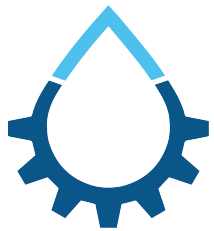
National Pretreatment Virtual Event

PART 2

Pretreatment for PFAS: On the Horizon?



The National Association of Clean Water Agencies

May 13, 2020 | 2:00 PM - 3:30 PM EST

50 | NACWA

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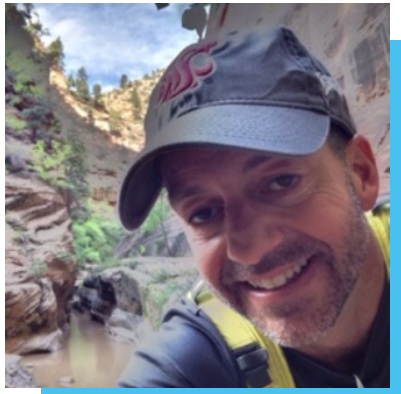
Moderators



Frank Dick,

Wastewater Engineering Supervisor
Department of Public Works
City of Vancouver
Vancouver, WA

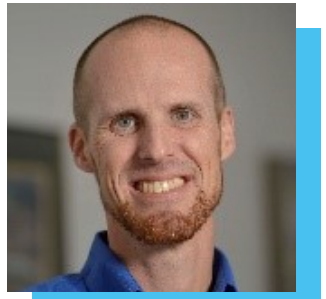
Kerry Britt

Pretreatment Manager
Narragansett Bay Commission
Providence, RI

Featured Speakers

Carla Davidson

IPP PFAS Regional Specialist
Lansing District Office
Water Resources Division
Michigan Department of Environment
Great Lakes & Energy
Lansing, MI

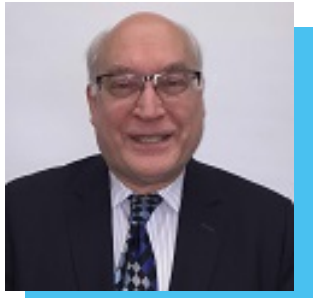


Kurt Anderson

Industrial Pretreatment Program Supervisor
City of Grand Rapids
Grand Rapids, MI

Jared Voskuhl

Manager, Regulatory Affairs
California Association of Sanitation Agencies
Sacramento, CA



Stephen Kuplicki

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Industrial Waste Control & Analytical Laboratory
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Detroit, MI

Jeffrey McBurnie

Director
Permitting & Regulatory Affairs
Casella Organics
Hermon, ME

Emily Remmel

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National Association of Clean Water Agencies
Washington, DC

Michigan's Industrial Pretreatment Program – PFAS Source Control Approach

May 13, 2020

Carla Davidson, Regional Pretreatment Program Specialist,
EGLE Water Resources Division (WRD), Emerging Pollutants Section
517 243-1249 | davidsonc@michigan.gov

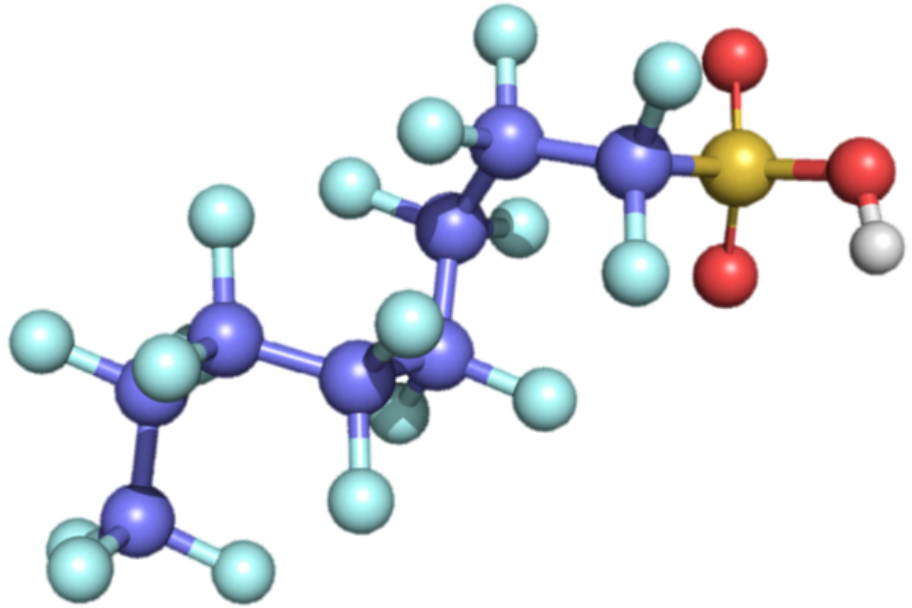
MPART

PFAS—Class of Manufactured Chemicals

- **PFAS** – Per and Polyfluoroalkyl Substances
- Synthetic, used extensively for 70 years
- Useful properties: oil- and water-resistance
- PFAS of Concern in Michigan for surface waters:
  - **PFOS:** Perfluorooctane Sulfonate
  - **PFOA**: Perfluorooctanoic acid

Why the Concern?

- Widespread
- Don’t break down easily - hard to get rid of
- Bioaccumulative – build up in our bodies
- Some PFAS may affect health
- Lack of information
- Lack of standards



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PFAS and Drinking Water National Study ACS, 2016

- PFOS/PFOA found greater than EPA lifetime health advisory (70 ng/l) in public drinking water sources for 6 million US residents
- Number of PFOS/PFOA manufacturers, military fire training areas, and **WWTPs** in watersheds were significant predictors of PFAS detection in public water supplies. For more information:

  https://pubs.acs.org/doi/10.1021/acs.estlett.6b00260

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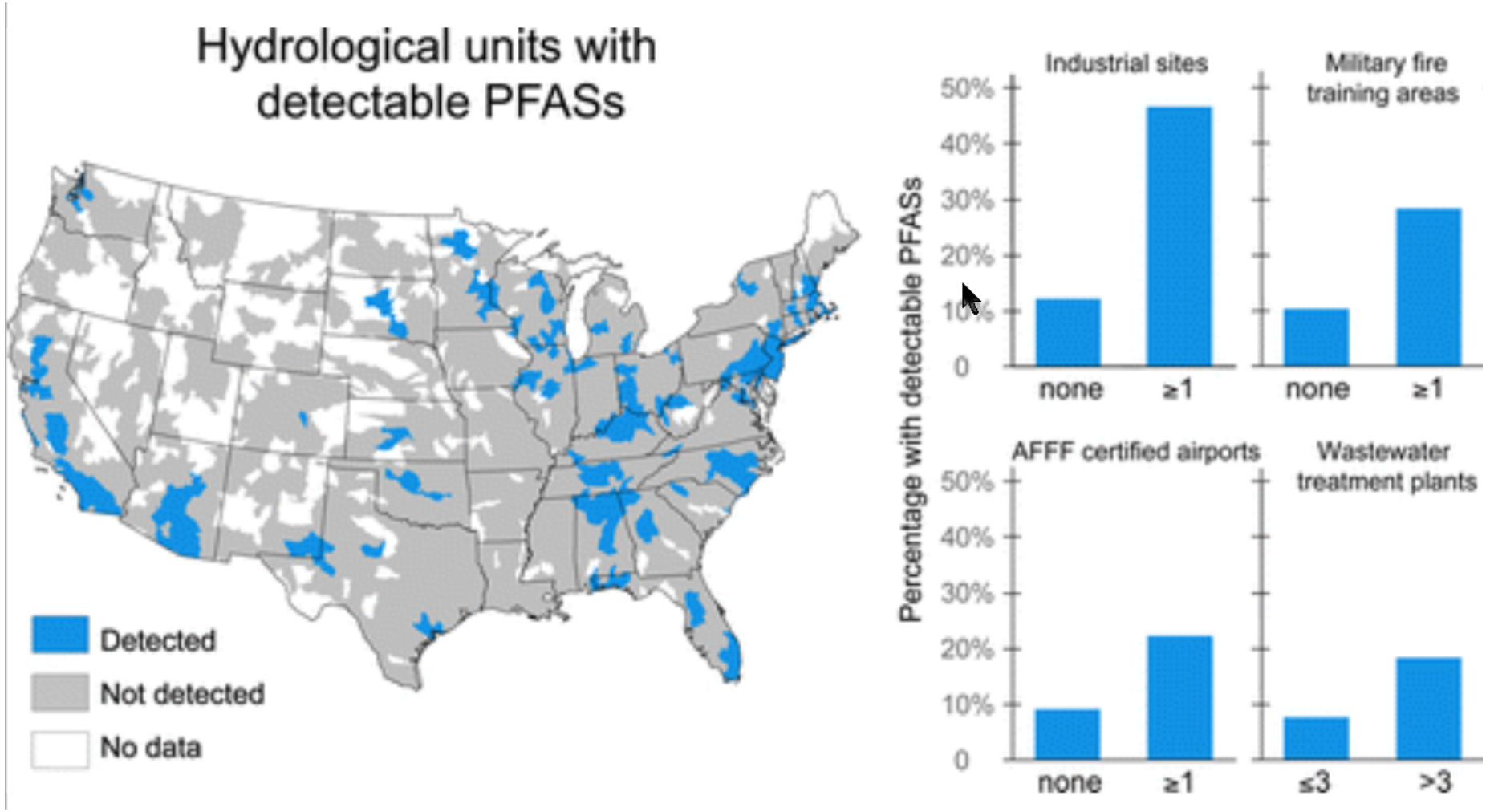
ACS Study 2016



https://pubs.acs.org/doi/10.1021/acs.estlett.6b00260

(further permission related to the material excerpted should be directed to the ACS)

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EGLE Water Quality Criteria for PFAS

- Michigan developed Rule 57 Human Noncancer Values (HNV) for PFOA (2011) and PFOS (2014) in surface waters

PFAS	HNV (nondrinking)	HNV (drinking)	FCV, ppt	FAV, ppt	AMV, ppt
PFOS	12	11	140,000	1,600,000	780,000
PFOA	12,000	420	880,000	15,000,000	7,700,000

