



EPA's PFAS Strategic Roadmap: Commitments to Action 2021-2024

www.epa.gov/pfas

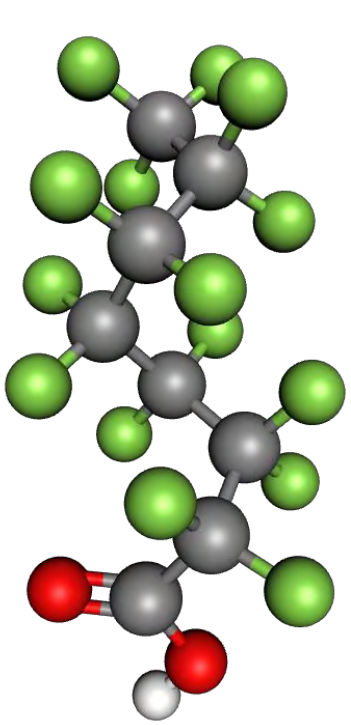
Overview

- **EPA's PFAS Strategic Roadmap**
- Background on Per- and Polyfluoroalkyl Substances (PFAS)
- EPA's Approach and Goals
- Key Roadmap Progress and Upcoming Actions
- Whole-of-Agency Actions
- Bipartisan Infrastructure Law and PFAS

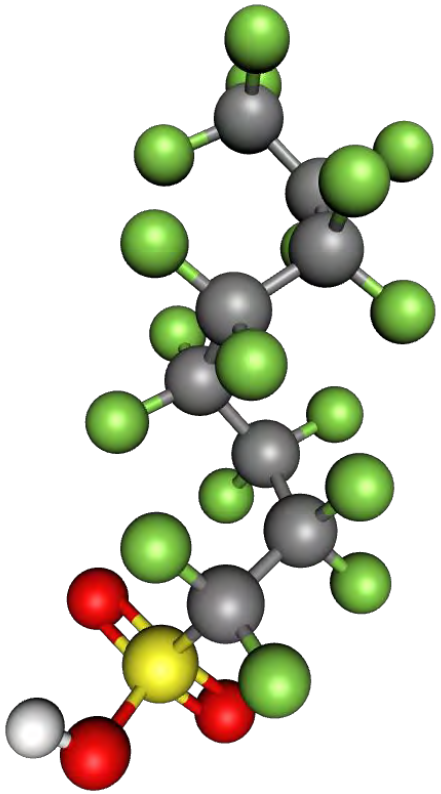
EPA's PFAS Strategic Roadmap: Commitments to Action 2021-2024

- EPA Administrator Michael Regan established the EPA Council on PFAS in April 2021.
- The Council developed the PFAS Strategic Roadmap, released in October 2021 – a bold, strategic, whole-of-EPA approach to protect public health and the environment from PFAS.
- The Roadmap:
  - Includes timelines for concrete actions from 2021-2024;
  - Fills a critical gap in federal leadership;
  - Supports states' ongoing efforts; and
  - Builds on the Biden-Harris Administration's commitment to restore scientific integrity.

What Are Per- and Polyfluoroalkyl Substances (PFAS) and Why are We Concerned?



Perfluorooctanoic acid (PFOA)



Perfluorooctanesulfonic acid (PFOS)

PFAS captures a large class of synthetic chemicals.

- Chains of carbon atoms surrounded by fluorine atoms.
- Wide variety of chemical structures.

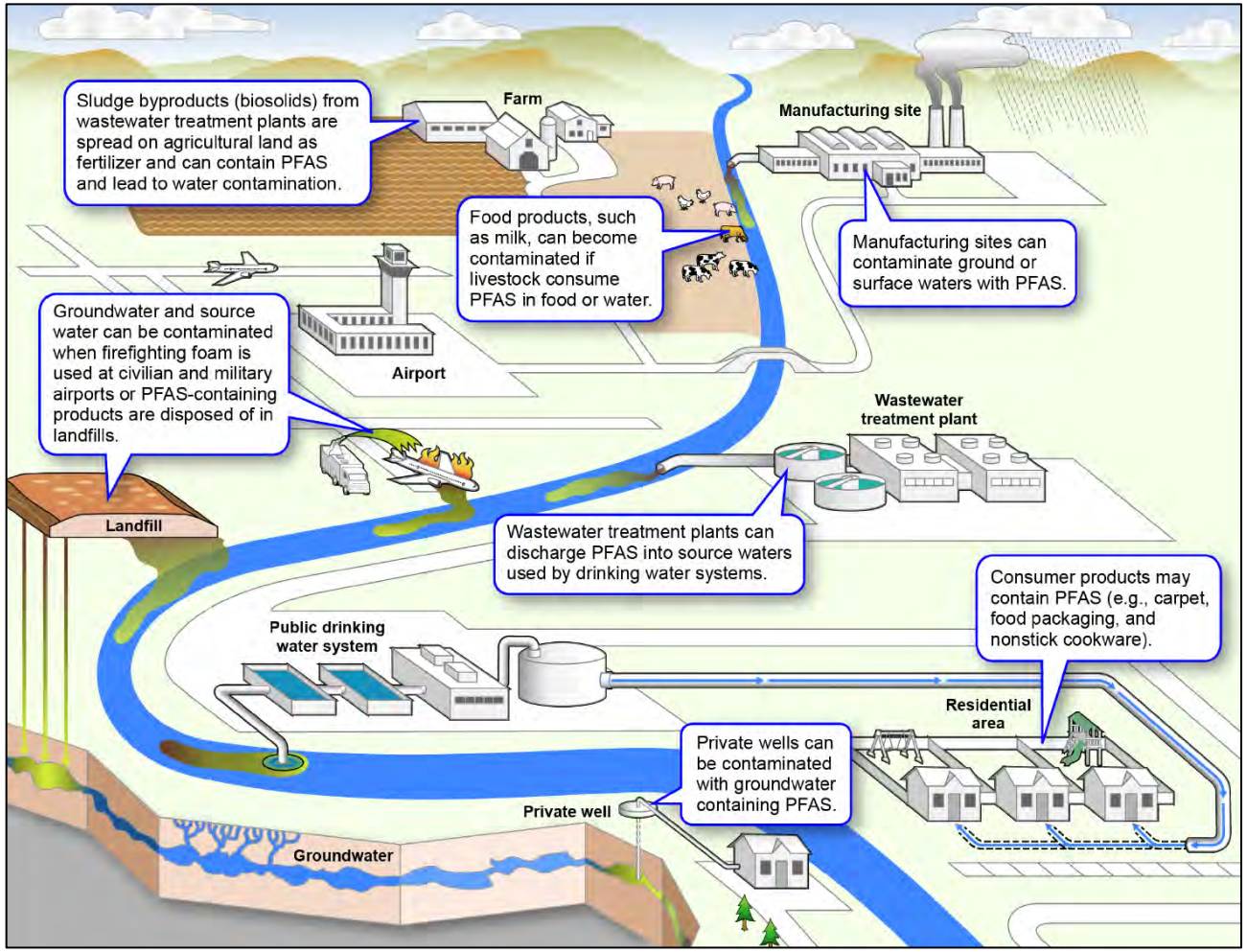
Used in homes, businesses, and industry since the 1940s.

