concern (CECs)



# Impacts to Our Health

**Nitrates:** “Blue Baby Syndrome”

**Pesticide Residues:** Atrazine

**Endocrine Disruptors:**

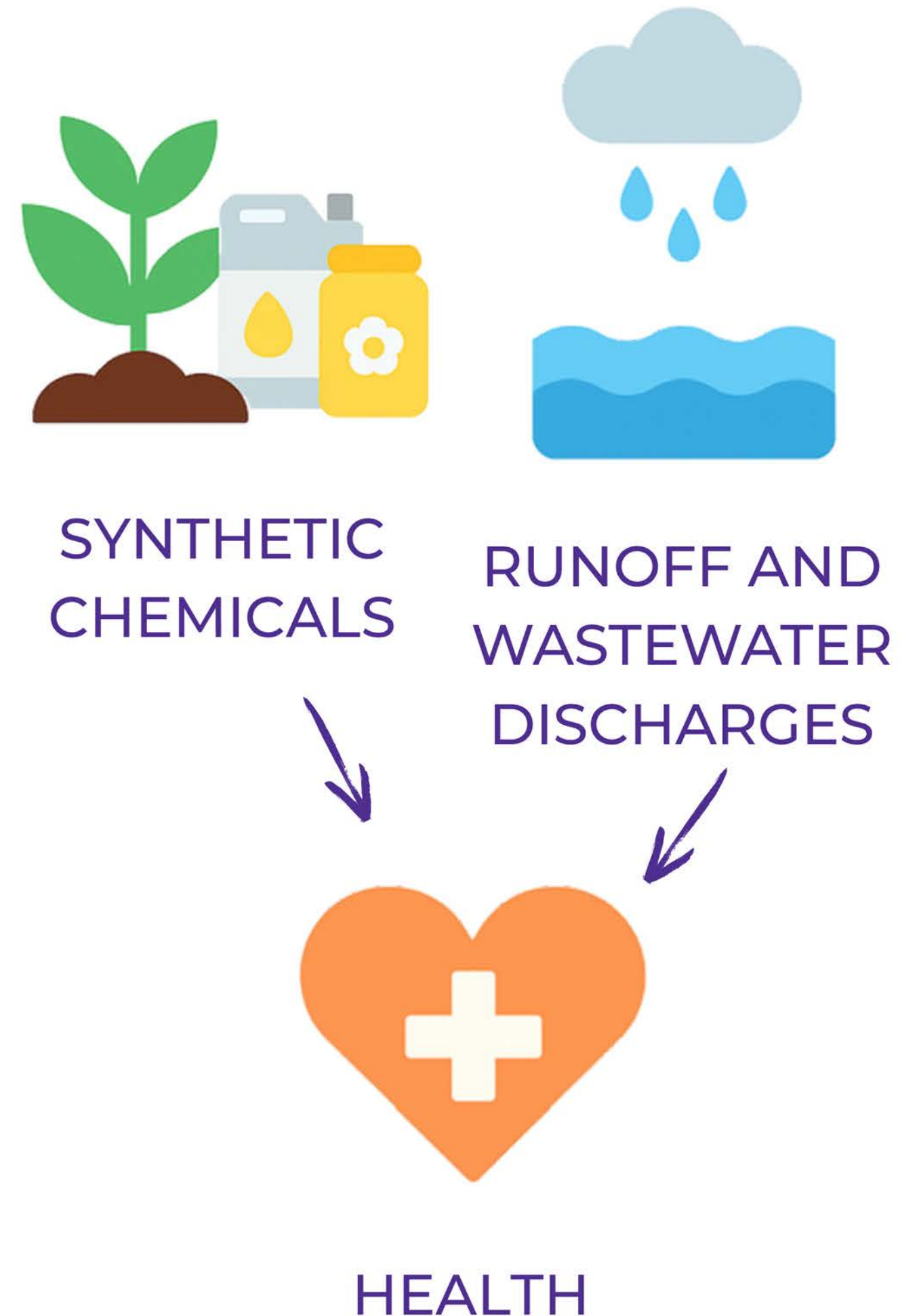
Hormone-Like Effects

**Algal Blooms** (Excess Nutrients):

Toxins

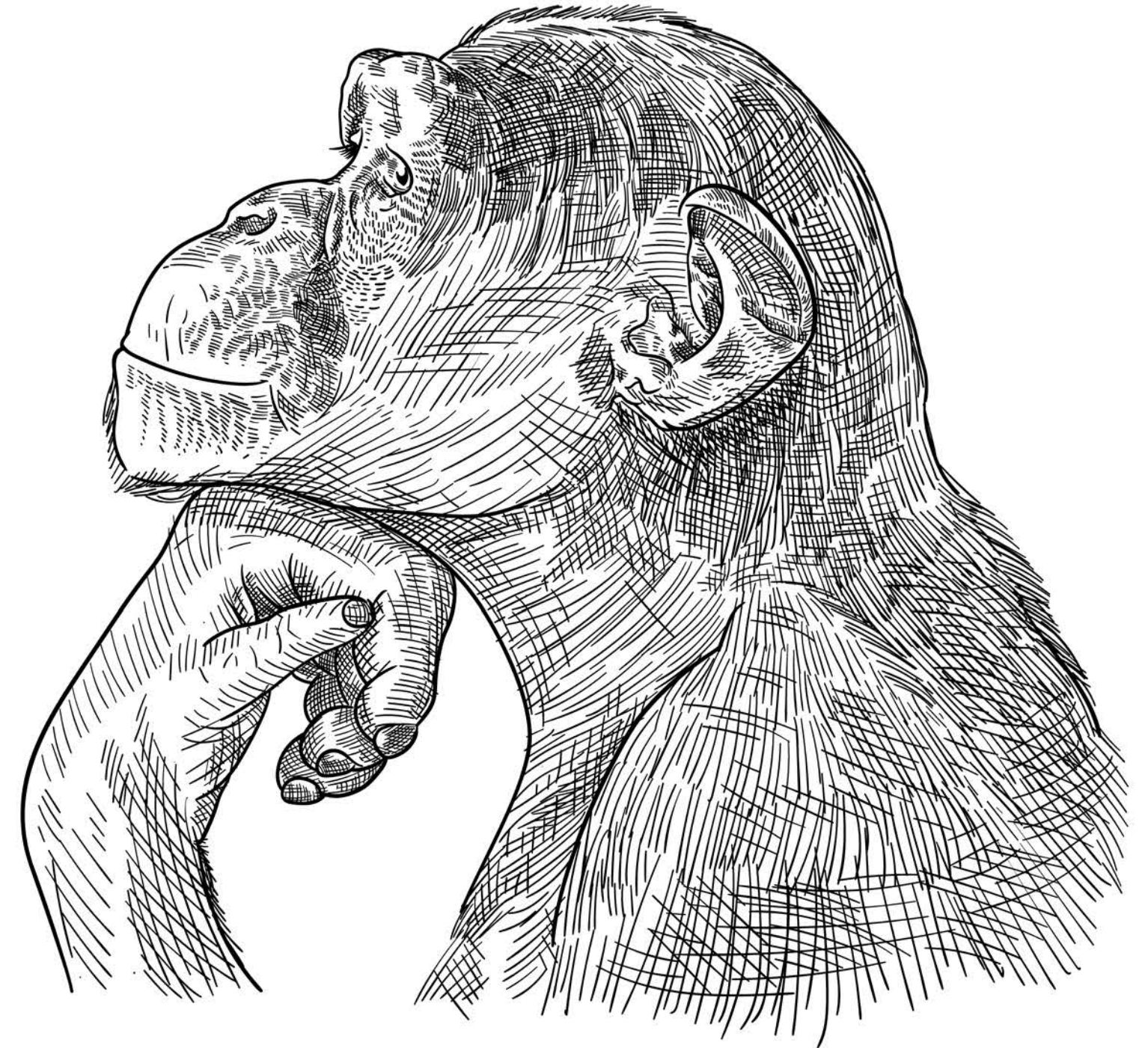
**Lithium?**

**Water treatment doesn't always work, especially if the compounds are small, persistent, or polar.**



# How does this relate to water & wastewater?

- Federal regulations haven't been updated
- Test methods are being developed
- Pretreatment programs allow for “local” limits
- Importance of “integrated” utilities
- Uncertain regulatory direction





# Let's Talk About Fires



# “Modern” Fires <> Synthetic Materials

**Polyurethane Foam:** Couches and beds

**Vinyl and Plastic:** Flooring

**Synthetic Fabrics:** Curtains and carpets

**Electronics and Appliances**

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**Pros:** Cheap, comfortable to use, look great, durable