Human Noncancer Values (HNVs); Aquatic Life Final Chronic Value (FCV), Final Acute Value (FAV), and Aquatic Maximum Value (AMV)

- PFOS builds up in fish tissue to a higher degree than PFOA

MPART

NPDES Requirement:
Industrial Pretreatment Program (IPP)

- **For WWTPs w/IPPs**: require **source evaluation** and **follow up**
- To ensure WWTPs are not passing through PFOS or PFOA greater than water quality standards
- To prevent interference with management of biosolids
- Current permit requirement, new pollutants

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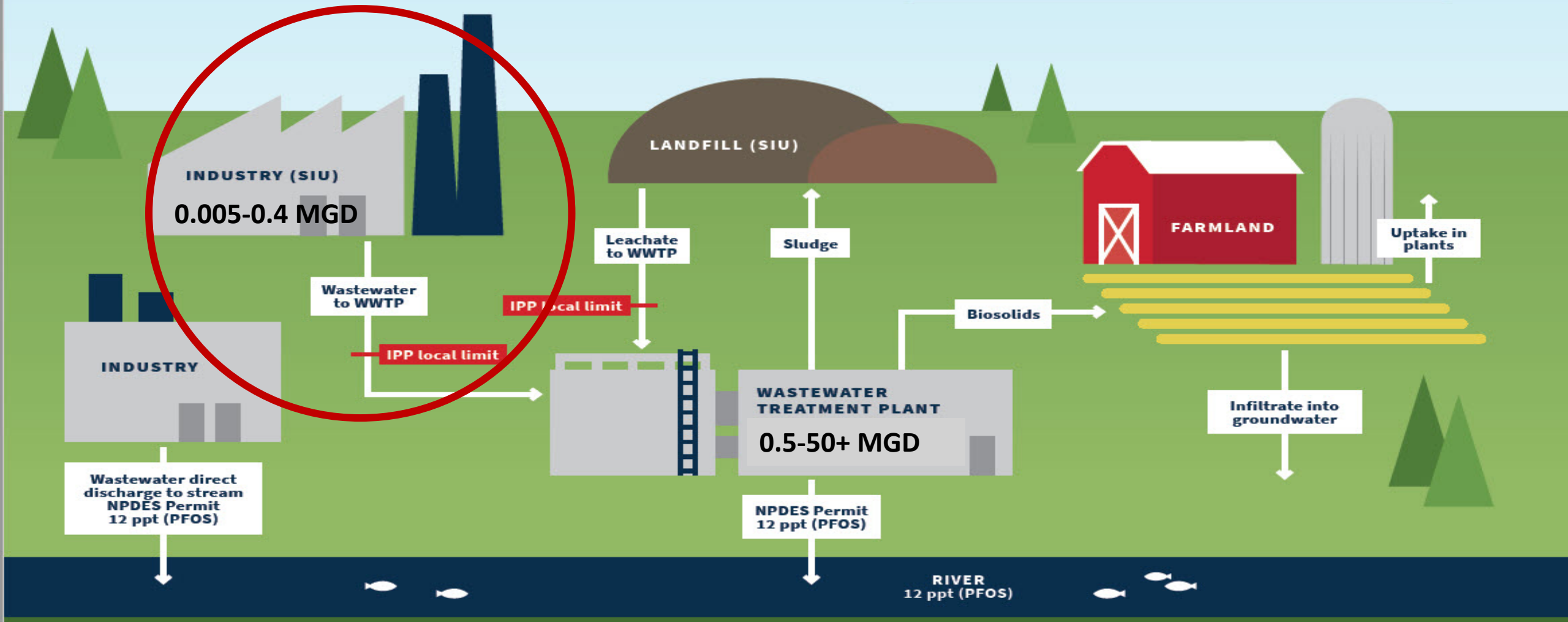
IPP-Controlling PFAS at the source

IPP = Industrial Pretreatment Program
SIU = Significant Industrial User
NPDES = National Pollutant Discharge Elimination System
PPT = Parts Per Trillion
WWTP = Wastewater Treatment Plant



EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

800-662-9278 | *www.michigan.gov/pfasresponse*

05/2019

IPP PFAS Initiative

- February 2018 – 95 WWTPs required to screen Industrial Users
  - Evaluate Industrial Users with potential sources of PFAS
  - Follow-up sampling of probable sources if found
  - Sample WWTP effluent if sources > screening criteria (12 ppt PFOS)
  - Sample WWTP Biosolids if WWTP effluent ≥ 50 ppt PFOS
  - Reports submitted 2018-19

Additional information on IPP PFAS Initiative:
https://www.michigan.gov/IPP

Sources of PFOS to WWTPs found

Metal Finishers: Significant sources **16 - 240,000** ppt
Of ~320 Metal Finishers in Michigan:

- **48 sources of PFOS** (> 12 ppt screening level)
  - **33 Chrome Platers**
    - Decorative and hard chrome that used Hex chrome and fume suppressants
    - 16 had PFOS >1000 ppt
  - **12 Chromate Conversion Coaters**
    - Extra process, primarily seen at aluminum anodizers
    - Concentrations much lower
  - Some of unknown type

Sources PFOS to WWTPs found (cont'd)

- **Contaminated Sites** (Former Metal finishers, AFFF use, Paper Mfg, Chemical Mfg, multiple/unknown sources): ~17 sources at 14 - 34,000 ppt
- **Landfill leachate**: 48 sources at 20 - 5000 ppt
- **Centralized Waste Treaters** (CWTs): 11 sources at 13 – 650 ppt
- **AFFF-contaminated drains, sewers:** 2 sources at 240 - 45,000 ppt
- **Chemical Manufacturers**: 4 sources at 18 – 840 ppt
- **Industrial Laundries**: 5 sources at 29 - 50 ppt
- **Various other industries:** handful of unclear origin, some ND on retesting

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IPP PFAS Initiative Status
Update 4-30-2020

95 POTWs with IPPs

Bin TBD: 0
Interim Report submitted but a bin determination cannot be made as staff have not yet reviewed the report, the report was determined to be incomplete, or sample results (from IUs and/or POTW effluent) are still pending

Bin 1: 44
No sources PFOS/PFOA found

→ IPP PFAS Requirements Complete

Bin 2: 22
Sources found but POTW Effluent ≤WQS[1]

- Source reduction recommended
- Semi-annual PFAS monitoring required
- Local limits and PMP recommended

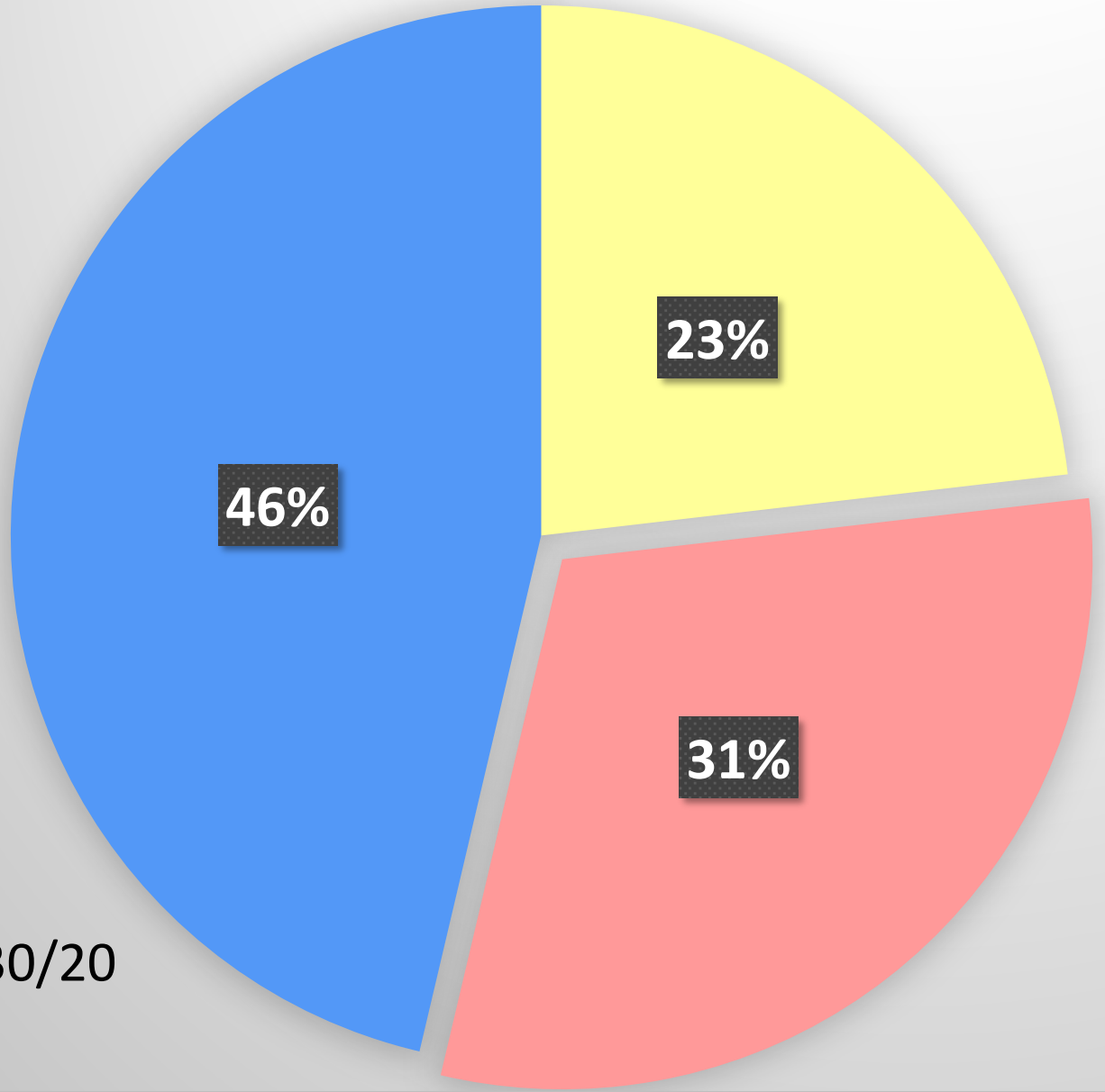
Bin 3: 29
Sources found and POTW Effluent >WQS[1]