- Used by a number of industries and found in many consumer products.
- Detected in soil, water, fish, and air samples.
- Most people have been exposed to PFAS.

Known or suspected toxicity.

- Some are relatively well understood; many others are not.
- Resist decomposition in the environment and in the human body.

PFAS Lifecycle and EPA's Approach



PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024

EPA's approach is centered around the following principles:

- Consider the Lifecycle of PFAS.
- Get Upstream of the Problem.
- Hold Polluters Accountable.
- Ensure Science-Based Decision-Making.
- Prioritize Protection of Disadvantaged Communities.

Source: GAO | GAO-21-37

EPA's Goals in the Strategic Roadmap

RESEARCH

Invest in research, development, and innovation to increase understanding of

- PFAS exposures and toxicities;
- Human health and ecological effects; and
- Effective interventions that incorporate the best-available science.

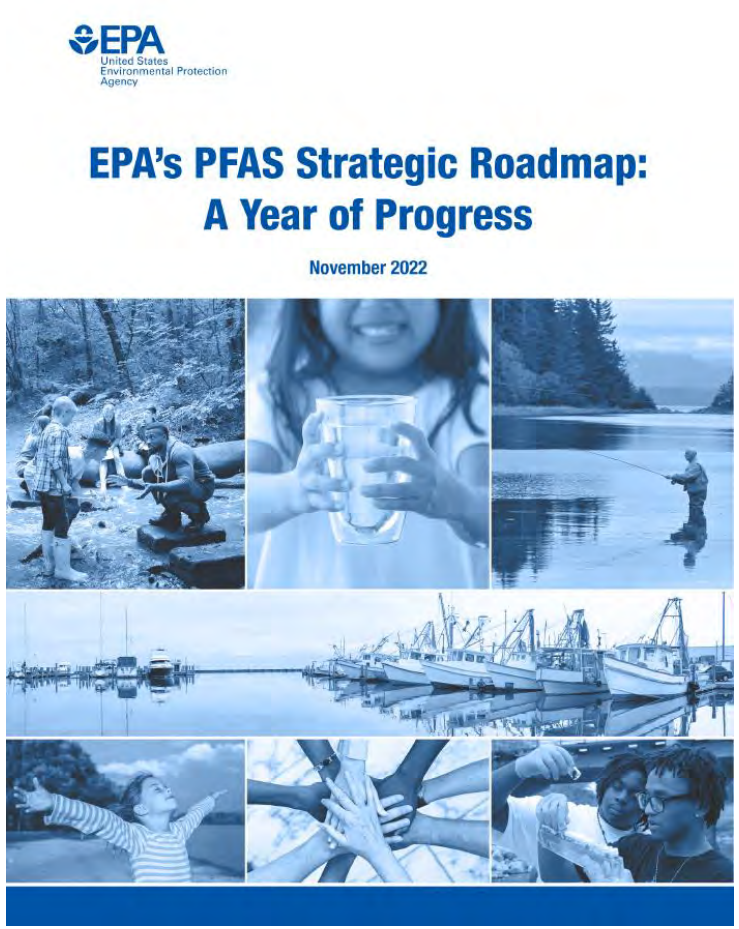
RESTRICT

Pursue a comprehensive approach to proactively prevent PFAS from entering air, land, and water at levels that can adversely impact human health and the environment.

REMEDIATE

Broaden and accelerate the cleanup of PFAS contamination to protect human health and ecological systems.