**Cons:** Fuel for fire (petroleum-based)



# Synthetic Fire Consequences

## **Burning Synthetics Release:**

- Dioxins and furans (cancer-causing)
- Cyanide and carbon monoxide
- VOCs and soot particles
- Smoke is more toxic



# Long-Term Impacts of Synthetic Fires

- Runoff contaminates groundwater
- PFAS from fire retardants and burned material
- Persistent pollution in soil and watershed

**Impacts our water  
sources**



# Connection with Utilities

- Regulatory Compliance
- Utility Liability
- Persistence = problem will get worse
- Health implications
- Understand future potential regulations
- Big picture tie-in to one water concepts
- Source Water Protection Plans



# Current Utility Operations

HOW IT'S ALWAYS BEEN DONE



Water System  
(Plant &  
Distribution)



Wastewater System  
(WWTP & Collection  
System)



Stormwater  
Systems



Fire  
Departments

**Pollutants overlap in our water system.**

# Utility Operations: The Old Way

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- Because we **HAVE** to
- Because it's already **BEEN DONE**
- Because we aren't busy **ENOUGH**
- Because we got an **ENFORCEMENT ACTION**



# Utility Operations: The New Way

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- Use for **NEW DEVELOPMENTS**
- Use for **NEW CONTAMINANTS & REGULATIONS**
- Use for **CONTROLLING DISCHARGES**
- Use for Building **COMMUNITY PARTNERSHIPS**
- **SOURCE WATER PROTECTION PLAN** Connection



# Suggestions & Tools



# Getting Buried

- Nutrient Limits
- PFAS Uncertainty
- Data Centers
- Industry Manufacturing vs. Federal Standards
- Surcharges
- Cost Recovery
- Interpreting Data