3a: 19
Effluent concentrations of **moderate priority**[2]
- Source reduction required
- **Quarterly** POTW effluent monitoring required
- Local limits recommended
- Pollutant Min Plan SUO provisions recommended

3b: 10
Effluent concentrations at **highest priority**[3]
- Source reduction required
- **Monthly** POTW effluent monitoring required
- **Biosolids** monitoring required
- Local limits recommended
- Pollutant Min Plan SUO provisions recommended

[1] WQS = 12 ppt PFOS
[2] > 12 ppt & < 50 ppt PFOS
[3] ≥ 50 ppt PFOS

Current PFOS Compliance Status of 95 WWTPs with IPPs in Michigan



WWTP Discharge Meets PFOS WQS, but PFOS Sources found

WWTP Discharge Does Not Meet PFOS WQS (PFOS Sources found)

No Sources of PFOS/PFOA Found

As of 4/30/20

Source Control

- Cleaning & Replacing tanks/equipment/scrubbers
  - Some reductions
- Treatment – Granular Activated Carbon
  - Significant Reductions
  - Cost & Maintenance issues
- Treatment – Resin
  - Cost, maintenance issues
  - Usually used as polishing

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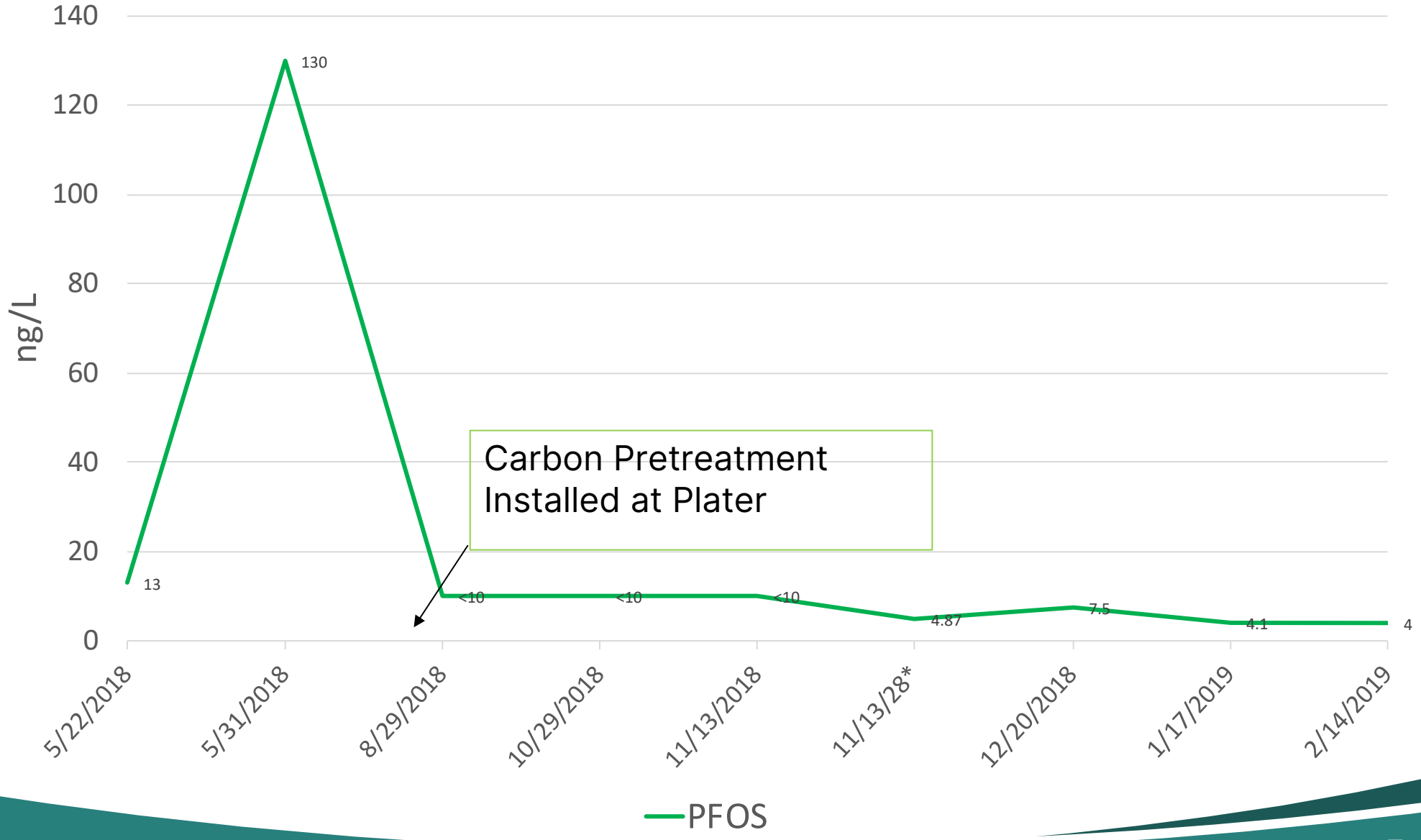
Howell WWTP Effluent Results



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Substantial reductions in PFOS concentrations at WWTPs

Municipal WWTP	PFOS, Effluent (ppt, most recent**)	PFOS Reduction in Effluent (highest to most recent)	Actions Taken to Reduce PFOS
Lapeer	8.4	99%	Treatment (GAC) at source (1)
Wixom	18*	99%	Treatment (GAC) at source (1)
Ionia	<7.53	99%	Treatment (GAC) at source (1)
Port Huron	13*	99%	Source control/reduction at source
Howell	4.3	97%	Treatment (GAC/resin) at source (1)
Bronson	6.9	95%	Treatment (GAC) at source (1)
Kalamazoo	3.09	92%	Treatment (GAC) at sources (2), change water supply
K I Sawyer	13*	95%	Eliminate leak AFFF, some cleaning
GLWA (Detroit)	30*		Treatment (GAC) at sources (8)
Belding	7.2	49%	Restricted landfill leachate quantity accepted

*Greater than Water Quality Standards**Data received/processed as of April 30, 2020

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IPP PFAS Initiative: Ongoing Requirements

- WWTP Effluent PFAS Sampling
  - Monthly, Quarterly, semi-annually, or 4x/5 yrs
- Status Reports to WRD
  - Quarterly, semi-annually
- Work with Sources to Reduce/Eliminate PFOS
  - Ongoing Source Monitoring
  - Recommend PFOS Local Limit
  - Recommend PFOS Reduction plans in local ordinances and industrial user permits

NPDES Permits & PFAS

For IPP WWTPs:

- PFOS/PFOA monitoring
  - Bin 1: 4x/5 yrs (w/additional monitoring requirements)
  - Bin 2: 2x/yr
  - Bin 3a: 4x/yr
  - Bin 3b: 12x/yr
- Minimization Plans for PFOS/PFOA
  - Bin 3: all
  - Bin 2: upon trigger
  - Reporting may overlap w/IPP requirements

Municipal NPDES Permits issued after October 1, 2021 will specify effluent limits if WWTP effluent has potential to exceed WQS

