

DEPARTMENT OF ENVIRONMENTAL CONSERVATION









## **Investigating PFAS sources to Vermont Wastewater Facilities**

Eamon Twohig, Residuals Management & Emerging Contaminants Vermont Department of Environmental Conservation

## US EPA Performance Partnership Grant



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Our Team

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

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Statewide wastewater evaluation of PFAS:

- ~400 samples
- Analyzed for 24 PFAS via EPA Modified 537
- Landfill leachates (4)
- WWTF influent, effluent (19), solids (22)
- Industrial discharges (2)

## REPORT

#### January 30, 2020

Poly- and Perfluoroalkyl Substances at Wastewater Treatment Facilities and Landfill Leachate

2019 Summary Report



#### Average of $\sum$ VT-5 PFAS (ppt) in Samples of WWTF Influent and Effluent



### Average PFAS (ppb) in Samples of Residual Materials



Town	Site	Sample Type/Freq	Sources
Essex Junction	Suzie Wilson Road	Grab (3)	retail, gas stations, restaurants, beauty salons
	Pearl Street (gravity)	Grab (3)	retail, gas stations, restaurants, automotive services
	Cascade Street	Grab (3)	residential only
	PCP-1	Grab (3)	Personal care product manufacturer
	PCP-2	Grab (3)	Personal care product manufacturer
	Industrial Valve-1	Grab (3)	Industrial valve manufacturer
	POTW Influent	Time Comp (3)	all the above
	POTW Effluent	Time Comp (3)	all the above
Middlebury	Rogers Rd/PS 7	Grab (3)	residential
	Porter	Grab (3)	hospital, medical clinics
	Pump Station 3	Grab (3)	hospital, college dorms
	Pump Station 9	Grab (3)	residential
	North Sector (gravity)	Grab (3)	restaurants, food & beverage manufacturers, fitness gym
	POTW Influent	Time Comp (3)	all of the above
	POTW Influent	Time Comp (3)	all of the above
	Total:	45 Samples	Analysis: EPA M537 (Isotope Dilution), TOP Assay, TSS



#### **Town of Middlebury**

- Middlebury College
- AgriMark (Cabot) SIU
- Otter Creek Brewery
- American (Woodchuck) Cider
- Drop In Brewery
- Champlain Valley Creamery

## **Middlebury POTW**

- Pop Served = 9800
- Permitted flow = 4.4 MGD
- Avg Annual Flow = 1.1 MGD
- Sequency Batch Reactor
- Septage Receiving
- Class A biosolids
  - Pasteurization via lime+heat









#### **Village of Essex Junction**

- Tri-Town (Essex, Williston)
- Personal Care Product Industry
- Burlington Beer
- Champlain Valley Expo
- Fast Food

## Essex POTW

- Pop Served = 28,000
- Permitted flow = 6.6 MGD
- Avg Daily Flow = 1.8 MGD
- Activated Sludge
- Anaerobic Digestion
- Septage Receiving
- Class B biosolids
  - local Ag land application









### FY20 EPA P2 Grant

### Implement source reduction technical assistance at businesses in National Emphasis Areas:

- Aerospace Product and Parts Manufacturing and Maintenance
- Metal Manufacturing and Fabrication

Reduce/Eliminate sources of PFAS in wastewater from metals and aerospace businesses.

#### Major project elements:

- Workgroup of 5 participating businesses (cohort);
- Sampling;
- Source identification;
- Alternative scoping; and
- Recommendations to implement practices.

#### **Project Goals:**

- 1. Characterize PFAS species, concentration, and mass in wastewater;
- 2. Identify and quantify sources of PFAS contributing to wastewater;
- 3. Research and identify alternatives or practices to reduce PFAS containing sources; and
- 4. Encourage adoption of pollution prevention or source reduction practices.









## What are seeing so far?

- PTFE seal coating
- Mist suppressants
- Etching of Teflon parts
- Stripping of Teflon wire
- Propriety anionic surfactants used in nickel plating

# Next Steps

- Additional sampling and source ID at facilities
- Compile data and investigate alternatives / source reduction strategies (technical assistance)
- Additional sampling at receiving WWTFs and all metal finishers across Vermont
- Collaboration with UNH on data reporting
- Model for POTWs on how to conduct PFAS source identification and reduction



## Thank you!

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Report available at: https://dec.vermont.gov/pfas