# Tools Available



Legal Authority



Industrial Waste  
Surveys



Source Water  
Protection Plans



Cost Recovery

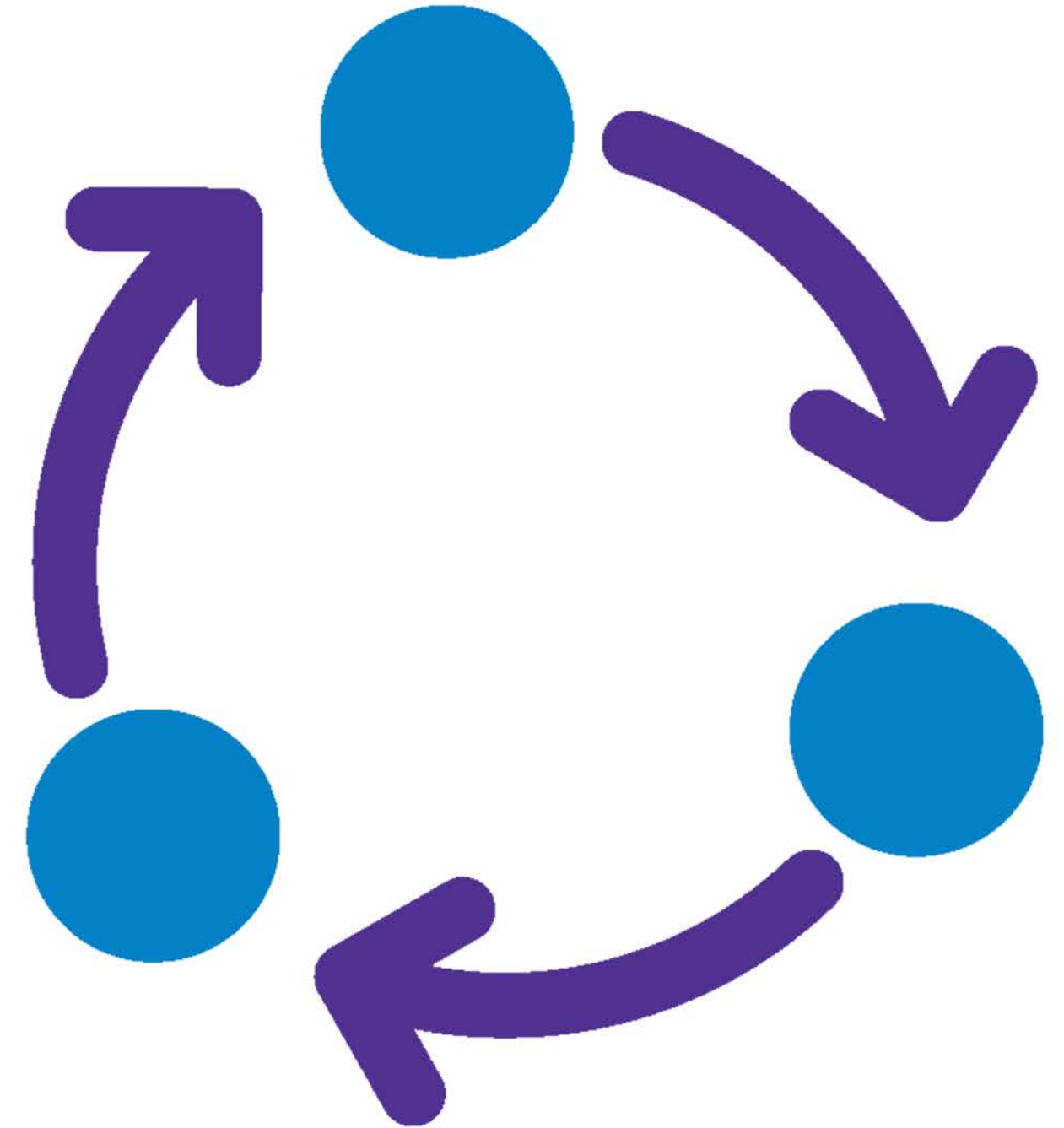
# Legal Authority Considerations

- **Definitions**
- **Control Mechanisms**
- **BMP Evolution**
- **Cost Recovery**
- **Other Program Overlap**



# Locate Industrial Users

- Use Existing Data
- Updated Forms
- Use “Tables” in Excel
- Integrate into GIS
- Sector-Specific Questionnaires



**Know who might impact your POTW!**

# Publically Available Data

- EPA's ECHO System
- State Website(s)
- Toxic Release Inventory
- Data Axle (Reference Solutions)





## Enforcement and Compliance History Online

[Login](#) [Contact Us](#)



Quick Search



Search Options



Analyze Trends



Find EPA Cases



Data Services



Help



News

### Quick Search

Search By

Location

Facility Name/ID

Enter city, state, and/or zip code

Search

[More Search Options](#)

Use EPA's Enforcement and Compliance History Online website to search for facilities in your community to assess their compliance with environmental regulations. You can use ECHO to:

- Search for Facilities
- Investigate Pollution Sources
- Search for EPA Enforcement Cases
- Examine and Create Enforcement-Related Maps
- Analyze Trends in Compliance & Enforcement Data



[Read  
the  
Quick  
Start  
Guide](#)



[Watch a  
Video  
Tutorial](#)



[Explore  
the Tool  
Guide](#)

## Export to Excel

- Search by sector
- Search by geography
- See compliance history

# TRI Toolbox

The Toxics Release Inventory (TRI) Program tracks the industrial management of toxic chemicals. TRI data are reported annually by industrial and federal facilities that meet reporting requirements. EPA makes these data available through multiple online tools, many of which add context to help make the reported data more understandable.