Department of Environment, Great Lakes, and Energy

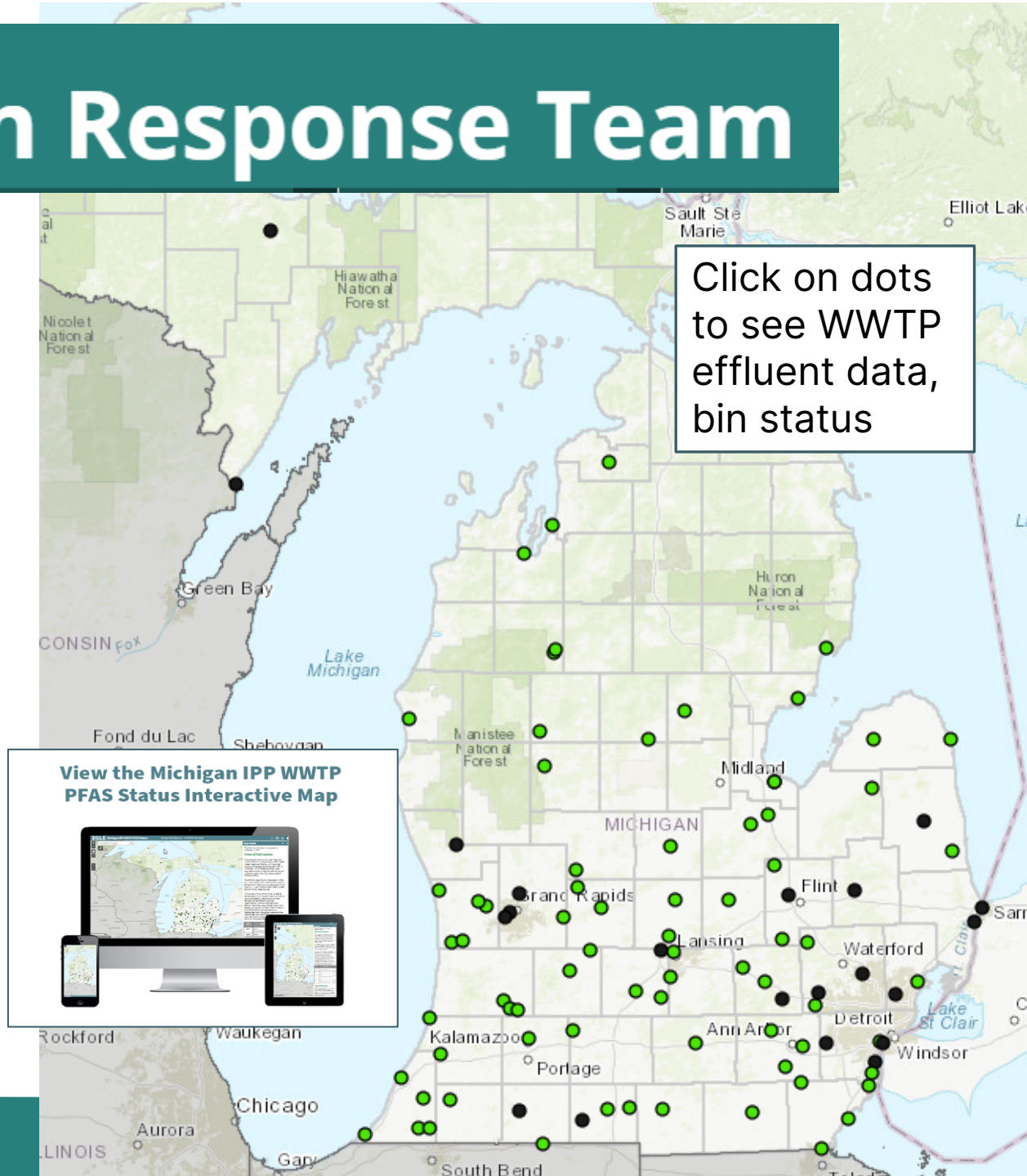
Michigan PFAS Action Response Team

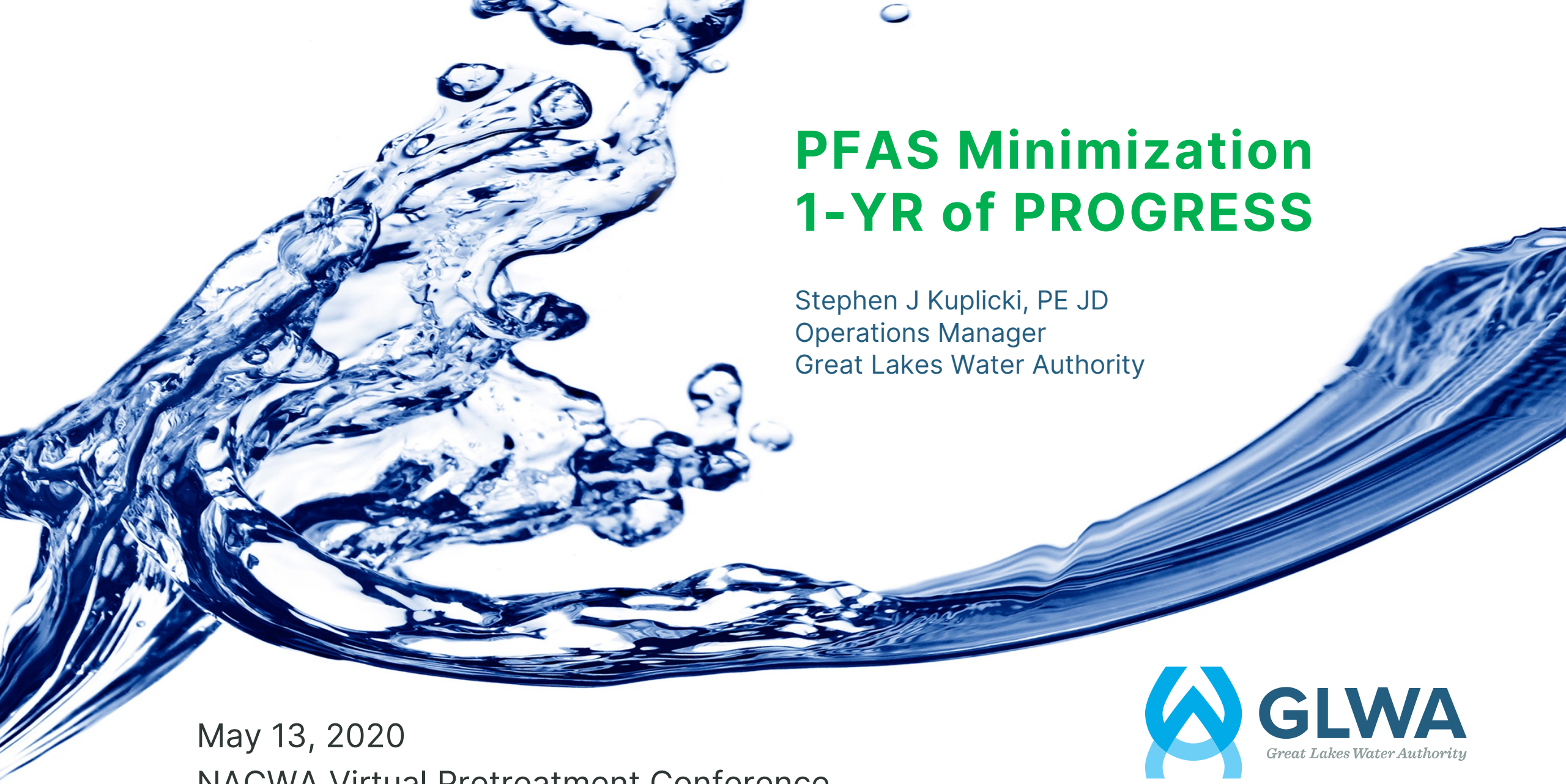
For more information:

- Letters, Guidance
- Trainings/webinar
- Publications

www.Michigan.gov/pfasresponse
Click on *Testing* menu, then *WWTP/IPP*
also www.michigan.gov/IPP

Coming soon:
Fume Suppressant Study, Wastewater Study Summary, Direct Discharges, Industrial Storm Water





PFAS Minimization
1-YR of PROGRESS

Stephen J Kuplicki, PE JD
Operations Manager
Great Lakes Water Authority

May 13, 2020
NACWA Virtual Pretreatment Conference

GLWA
Great Lakes Water Authority

Starting Point: Integrating PFOS/PFOA Minimization with The Pretreatment Program?

February 2018 – Michigan State Regulators sent us their greetings and *directed* local POTWs with Pretreatment Programs to:

- Identify and Classify PFAS Sources;
- Quantify the Source Contributions;
- Implement Efforts to Reduce and/or Eliminate PFAS source contributions.

We know that the Pretreatment Program offers us Tools for addressing problem pollutants and issues, examples include:

- IPP Implementation and Enforcement
- Nine Minimum CSO Controls
- Support Other Pollutant Minimization Efforts – Currently Mercury & PCB (+30 years)

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Great Lakes Water Authority

5-Point Action Plan to Fulfill February 20, 2018 Letter

1. **Recognized Need to Educate Our Leadership Team about PFAS Compounds and Secure initial Resources and Funding.**
    - Internal Budget Process not inclusive of resources for PFAS Investigation
    - Our Analytical Laboratory did not perform HPLC (High Performance Liquid Chromatography)
    - Sampling Capability was specialized; needed to develop or pay someone else to do it.

2. **Recognized we lacked information from Industrial Users about PFAS Usage**
    - Conducted Surveys of Industrial Users for PFAS usage
        - Affirmative Response (or failure to respond) resulted in Notice to conduct Self-monitoring
    - Developed an Independent Monitoring Program
        - Developed SOPs for sample collection (Referenced State and other party protocols)
        - Trained staff to collect PFAS samples
        - Control Authority Sample Analysis by ASTM D7979

3. **To Comply with State Requirements, Classified IUs and Notified them of Next Steps**
    Classified as "Not a Source" (Below MI Water Quality Standard), or
    Classified as "Significant Source or Potential Source" (At or above MI Water Quality Standard)

4. **"SOURCE CONTROL" -Directed Sources to develop Best Management Plan to Reduce and Eliminate PFAS Compounds from their discharge**

5. **Needed WRRF Analytical Data to Baseline Effluent Discharge Quality**

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Timeline of Actions

- During 2018:
  - Identified Sources of PFAS Compounds by (i) surveying our IPP SIUs, and (ii) SIU Self-monitoring and GLWA Monitoring
  - Findings: Looked at 138 sources, identified 52 “Significant Sources” (Concentrations greater than state’s Water Quality Standard)
  - 186 Sample Sets of PFAS Compound Data Collected
  - WRRF Quarterly Monitoring of Effluent
- During 2019:
  - Required Significant Sources to develop Best Management Programs (Source Control)
    - 2 Comprehensive BMPs Received (Incorporated into Permit)
    - 50 BMPS – Needed Work – Incorporated BMP into Compliance Agreement
      - ✓ Review of raw materials and chemicals used
      - ✓ Baseline Monitoring
      - ✓ Reduction/Elimination/Control Plan
      - ✓ Plan needed to address treatment if PFOS > 60 ngm/l or PFOA >2300 ngm/l
      - ✓ Final Report and Revised BMP due by November 2019
  - Reclassified 6 Users and Added 3 Users
  - 441 Sample Sets of PFAS Compound Data Collected
  - Using Permits or Compliance Agreements to Incorporate BMP as “Enforceable Document” plus Self-Monitoring

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Great Lakes Water Authority

SIU Sampling Source Identification (MAY 2020)