Key EPA PFAS Accomplishments: (October 2021-present)



- Proposed a National Primary Drinking Water Regulation for six PFAS
- Proposed to designate PFOA and PFOS as CERCLA hazardous substances
- Taken action to restrict PFAS discharges to waterways
- Began distributing $10 billion in Bipartisan Infrastructure Law funding to address emerging contaminants in water
- Laid the foundation for enhancing PFAS chemical and drinking-water data
- Expanded the scientific understanding of PFAS and translated the latest science into EPA's efforts
- Proactively used enforcement tools to identify and address PFAS releases
- Engaged with federal partners and the public

PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024

Key Roadmap Actions: Research and Development

Develop and validate methods to detect and measure PFAS	RESEARCH
Advance the science to assess human health and environmental risks	RESEARCH
Evaluate and develop technologies for reducing PFAS in the environment	RESEARCH REMEDIATE

Key Roadmap Actions: Ensuring Chemical Safety

Deepen our understanding of PFAS categories through the National PFAS Testing Strategy	RESEARCH RESTRICT
Strengthen EPA oversight over both new and existing PFAS	RESTRICT
Improve data on PFAS uses and releases	RESEARCH RESTRICT
Reduce PFAS in federal procurement	RESTRICT

PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024

Key Roadmap Actions: Protecting our Water

Set enforceable limits for PFAS in drinking water	RESTRICT
Improve PFAS drinking-water data through monitoring, toxicity assessments, and health advisories	RESEARCH
Develop technology-based PFAS limits for industrial dischargers	RESTRICT
Address PFAS in Clean Water Act permitting, analytical methods, water quality criteria, and fish advisories	RESEARCH RESTRICT
Evaluate risks of PFAS in biosolids	RESEARCH

PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024

Key Roadmap Actions: Cleaning Up PFAS Contamination and Addressing PFAS Air Emissions

Develop regulations to designate PFAS as CERCLA hazardous substances	REMEDIATE
Take regulatory action to tackle PFAS under RCRA	REMEDIATE
Update research and guidance on PFAS destruction and disposal	RESEARCH REMEDIATE
Build the technical foundation for potential Clean Air Act regulation	RESEARCH RESTRICT

PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024

Bipartisan Infrastructure Law and PFAS

The Bipartisan Infrastructure Law makes transformational investments in America's water infrastructure. It provides $10 billion to invest in communities impacted by PFAS and other emerging contaminants, including:

$4 billion	**Drinking Water State Revolving Fund**
$1 billion	**Clean Water State Revolving Fund**
$5 billion	**Small or Disadvantaged Communities Drinking-Water Grants**

PFAS Strategic Roadmap: EPA's Commitments to Action 2021–2024





PFAS Strategic Roadmap:

EPA's Commitments to Action 2021-2024

epa.gov/pfas | PFASCouncil@epa.gov

PFAS in VA Drinking Water Program

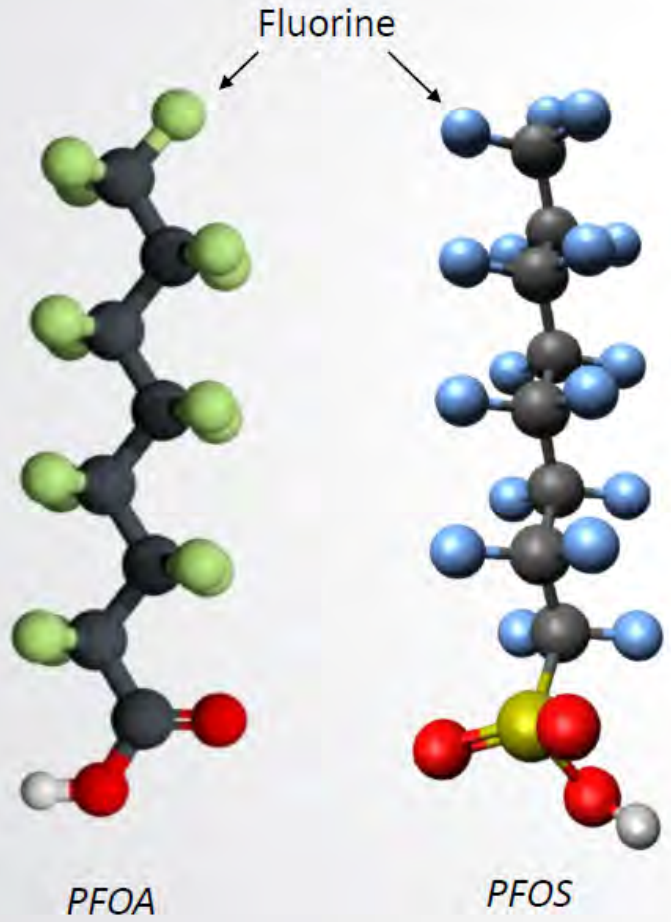
Dwayne Roadcap
Bob Edelman

Office of Drinking Water
Virginia Department of Health
September 2023

Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

Per- & Polyfluoroalkyl Substances (PFAS)



- **A very large class of synthetic chemicals**
  - **Chains** of carbon (C) atoms surrounded by fluorine (F) atoms, with different terminal ends
  - **Complicated chemistry** – thousands of different variations exist in commerce
  - **Widely used** in industrial processes and in consumer products
  - **Mobile** via multiple air, water pathways
  - **Some** PFAS are known to be **PBT:**
    - **Persistent** in the environment
    - **Bioaccumulative** in organisms
    - **Toxic** at relatively low (ppt) levels

Background

- Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been in use since the 1940s in a wide array of consumer products and facilities
- Most people have been exposed to PFAS. Some PFAS chemicals can accumulate and can stay in the human body for long periods of time
- There is evidence that exposure to certain PFAS may lead to adverse human health and environmental effects
- PFAS is an issue of high and growing concern for EPA customers and the public, and so EPA is committed to taking action to address public concerns