## Search for TRI Data & Tools



## Full List of TRI Data & Tools

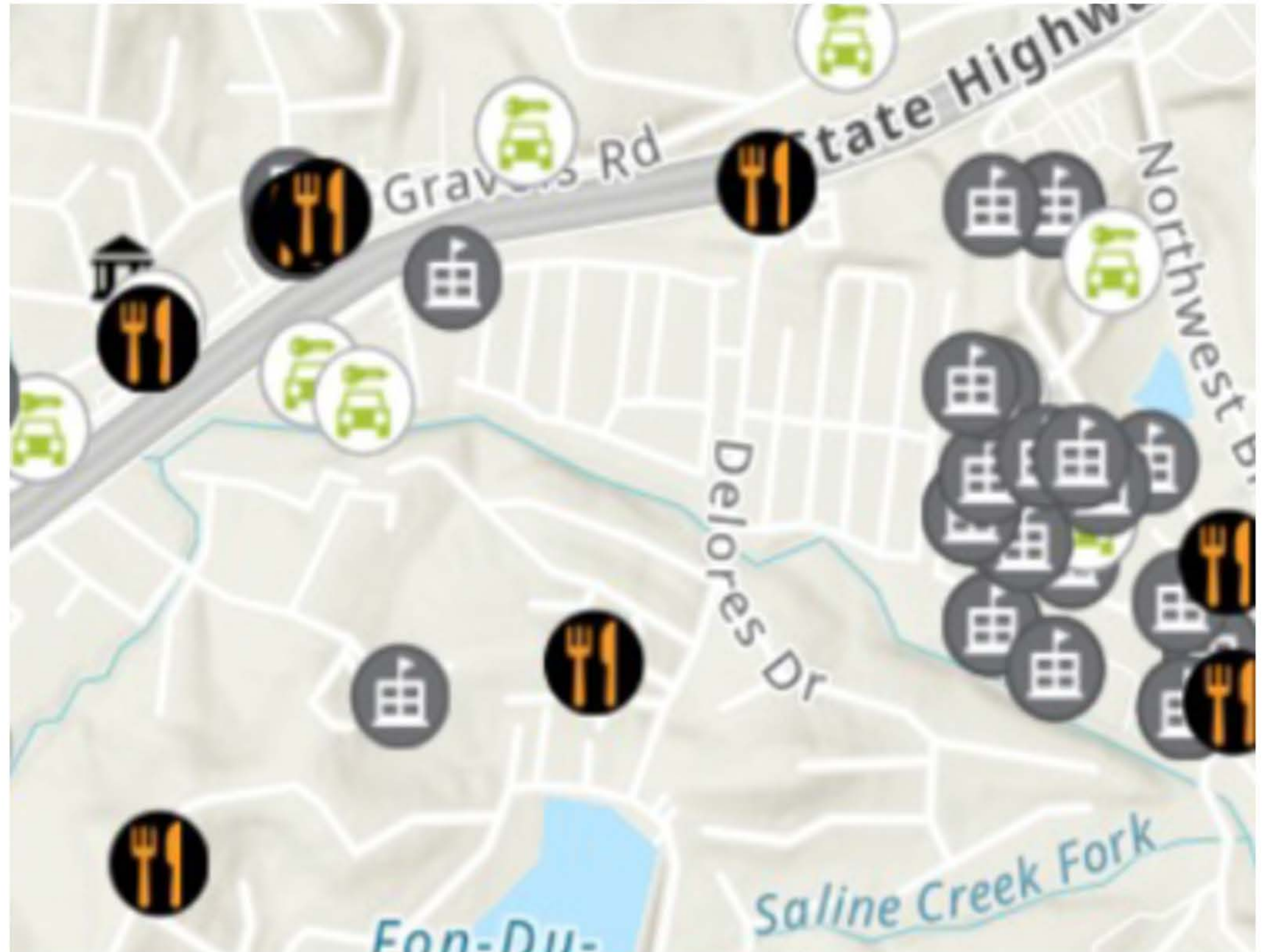


## Related Resources

- [Factors to Consider When Using TRI Data](#)
- [Status of tools and planned updates](#)
- [Guides and tutorials](#)
- [TRI glossary](#)

# Map It!

- Target industry sectors
- Surveys (mail, email or hand deliver)
- GIS or Google Maps
- Integrate with other locational data
- Tie in to Water Supply Sources