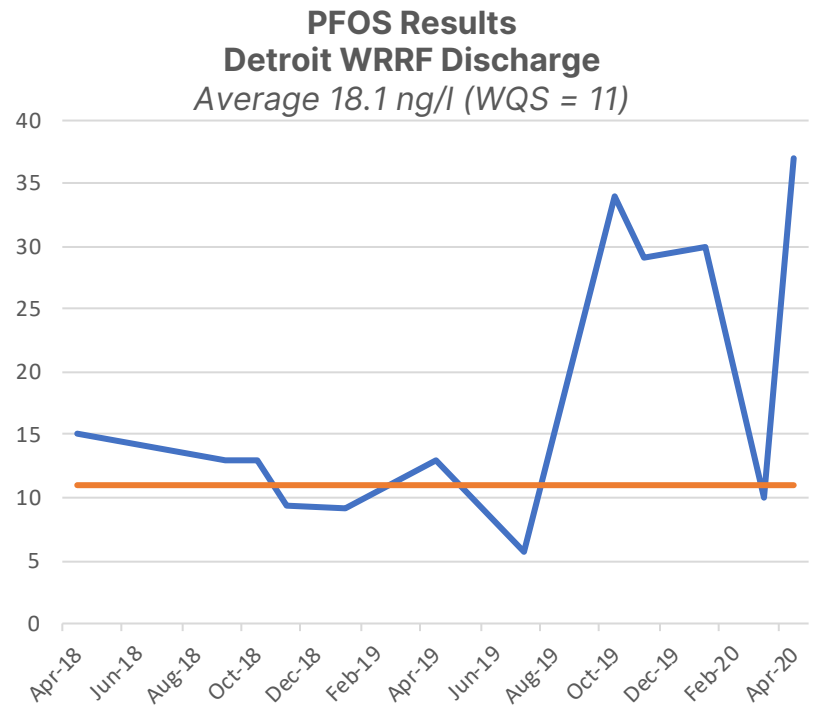
Industry	# of SIUs Evaluated (2018)	# Significant Sources March 2019	# Not Significant Source	PFAS Range for Significant Sources (ngms/l)		# Significant Source May 2020	CHANGES
				PFOA	PFOS		
Airfields	2	2	--	21-140	220-240	2	
Aluminum	1	--	1	ND	ND	--	
Centralized Waste Treatment	7	6	1	10-1790	30-350	8	1 CWT added
Chemical	3	2	1	28-120	310-4,300000	2	
Electroplating & Metal Finishing	83	18	65	ND-30	20-9,750	12	5-OOB; 3 No Discharge; 2 Added
Groundwater	2	2	--	43614	14-96	1	1 - Completed Discharge
Hospital	1	--	1	ND	ND	--	
Iron & Steel	3	--	3	ND	ND	--	2 Tested (Not a Source)
Landfills	13	13	--	ND-840	15-700	9	4 Transfer to County POTW
Laundry	3	2	1	ND-20	40-50	2	
Leather Processing	2	1	1	43	14	2	
Paint Formulating	1	1	--	20	60	1	
Petroleum Refining	1	1	--	3.5-620	18-800	1	
Pharmaceutical	--	--	--	ND	ND	--	1 Tested (Not a Source)
Plastics	2	--	2	ND	ND	--	
Tank Cleaning	1	1	--	280	140	1	
Other	13	3	10	ND-5	ND	3	
Total w/Data	**138**	**52**				**44**	***Total of 144 Users***
Domestic Source Sampling						**3**	**3 Locations Used (3/10 Data Sets Collected)**

GLWA Great Lakes Water Authority

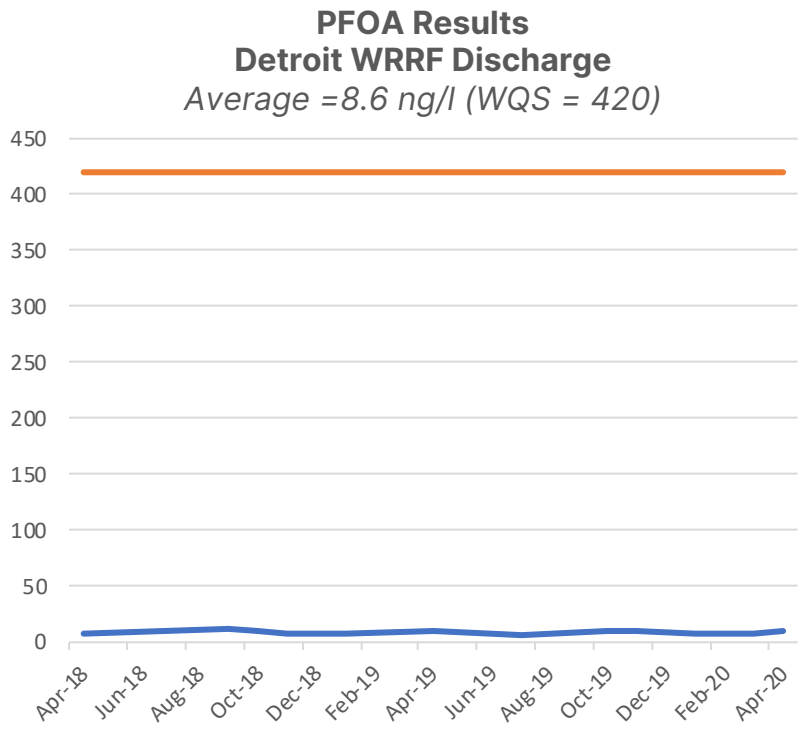
WQS (PFOA) = 420 ngm/l; (PFOS) = 11 ngm/l

Detroit WRRF Effluent Data 2018/2020

PFOS Results



PFOA Results



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Results: GLWA PFAS Program – PFOS and PFOA Minimization Program Elements (*Approved January 2020*)

- Identification Strategies
    - Included question(s) about PFAS Compounds in Applications and Survey forms
    - Developed Staff Guidance to evaluate application information and apply in developing enforceable control document
- Monitoring Strategy
    - GLWA WRRF Monitoring (5-year Plan) for Influent, Effluent and Biosolids
        - Year 1 Baseline
        - Year 2-5 Quarterly Monitoring
    - GLWA User Monitoring
        - Self-monitoring Commitment
        - Control Authority Monitoring Commitment
    - New Sources – As needed

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Great Lakes Water Authority

Results: GLWA PFAS Program – PFOS and PFOA Minimization Program Elements (*Approved January 2020*) - Continued

- Updated Program Results and Future Reporting & Actions
    - Proposed new requirements for PFAS Compound Source Control
        - General Users – Applied to manufacturer, User of PFAS Compounds to Develop Source Control Program.
            - » Excluded Domestic Sources
            - » Exclude Commercial Carpet & Upholstery Cleaning
        - CWT and Landfills – Waste Management & Source Control Program and if-applicable Treatment Needs
        - Users with Per-flourochemical Firefighting Foams/Agents
            - » Modification of SPCC/Slug Control Plans
            - » Notice Provisions & 5-day reports
    - Commitment to include PFAS Compounds as Pollutant of Concern in 2021 Local Limits Evaluation Study
- Integrate PFAS Compound Source Control elements with IPP program
- Communicate and apply Best Efforts for educational outreach

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Great Lakes Water Authority

Is It Working?

YES, but ….

- Source Control approach is working at most facilities
- Centralized Waste Treaters – 90% now Planning for Acceptance and Treatment Enhancement. But most are not there yet.
  - Expect that other sources have shifted their waste streams to these CWTs, and
  - Additional sources (outside our service region) are now coming into our system from other parts of Michigan, mid-West and Canada
  - Import of AFFF from local Fire Departments for disposal (Stabilization to Idaho)
- Landfill Operators progressing slowly
- Longer term solutions for facilities using AFFF products
  - Current efforts to educe training episodes and use smaller chain compounds.
  - Risks to people and property

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Great Lakes Water Authority

Conclusion: GLWA PFAS Program Status (as of May 2020)

- Satisfied 2018 State Directive to Identify Significant Sources of PFAS Compounds
- Developed a PFOS/PFOA Minimization Program & Integrated with IPP Program
- Observed:
    - Increased contributions from CWTs
    - Landfills – No Change
    - Chemical Facility - +Significant Source+
    - Reductions from 65% of other Users
- Tracking Source Progress - Quarterly
    - 24 of 44 Sources have measurable progress in Reducing/Eliminating/Controlling PFAS
        - 9 Treatment/15 Mgmt. Controls
    - 20 of 44 Sources working to implement Reducing/Eliminating/Controlling schemes (including Treatment)
- BMP Incorporated into 29 Permits and 15 Compliance Agreements
- Continue to Conduct WRRF Monitoring Influent & Effluent
- Local Limitations Data Collection (Background Sources)
- Adopted Rules for PFAS Compound Source Control (Enactment process on-going)
- Implementing our PFOS/PFOA Minimization Program

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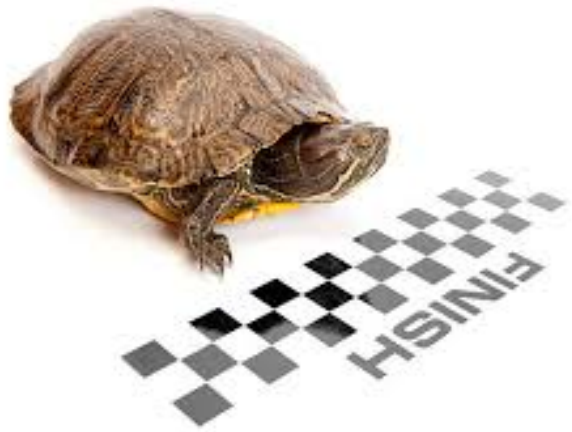
One Water … One Team



PFAS

Racing to Compliance

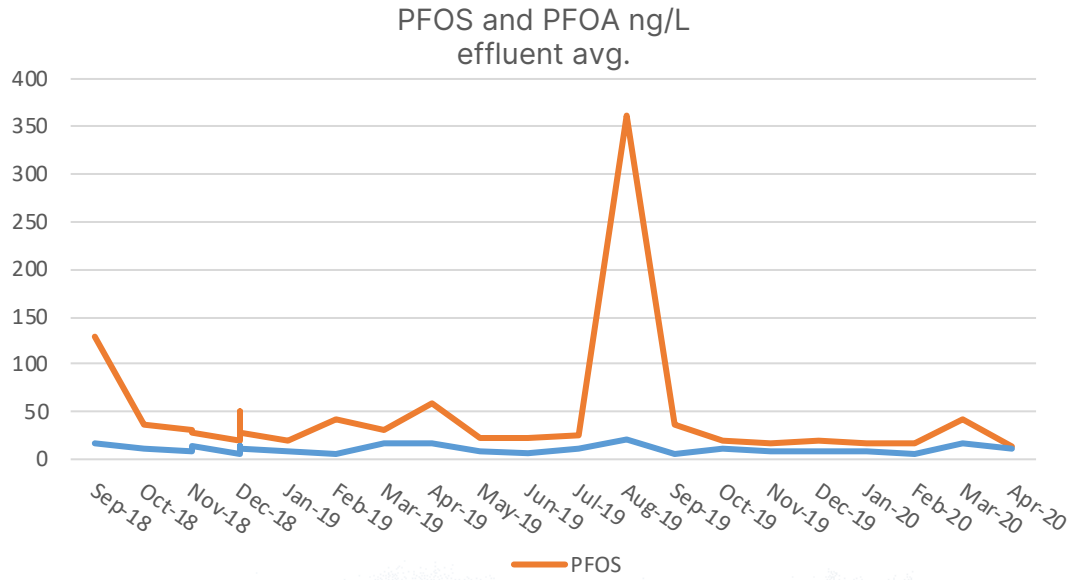
Kurt Anderson
IPP Supervisor
City of Grand Rapids, MI