EPA's Proposed Action for the PFAS NPDWR

Compound	Proposed MCLG	Proposed MCL (enforceable levels)
PFOA	zero	4.0 ppt*
PFOS	zero	4.0 ppt*
PFNA	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFHxS		
PFBS		
HFPO-DA, or "GenX"		

*ppt = parts per trillion (also expressed as ng/L)

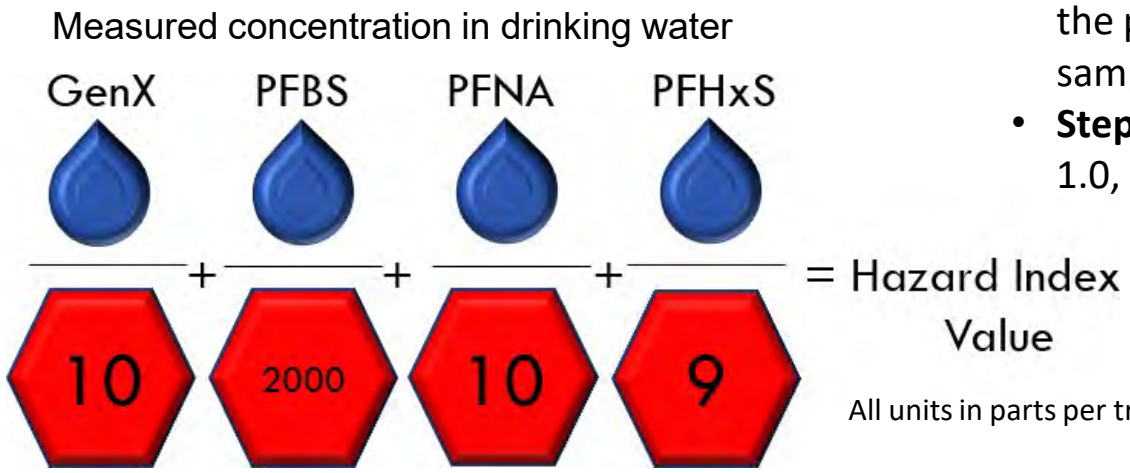
The Hazard Index is a tool used to evaluate potential health risks from exposure to chemical mixtures.

Hazard Index (HI)

The HI considers the combined toxicity of PFNA, GenX, PFHxS, and PFBS in drinking water.

The Hazard Index is the sum of the fractions.

Each fraction compares the level of each PFAS measured in the water to the level determined not to cause health effects.



All units in parts per trillion (ppt)

Steps:

- **Step 1:** Divide the measured concentration of GenX by the health-based value of 10 ppt*
- **Step 2:** Divide the measured concentration of PFBS by the health-based value of 2000 ppt
- **Step 3:** Divide the measured concentration of PFNA by the health-based value of 10 ppt
- **Step 4:** Divide the measured concentration of PFHxS by the health-based value of 9.0 ppt
- **Step 5:** Add the ratios from steps 1, 2, 3, and 4 together
- **Step 6:** Repeat steps 1-5 for each sample collected in the past year and calculate the average HI for all the samples taken in the past year
- **Step 7:** If the running annual average HI greater than 1.0, it is a violation of the proposed HI MCL

National Benefits Summary

- EPA has quantified some of the reduced adverse health effects expected from the proposed rule
  * Kidney cancers, heart attacks, strokes, & developmental (birth weight) effects

- EPA anticipates significant additional benefits beyond those that EPA has quantified associated with the following adverse health effects:

  - Immune
  - Developmental
  - Cardiovascular
  - Hepatic
  - Carcinogenic
  - Endocrine
  - Metabolic
  - Reproductive
  - Musculoskeletal

Annualized Quantified Rule Benefits (i.e., per year)	3% Discount Rate	7% Discount Rate
	$1.23 billion	**$908 million**

Discounting renders benefits and costs that occur in different time periods comparable

National Costs Summary

- EPA expects about 66,000 water systems are subject to the proposed rule.
- About 3,400-6,300 systems are anticipated to exceed one or more MCL.
- EPA estimated costs, which included:

  * Administration, monitoring, and treatment
  * Capital costs, and yearly operation and maintenance costs

Annualized Quantified Rule Costs (i.e., per year)	3% Discount Rate	7% Discount Rate
	$772 million	**$1.20 billion**

- EPA estimates annual costs could increase $30-$61 million/year if water systems must dispose of PFAS as hazardous waste.

EPA's proposed rule in March 2023 and expects to promulgate a final rule by to early 2024

Virginia's PFAS Response

PFAS Surveillance **Financial Assistance** **Training**

- What are the potential financial impacts of future EPA Regulations?
- Where is PFAS found and how much is there?
- What are the sources of PFAS?
- What funding and technical help are available?