## Example List in Excel

|    | A                                 | B                         | C                  | G          | H               | I                                       | J                                   | K                            | L              | M             |        |
|----|-----------------------------------|---------------------------|--------------------|------------|-----------------|-----------------------------------------|-------------------------------------|------------------------------|----------------|---------------|--------|
| 1  | Exclusion Code                    |                           | IWS Mailing Date 1 |            | IWS Respo...    | Primary NAICS Description               |                                     |                              |                |               |        |
| 2  |                                   |                           |                    |            |                 |                                         |                                     |                              |                |               |        |
| 3  | 2                                 | 3                         | 9/12/2023          | (blank)    | 11/7/2023       | Administrative Management And...        | Air-Conditioning And Warm Air H...  | Air-Conditioning and Warm    |                |               |        |
| 4  | 4                                 | 5                         |                    |            | 4/1/2024        | All Other General Merchandise R...      | All Other Industrial Machinery M... | All Other Miscellaneous Ch   |                |               |        |
| 5  |                                   |                           | IWS Mailing Date 2 |            | 4/2/2024        | All Other Miscellaneous Fabricate...    | All Other Miscellaneous Manufac...  | All Other Miscellaneous Te   |                |               |        |
| 6  | 6                                 | 7                         | 4/1/2024           | 4/10/2024  | 4/11/2024       | All Other Professional, Scientific, ... | All Other Publishers                | All Other Rubber Product M   |                |               |        |
| 7  | 8                                 | (blank)                   |                    |            |                 | Automobile And Light Duty Moto...       | Automobile And Other Motor Ve...    | Automotive Body, Paint, An   |                |               |        |
| 8  |                                   |                           | Priority?          |            | (blank)         | Automotive Glass Replacement S...       | Automotive Oil Change And Lubri...  | Automotive Parts And Acco    |                |               |        |
| 9  |                                   |                           | Priority           | (blank)    |                 |                                         |                                     |                              |                |               |        |
| 10 |                                   |                           |                    |            |                 |                                         |                                     |                              |                |               |        |
| 11 |                                   |                           |                    |            |                 |                                         |                                     |                              |                |               |        |
| 12 | Company Name                      | Operating Name            | Exclusio           | Physical   | City (physical) | State (p                                | ZIP (physical)                      | Mailing Address (if differer | City (mailing) | State (mailin | Zip (p |
| 13 | Atlasta Specialty Ink Inc         |                           |                    | 4600 S Sq  | High Ridge      | MO                                      | 63049                               |                              |                |               |        |
| 14 | Master taste-Fenton               |                           |                    | 747 Sunpa  | Fenton          | MO                                      | 63026                               |                              |                |               |        |
| 15 | Sieveking Fuels and Lubes         | Sieveking Fuels and Lubes |                    | 4636 Walk  | High Ridge      | MO                                      | 63049                               | 2130 Kielen Ave              | St. Louis      | MO            | 63049  |
| 16 | Production Castings Inc           |                           |                    | 1440 West  | Fenton          | MO                                      | 63026                               |                              |                |               |        |
| 17 | Liberty Blasting LLC              |                           |                    | 209 Seebo  | Fenton          | MO                                      | 63026                               |                              |                |               |        |
| 18 | H-J Enterprises                   |                           | 2                  | 6217 High  | High Ridge      | MO                                      | 63049                               |                              |                |               |        |
| 19 | Gateway Stone Fabricators         |                           | 6                  | 2516 N Lar | Fenton          | MO                                      | 63026                               |                              |                |               |        |
| 20 | Scientific Lighting Products      | SLP Lighting              |                    | 1400 S Olc | Fenton          | MO                                      | 63026                               |                              |                |               |        |
| 21 | Wegmann Co LLC                    | Wegmann Companies         |                    | 111 Trw Ir | High Ridge      | MO                                      | 63049                               |                              |                |               |        |
| 22 | American Gold Label & Printing Co |                           |                    | 2614 Grav  | High Ridge      | MO                                      | 63049                               |                              |                |               |        |
| 23 | Flexible Cutting Systems          | JMJ Enterprise LLC        | 6                  | 4581 N Sq  | High Ridge      | MO                                      | 63049                               |                              |                |               |        |
| 24 | Jerry Haas Race Cars Inc          |                           | 6                  | 350 Haas I | Fenton          | MO                                      | 63026                               |                              |                |               |        |

< > ...

2023-08.29 DataAxle&ECHO LIST

2024-04.01 Second Mailing

No Response as of 2023-12.12

Water Usage

ECHO ... +

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# Sector-Specific Surveys

| FACILITY PROCESSES:                                                                          |                                                                       |                                                                                      |                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Please specify your current facility operations and the corresponding wastewater generation. |                                                                       |                                                                                      |                                                                                                                                                                                 |
| Process or Activity                                                                          | Are the following processes or activities performed at this facility? | Is wastewater generated resulting from this process or activity?                     | What is the destination of the wastewater? <i>(discharged to sanitary sewer, hauled off-site, stormwater runoff, evaporated, land applied on/off site, reused onsite, etc.)</i> |
| Animal Slaughter                                                                             | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Bleeding                                                                                     | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Washing                                                                                      | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Deboning, Chopping, Grinding                                                                 | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Smoking or Curing                                                                            | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Cooking                                                                                      | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Canned Meat Processing                                                                       | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Dry Rendering                                                                                | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Processing Blood                                                                             | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Processing Hides                                                                             | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Live Receiving/Corralled Animals                                                             | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Defeathering (poultry)                                                                       | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Hide/Hair Removal                                                                            | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Packaging                                                                                    | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Sausage & Luncheon Meat Processing                                                           | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |
| Equipment Cleaning & Sanitation                                                              | <input type="checkbox"/> Yes <input type="checkbox"/> No              | <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA |                                                                                                                                                                                 |