May 13, 2020
NACWA Pretreatment Webinar

Grand Rapids, MI
WRRF Plant and PFAS

WRRF Plant Information

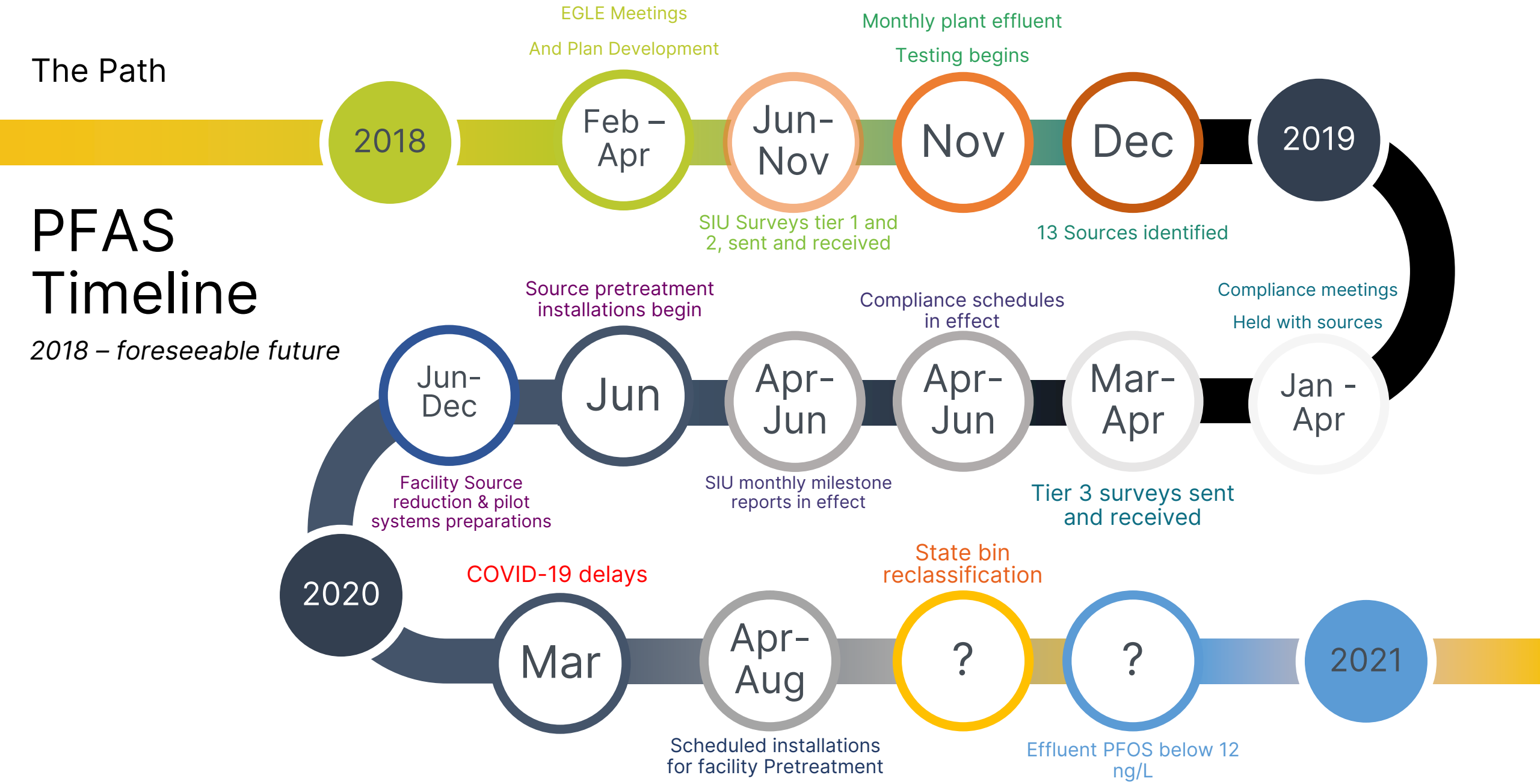
- 40 MGD average flow; 90 MGD max flow
- Activated sludge
- Population served – 275,000
- 10 customer communities
- 85 permitted SIUs
- 13 known PFAS sources

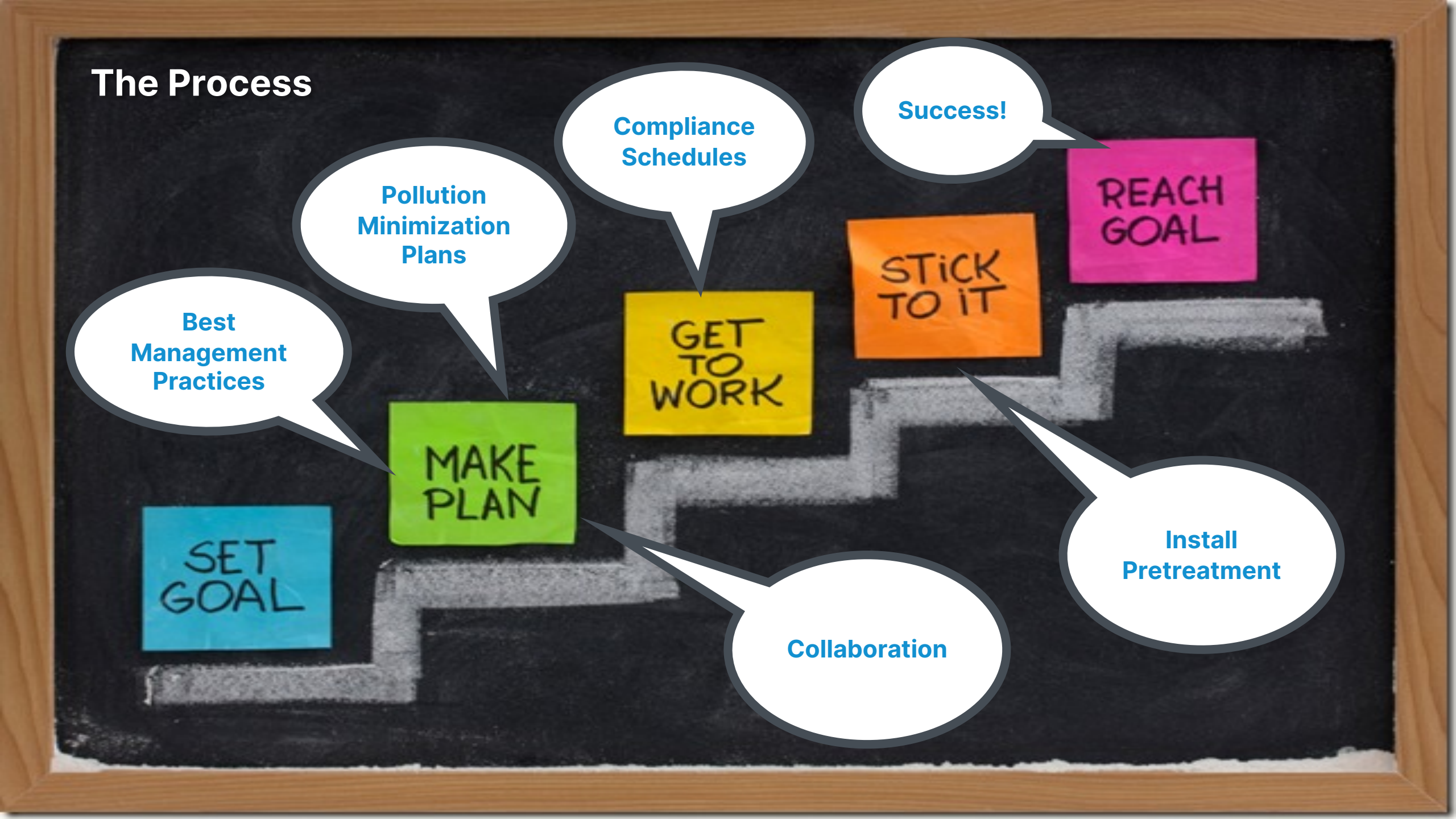


The Path

PFAS Timeline

2018 – foreseeable future




The Process
Best Management Practices
Pollution Minimization Plans
Compliance Schedules
Success!
SET GOAL
MAKE PLAN
GET TO WORK
STICK TO IT
REACH GOAL
Collaboration
Install Pretreatment

The “Problems”

Facility Plan Development

- Guidance is needed
- Timeframes
- Wastewater segregation possible?
- Treatment Options
- Levels treatment should achieve
- Reporting
- What does your State control authority require?
- Be prepared for delays!