VDH PFAS Activities

Legislation

Occurrence Studies

PFAS Funding

Photo Credit: https://www.linkedin.com/pulse/delicate-balance-between-innovation-regulation-nathalie-ngatia/

HB586 Acts of Assembly Chapter 611	HB1257 Acts of Assembly Chapter 1097	HB919 Acts of Assembly Chapter 585
Patron: Delegate Guzman (GA 2020) • Convened a PFAS workgroup, • Conducted a detailed investigation on current literature and what other states are doing, • Conducted PFAS occurrence study at no more than 50 waterworks and source waters, • The reports (RD877 and RD681) are available on the PFAS webpage.	**Patron**: Delegate Rasoul (GA 2020) • Establish MCLs for PFOA, PFOS, and other PFAS compounds, 1,4-Dioxane, and Cr VI • Effective **: 01/01/2022** • NOIRA published 02/2022 • Public comment ended 03/16/2022 • NOIRA withdrawn on 4/21/2023	**Patron**: Delegate Orrock (GA 2022) • Adopt EPA MCLs • Must adhere to EPA process for rulemaking • Health Commissioner can convene optional workgoup; • Conduct an occurrence study; • Analyze health effects; perform cost benefit analysis • Effective Date: 07/01/2022
July 2020	**July 2020**	**July 2022**

VDH-ODW PFAS Program Activities

VA PFAS Workgroup convened
October 2020

Phase 1 PFAS Sampling
April –July 2021

HB1257 Report
October 2021

HB586 Report
December 2021

PFAS NOIRA
Feb 2022

PFAS NOIRA comment period ended
March 2022

HB919 effective
July 2022

EPA Proposed Regulation 3/29/23

Phase 2 PFAS Study
June 2022 – September 2023

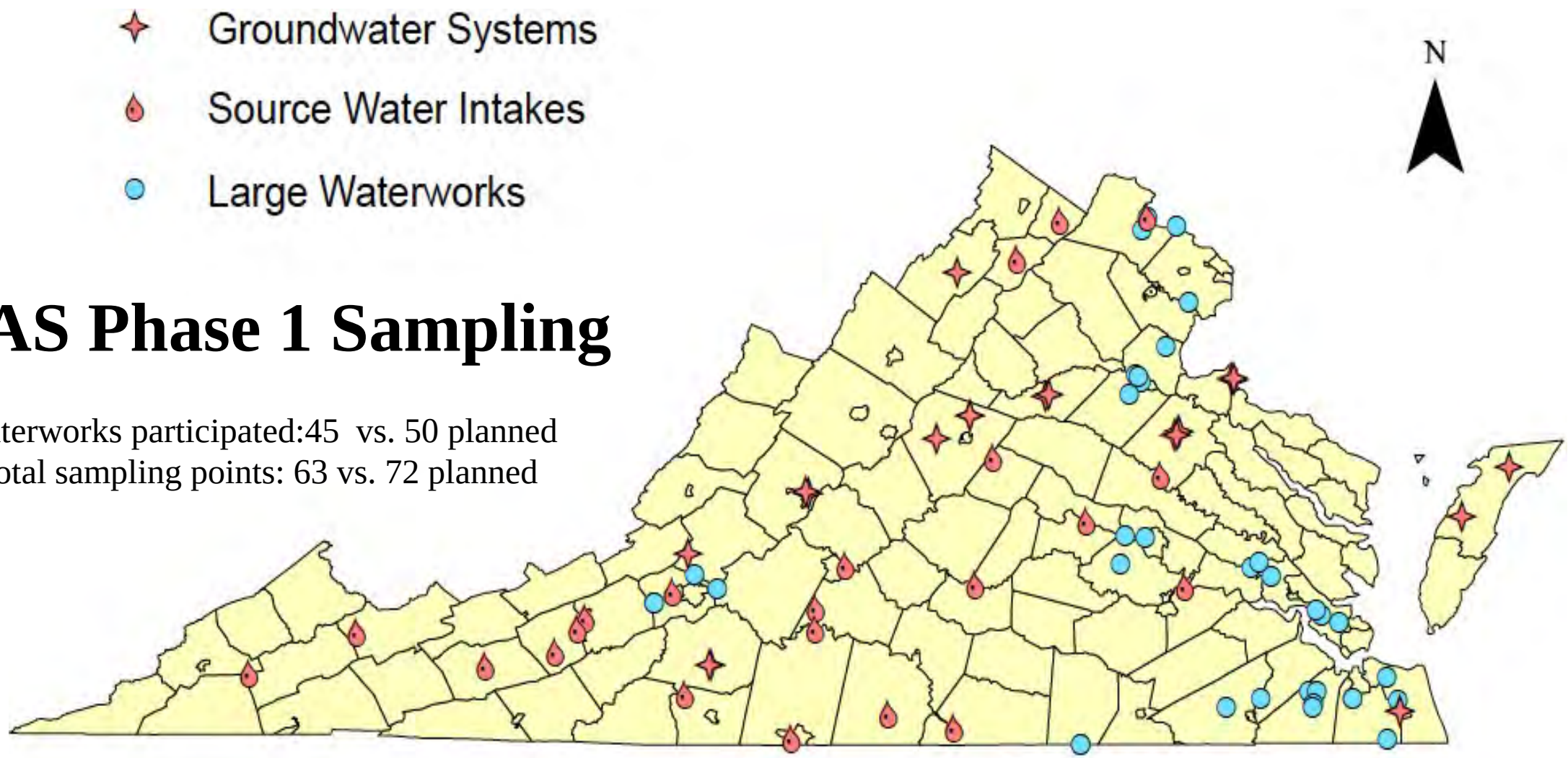
PFAS NOIRA Withdrawn 4/21/2023

PFAS Workgroup Recommendations (2020)

- Get better understanding of PFAS occurrence in Virginia drinking water
- Do more PFAS monitoring of drinking water
- Get additional risk & toxicology assessment
- Find more subject matter experts to help
- Understand the cost and benefits of PFAS treatment
- Give VDH more funding to assess PFAS