# Microsoft Form Example: Collection System or WWTP Observations

\* Required

## 1. Person Performing Report \*

Person reporting and observing the incident

Enter your answer

## 2. Date of Incident \*

Date incident was observed

Please input date (M/d/yyyy)



# EXAMPLE INDUSTRY DISCUSSION

| Emerging Pollutant                                        | PFAS                                                                                        | Nutrients: Phosphorus                                                                        | Nutrients: Total Nitrogen                                             |
|-----------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>IU Monitoring Summary of Available Results</b>         | Last Inspection:Sampling each quarter, in the process of eliminating use of PFAS in process | Some phosphorus concentrations are above domestic strength                                   | Ammonia violation in May 2024, POC for IU                             |
| <b>CA Summary of Available Results</b>                    | IU Monitoring results only                                                                  | Consistent with IU                                                                           | Consistent with IU                                                    |
| <b>Based on Process Knowledge</b>                         | Present: Etch implemented a new trial, close to no PFAS levels                              | Present                                                                                      | Present                                                               |
| <b>Identify Any Follow-up (also include in beginning)</b> | Confirm plan for future tracking or reduction                                               | City is considering implementing a high strength surcharge for planned capital improvements. | TN will likely be regulated in the future; also considering surcharge |

# How do we pay for this?

- **Surcharges**
  - **Conventional**
  - **Nutrients**
- **Define “reference” concentrations**
- **Cost of Service Studies**
- **Disruptions (vs passthrough or interference)**



# Unresolved

- New Administration
- New (and changing) Regulations
- Limited Budgets
- One Water Connection
- Water Scarcity
- “Emerging” test methods