Sampling/Laboratory

- Selecting Laboratory
- Costs
- Minimum # of samples required
- Parameter testing list
- Resampling
- Turnaround times
- Sampling frequency

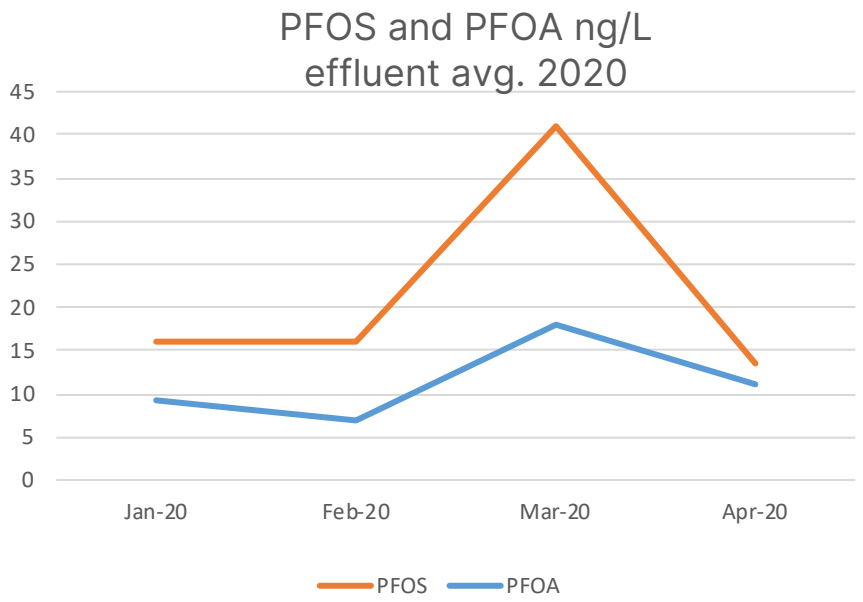
Pilot Testing

- Plumbing changes
- Vendor/treatment selection
- Backwash frequency
- Breakthrough frequency
- Flocculant chemicals causing flow issues
- Iron precipitation plugging pre-filters

Installation

- Companies with multiple facilities
- Can take months to install, setup, and adjust

The Progress 2020



Source Facilities	12
Facilities with treatment	2
Scheduled 2020 installations	5
Pending compliance meetings	1
Industries removed as source	2

The end, thank you!

kanderson@grcity.us

PFAS-Related Impacts to Wastewater Treatment and Biosolids Management in ME

Presentation for the NACWA Pretreatment Webinar Series
May 13, 2020

Jeff McBurnie
Director of Permitting & Regulatory Affairs
Casella Organics

Chair, ME Water Environment Assn. Residuals Management Committee (Governor's (ME) PFAS Task Force)

Overview

- Background
- March 22, 2019
- Reaction, Response and Resumption
- Current Status

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Background

- PFAS had been on Casella's radar for 2+ years – NY compost
- ME DEP had updated its Screening Levels for PFOA, PFOS, and PFBS in its Beneficial Use of Solid Waste Rules (Chapter 418 Appendix A) – July 2018
- Industry had testified in opposition
  - Screening levels were not appropriately modeled – petroleum leaching model
  - No accepted/certified methods for testing of biosolids

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Background (continued)

- Through UCMR 3, PFAS found in ME PWS source of supply (< LHA)
- Nearby farm identified as source
  - Had applied industrial residuals in the 80's
  - Had applied biosolids in the 90's
  - Farm filed lawsuit against chemical manufacturers and 2 WWTFs
  - Press conference held when suit dragged on
- Maine Governor's PFAS Task Force Formed - March 9

March 22, 2019

- Friday, mid-afternoon I received a call from the Maine DEP giving me a ‘heads up’
- Fifteen minutes later an email was sent to biosolids processors and generators with Program Approval to land apply biosolids
- Shortly after that a general notice/press release was issued
- The start of a very long weekend

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March 22, 2019 - Details

- Biosolids Distribution Moratorium Notification
  - All sludge/biosolids program licenses and sludge/biosolids composting facilities required to test for PFOA, PFOS, and PFBS
  - Sampling and Analyses Workplans (SAWPs) must be updated to include these three compounds
  - Immediate cessation of the distribution and land application of sludge and sludge-derived products
  - Resumption of business, by Department approval, based on:
    - For materials with results below the screening levels, resume after results reviewed by DEP
    - For materials exceeding one or more of the screening levels, resume after applying BMPs (application rate reduction, for example) that demonstrate no exceedance of the screening levels in soils receiving these material to the satisfaction of the Department
- Similar Notice sent to Holders of Papermill Residuals Program Approvals (April 16, 2019)

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Reaction, Response and Resumption

- Halted In-state Distribution
  - Deliveries and Walk-in Customers
- Requested and Granted a Meeting with the DEP Commissioner (Company & Industry Group)
- SAWPs Revised & Submitted to DEP
- Samples Collected & Tested; Results Submitted to DEP
- Very Few Entities with no Disruption
- Resumption of Business – few weeks to 2-3 months
- Some Generators Suspended or Scaled Back Land Application Programs

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Reaction, Response and Resumption (continued)

- Compost Distribution and Class B Land Application Operations were on the Verge of Starting – Inventories at Peak
- Other Management Options Limited
  - Landfill Disposal is Complicated - It's not just a Question of Airspace
  - Incineration is not Available

HRCF – early April 2019

Current Status

- Biosolids, Residuals and Compost Testing
- Comparison to Disputed Screening Levels
- Exceedance of Screening – Risk Determination/BMPs
- Direct Land Appliers must Test Site Soils
  - Exceedance of Screening – Site Suspension
- ‘One Year’ Approval – Updated February 2020

Please note that this approval will expire on June 30, 2020. During this period of permitted distribution, staff at the Department will work with you to address any requests for additional information that are necessary in order to inform an appropriate decision beyond June 30, 2020.

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Current Status (continued)

- The Governor's Task Force concluded its work at the end of 2019:
  - identify the extent of PFAS exposure in Maine
  - examine the risks of PFAS to Maine residents and the environment
  - recommend State approaches to *most effectively address this risk*
- Final Task Force Report delivered to the Governor on January 23, 2020
- Some implementation delayed by COVID-19

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Managing PFAS in Maine

Final Report from the Maine PFAS Task Force

January 2020

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Current Status (continued)

- No discussion of limits on WWTF discharges
  - Some utilities investigating independently
  - Establishing background levels and/or trends
  - Working to identify possible ‘sources’
  - Considering no longer receiving septage
  - Considering no longer receiving landfill leachate

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Current Status (continued)

- Research is On-going, but More is Needed
  - NEBRA, WEF, and others are sponsoring fate and transport modeling & risk assessment studies
  - Other Work Nationwide
  - Still Waiting for Certified Test Methods for Media Other than Drinking Water
  - Drinking Water MCLs – US EPA?

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Current Status (continued)

- Regulatory & Legislative Action – prior to COVID-19
  - Growing Nationwide with Little to No Coordination
  - Mostly Drinking Water MCLs by Individual States
    - Tired of Waiting for US EPA
    - May Lead to Significant Increases in Water and Wastewater Treatment Infrastructure Needs and O&M Expenses
    - Compliance may be Difficult to Achieve
  - Some Soil Remediation Standards Recommended
  - Hazardous Substance Designation?
    - CERCLA
    - Water and Wastewater Utilities could become Potentially Responsible Parties (PRPs)

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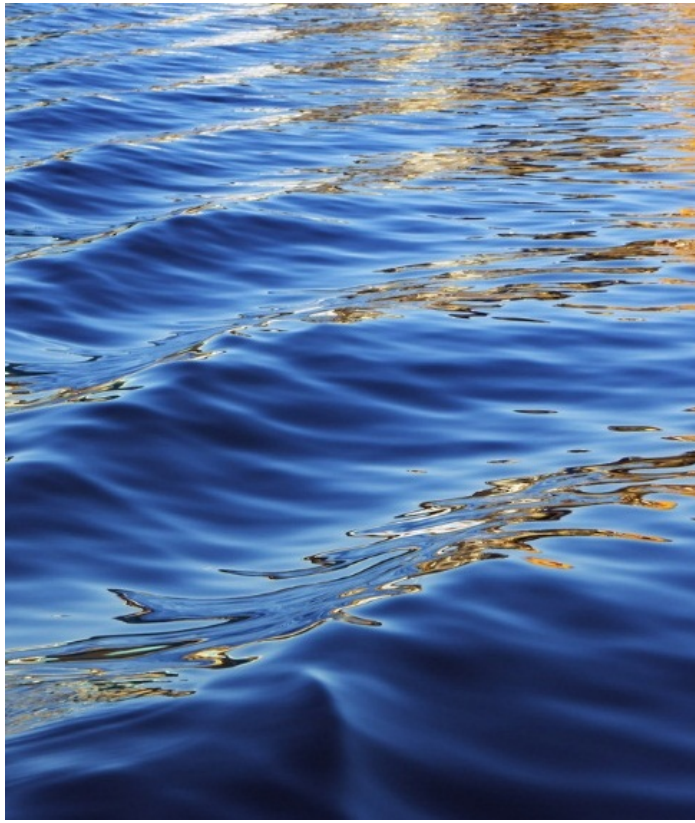