PFAS Phase 1 Sampling

Waterworks participated:45 vs. 50 planned
Total sampling points: 63 vs. 72 planned



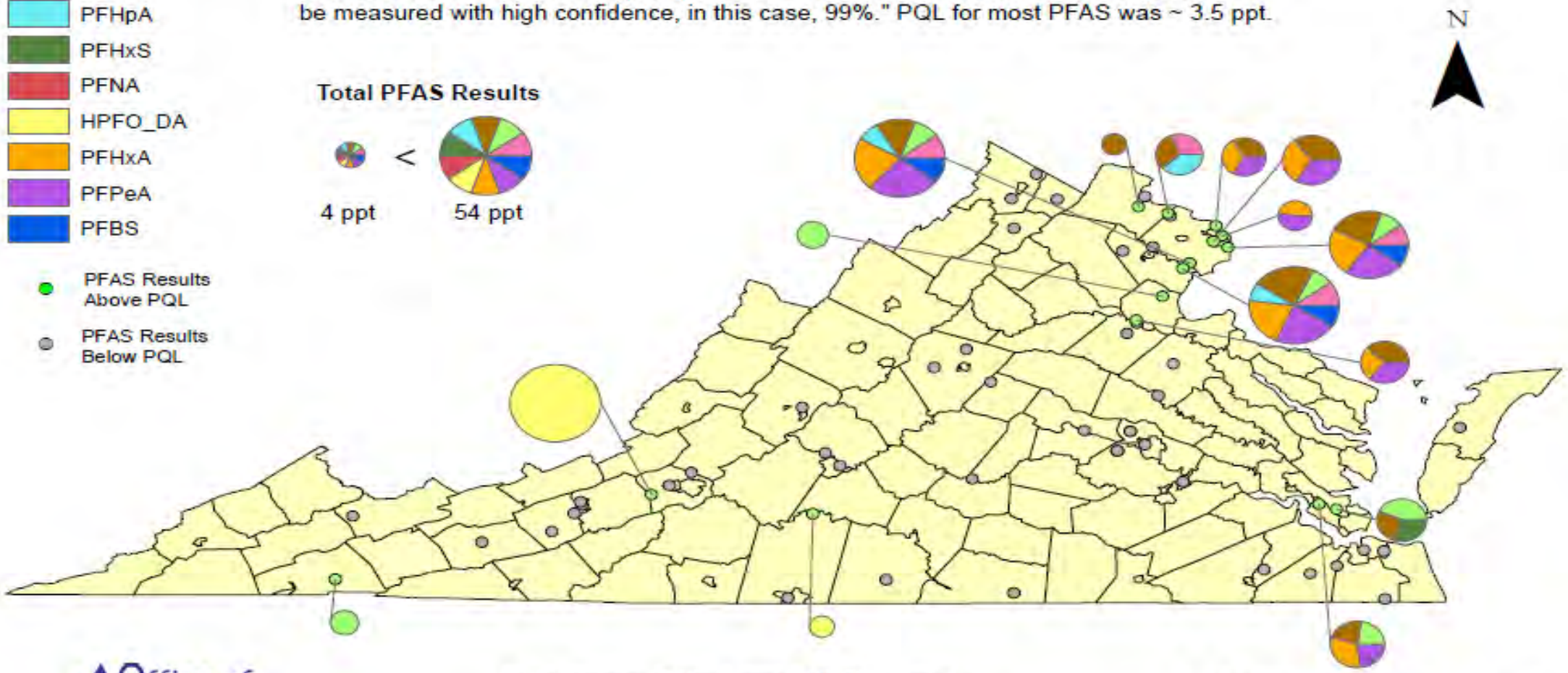
Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment

VA PFAS Sampling Results

Results of PFAS Sampling conducted May through September 2021
All results in parts per trillion (ppt)
Size of circle represents the total PFAS concentration detected
Each circle represents one sample

Practical Quantification Limit (PQL) is the "minimum concentration of an analyte that can be measured with high confidence, in this case, 99%." PQL for most PFAS was ~ 3.5 ppt.



Office of Drinking Water
Safe Drinking Water for a Healthy Virginia

Data Source: Table 1 and 2 HB586 report - Virginia Per and Polyfluoroalkyl Substances (PFAS) in Drinking Water Sample Study Summary, https:// www.vdh.virginia.gov/drinking-water/pfas/

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VIRGINIA DEPARTMENT OF HEALTH
Environment

VA PFAS Phase 1 Sampling Results

Detections above proposed EPA MCLs

Proposed MCL (2023):		
PFOA	(> 4.0 ppt)	4 detections
PFOS	(> 4.0 ppt)	6 detections

Hazard Index (HI):		
GenX	(> 10 ppt)	1 detection
PFBS	(> 2000 ppt)	None
PFNA	(> 10 ppt)	None
PFHxS	(> 9 ppt)	None

PFAS Phase 1 had 15 detections from 63 sampling locations

PFAS Phase 2 Sampling

- Collect about 400 entry point samples from public water systems
- 25 PFAS monitored (from a family of over 12,000*)
- Sampling performed from July, 2022 through September, 2023
- Expected result summary – November 2023