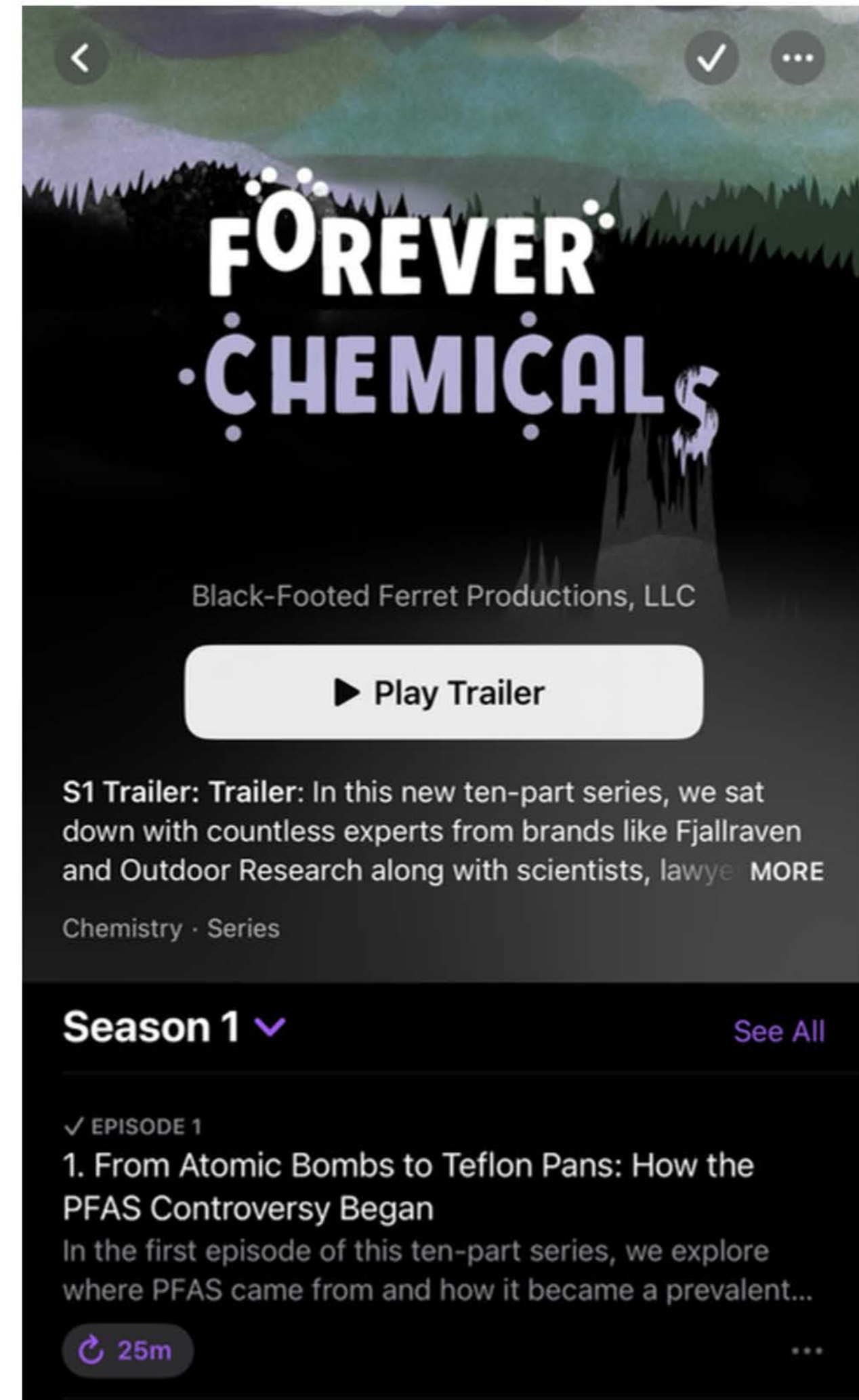
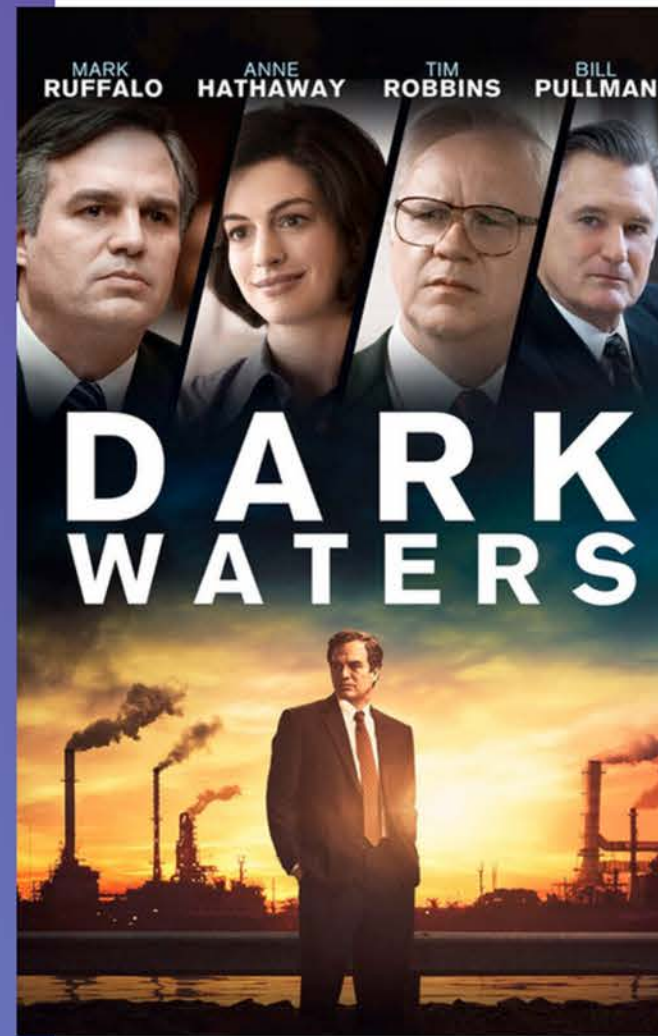
# Our Job as a Utility Person

- Education
- Current & future regulations
- New Industries/Growth
- Keep our “one water” safe
- Integrated planning and resources
- UNDERSTAND WORLD-WIDE MOVEMENT



# Suggestions

- Watch “Dark Waters”
- Watch “The Devil We Know”
- List to the Podcast: “Forever Chemicals”
- David Sedlack:
  - Podcasts
  - Water 4.0
  - Water for All
- Have Conversations



# Questions?

**Kimberly A. Cole, P.E.**  
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**Collaborative**

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