NACWA Pretreatment Webinar

PFAS Investigation in California

May 13, 2020

Jared Voskuhl
jvoskuhl@casaweb.org

Presentation Overview

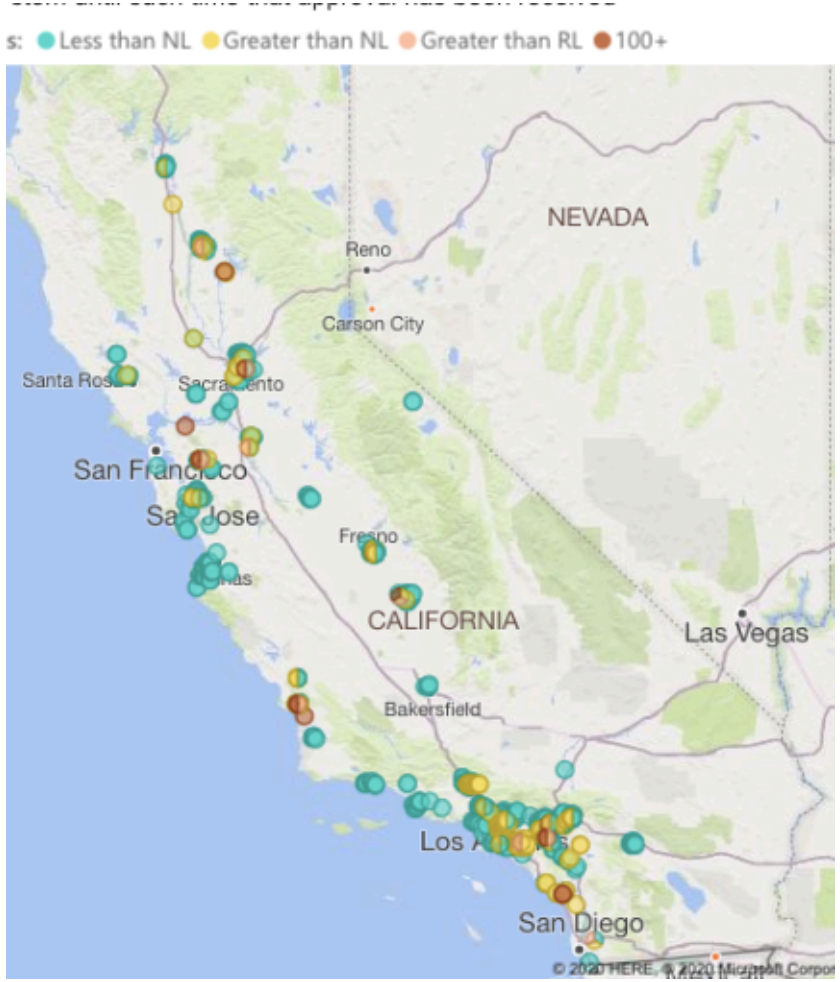
- 1) Cal EPA's Investigative Plan – March 2019
- 2) Results from Phases 1 and 2
- 3) Preliminary Scope of Phase 3 – WWTPs

Background on California's Investigative Plan

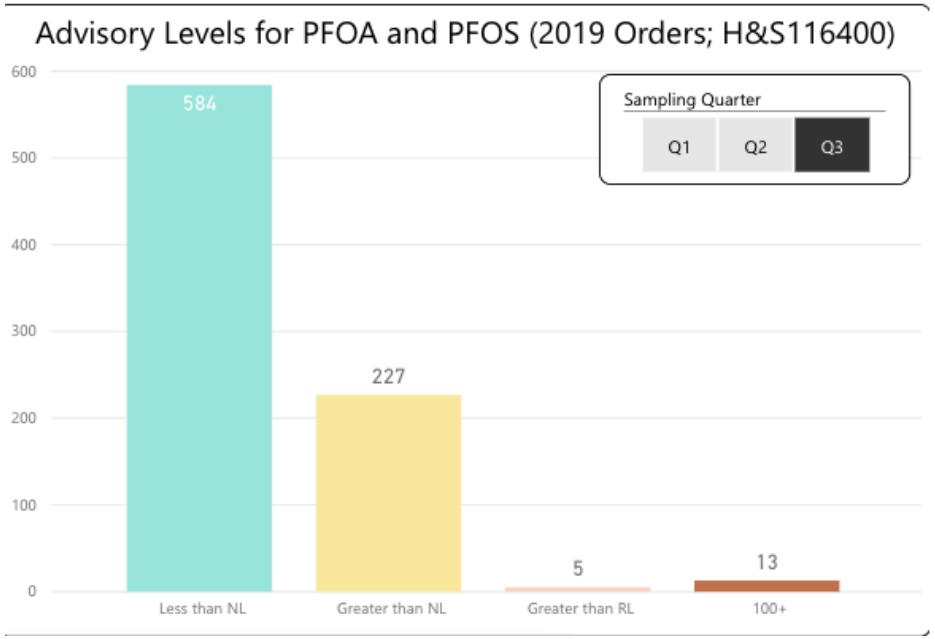
- State Water Resources Control Board (SWB) is part of the California EPA
- At the SWB's March 2019 meeting, they announced and launched their plan:
  Phase 1 Wells, Airports, Landfills
  Phase 2 Chrome-platers
  Phase 3 Wastewater Treatment Plants
- In August and February, SWB lowered the Notification and Response Levels:

  NL PFOA 14 -> 5.1*ppt* & PFOS 13 -> 6.5 *ppt*
  RL PFOA 70 -> 10 *ppt* & PFOS 70 -> 40 *ppt*
- Assembly Bill 756 requirements for NL and RL for PFAS

Results from Phase 1 – Drinking Water Wells

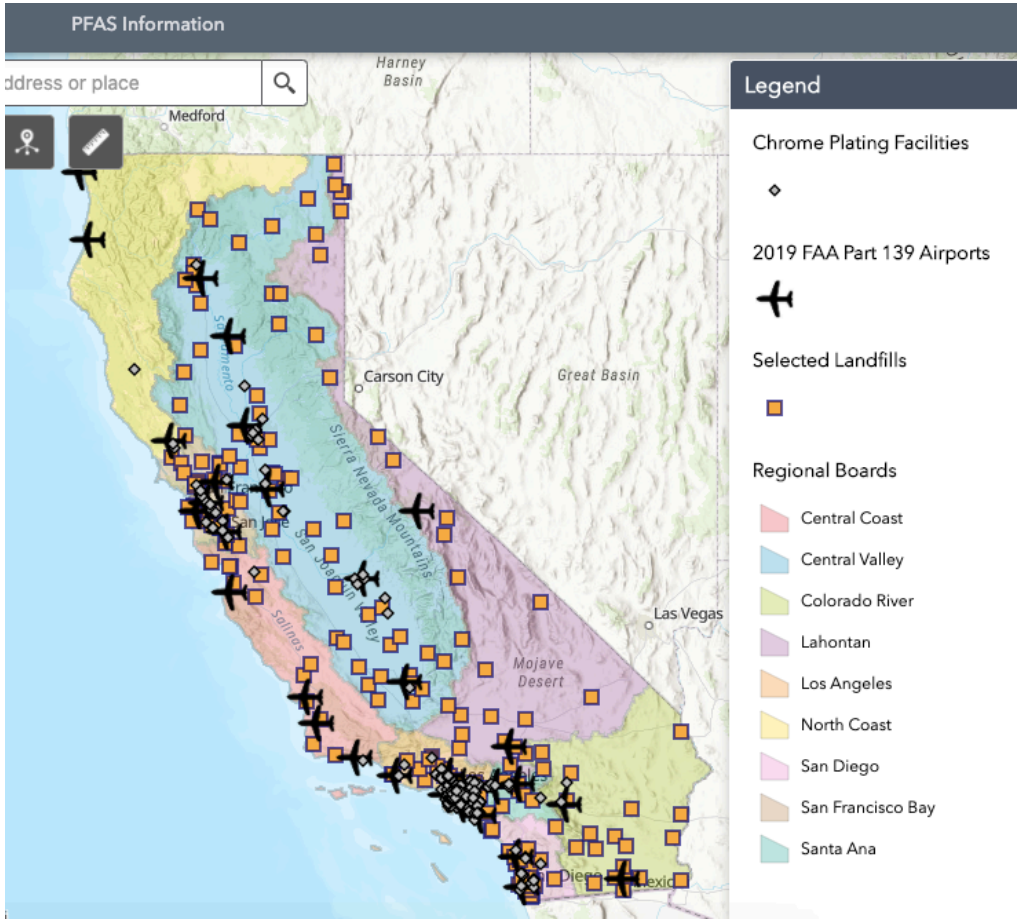


- 584 wells below NL
- 227 above NL
- Estimated 70 of 200 wells in O.C. shut down



Results from Phase 2 – Landfills and Airports

- Approximately 25% of sampling results are available



Phase 3 Scope – Wastewater Treatment Plants

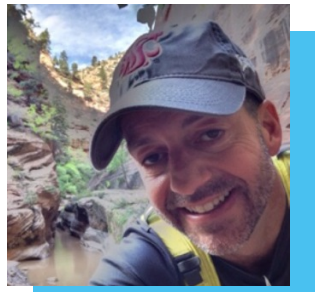
- General Order planned for release in the coming months
- Recipients test for 23 – 39 analytes through quarterly sampling of influent, effluent, and biosolids
- Samples analyzed by 1 of the 10 labs certified by California's Environmental Laboratory Accreditation Program, in spite of no approved method for non-potable matrices

- Costs: $600 per sample for in/effluent, $700 biosolids
- Labs also require field blanks and trip blanks
- Anecdotal reports of detections in blanks
- Potentially $20,000 annually per WWTP
- CA projecting $54b deficit, CA municipalities $7b deficit

Emily Remmel

Director, Regulatory Affairs
National Association of Clean Water Agencies
Washington, DC

Q & A



Frank Dick, *Moderator*

Kerry Britt, *Moderator*

Anne Tavalire

Carla Davidson

Stephen Kuplicki

Kurt Anderson

Jeffrey McBurnie

Jared Voskuhl

Emily Remmel

UPCOMING 2020

Conferences & Events

Strategic Communications: H2O Virtual Event
June 1 – June 2, 2020

Dealing with Disruption: Operationalizing Resilience in the Water Sector Webinar Part 4
June 3, 2020

Hot Topics in Clean Water Law Webinar: Part 2
June 10, 2020

Hot Topics in Clean Water Law Webinar: Part 3
September 16, 2020

2020 National Clean Water Law & Enforcement Seminar
Charleston SC
November 18 - November 20, 2020

Learn More and Register at **www.nacwa.org/events**

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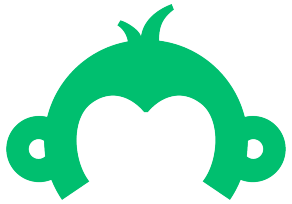
- **Peer-to-peer resources exchange and support.**
- **Interactive webinars and events.**
- **Recognition for your clean water utility's achievements through our national awards programs.**

Learn more at **nacwa.org/join**.

Let Us Know Your Thoughts.



Look for the survey in the follow-up email!