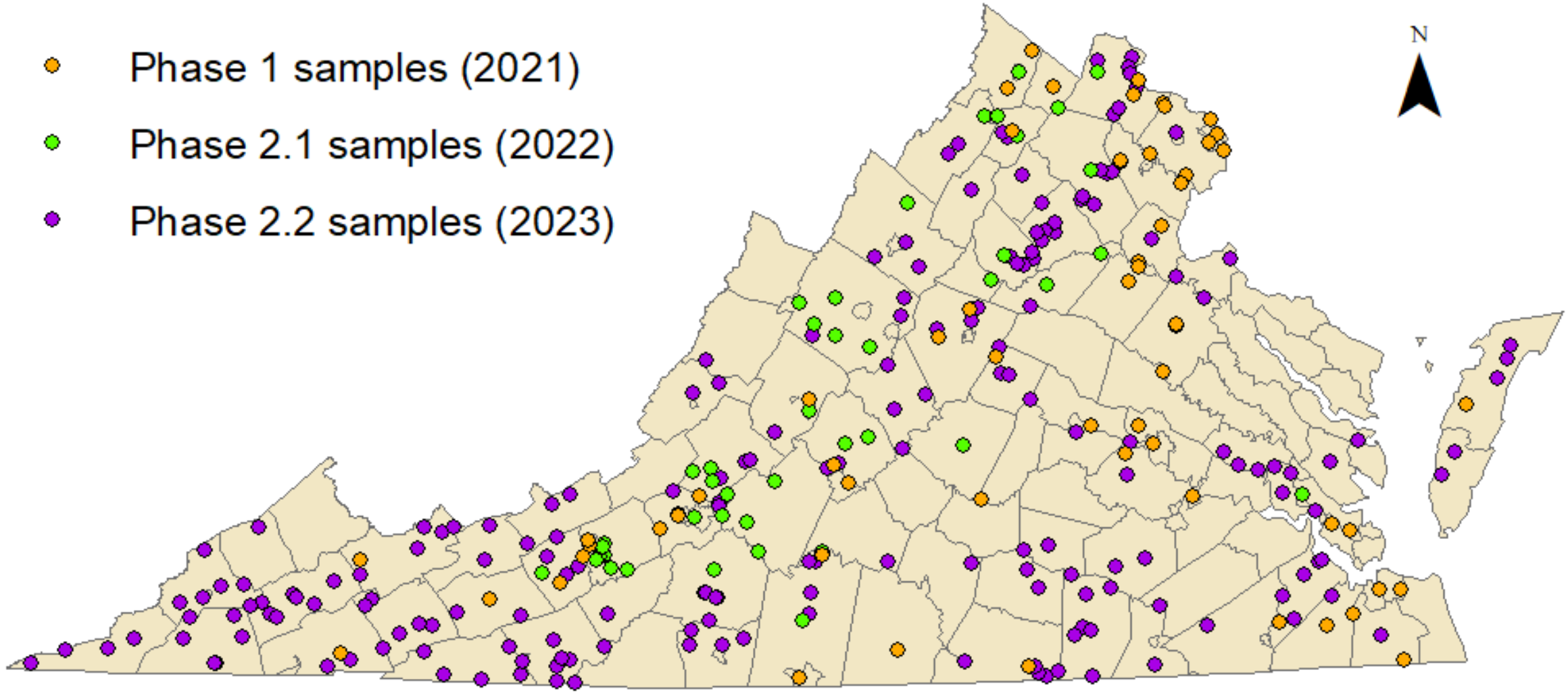
*https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9263809/pdf/10098_2022_Article_2362.pdf

Phase 2 PFAS Sampling

Count	Description
134	Surface Water Treatment Plant - Entry Point
39	Groundwater under the direct influence of surface water - entry point
6	Groundwater with high risk - entry point
16	Groundwater with medium risk - entry point
205	Small Groundwater Entry Point
43	Replacement sample locations (used to make up as needed)
19	Additional Samples near White Oak Swamp/Richmond Airport
462	Total locations - not all will be sampled.

PFAS Sampling Locations

- Phase 1 samples (2021)
- Phase 2.1 samples (2022)
- Phase 2.2 samples (2023)



Virginia PFAS Phase 2 Sampling Study

- Over 245 samples collected so far in Phase 2 PFAS sampling
  - On-going sampling (July 2022 - September 2023)
  - Perform QA/QC, share with waterworks, plan messaging
  - If results are “high”, then we act to immediately notify & respond
    - Results received so far show some single-digit “hits”

Phase 2 PFAS Sample summary will be released in November 2023

Virginia PFAS Phase 2.1 Sampling (2022)

In 2022, VDH completed 45 samples:

PFOA	(above 4.0 ppt)	None
PFOS	(above 4.0 ppt)	2 detections
Hazard Index:		
GenX	(above 10 ppt)	1 detection (same as Phase 1)
PFBS	(above 2000 ppt)	None
PFNA	(above 10 ppt)	None
PFHxS	(above 9 ppt)	None

ODW PFAS Sampling Studies

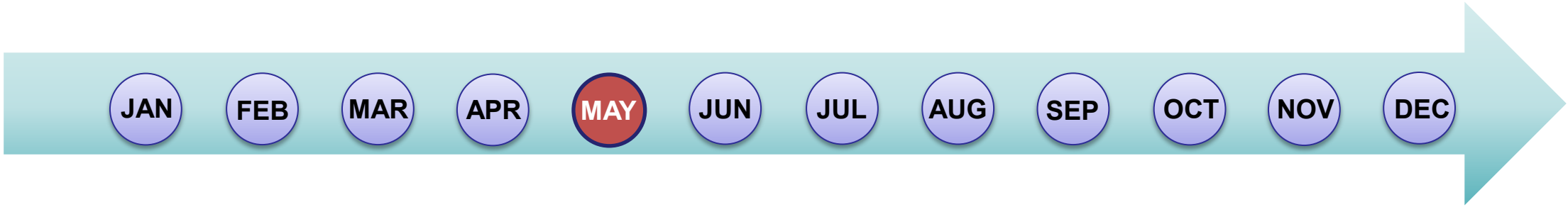
	Phase 1	Phase 2
Timeline	Summer 2021	June 2022 – September 2023
# of Waterworks	45	~400
# of Sampling Locations	63	~462
Type of Sampling Locations	Entry points & Source waters	Entry points only
Results	15*	In Progress
Report /More Info	RD877 RD681	VDH-ODW PFAS Webpage
	*detected at least one PFAS above POL	

DWSRF & BIL Funding

Va Total	FY 2022 1.63%	FY 2023 1.41%	FY 2024 1.41%	FY 2025 and FY 2026 (1.41%)
DWSRF Supplemental	$ 29,357,000	$ 29,732,000	$ 31,767,300	$ 34,566,150
Lead Service Lines	$ 46,256,000	$ 48,717,000	$ 48,717,000	$ 48,717,000
Emerging Contaminants	$ 12,327,000	$ 10,789,000	$ 10,789,000	$ 10,789,000
Total	$ 87,940,000	$ 89,238,000	$ 91,732,300	$ 94,072,150

- VDH planning future PFAS sampling for small or disadvantaged communities (2024)
- $30 million in PFAS funding under the Emerging Contaminants in Small or Disadvantaged Communities Grant

Typical DWSRF Application Solicitation Cycle



JANUARY
FCAP webpages updated – new cycle begins

1st wk MAY
Deadline to submit application

SUMMER
Applications scored and ranked**

FALL/WINTER
Funding Offer letters sent to applicants. Award letters sent after acceptance.

Applications accepted year-round but are reviewed once per solicitation cycle.

Case Study
Gen X (HFPO-DA) Remediation at the Spring Hollow Reservoir

Rivanna River Basin Commission

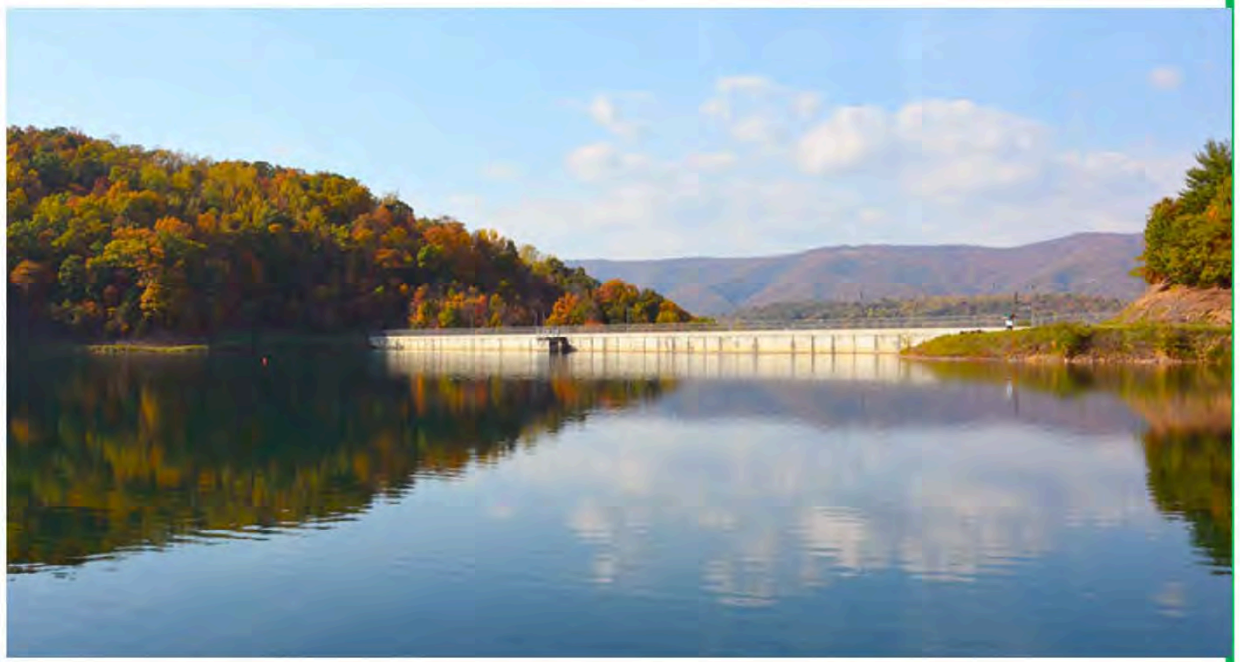
September 28, 2023

Background - Western Virginia Water Authority

- Created in 2004 as a regional provider of water and wastewater services in the Roanoke Valley
- Serve 180,000 citizens through 70,000 service connections
- Member localities include the City of Roanoke and the Counties of Roanoke, Franklin and Botetourt
- Contractual relationships with 6 other localities and authorities
- Water supply primarily through two large surface water reservoirs plus smaller reservoirs, Smith Mountain Lake, springs and groundwater systems

Spring Hollow Reservoir

- 3.2 billion gallons of storage supplied by withdrawals from the Roanoke River.
- Located at the very top of the Roanoke River Watershed
- Supports an 18 mgd water treatment plant that previously averaged 8 mgd production



Stopped pumping from the Roanoke River
Production reduced to 4 mgd.

Detection and Investigation

Roanoke River Intake Station

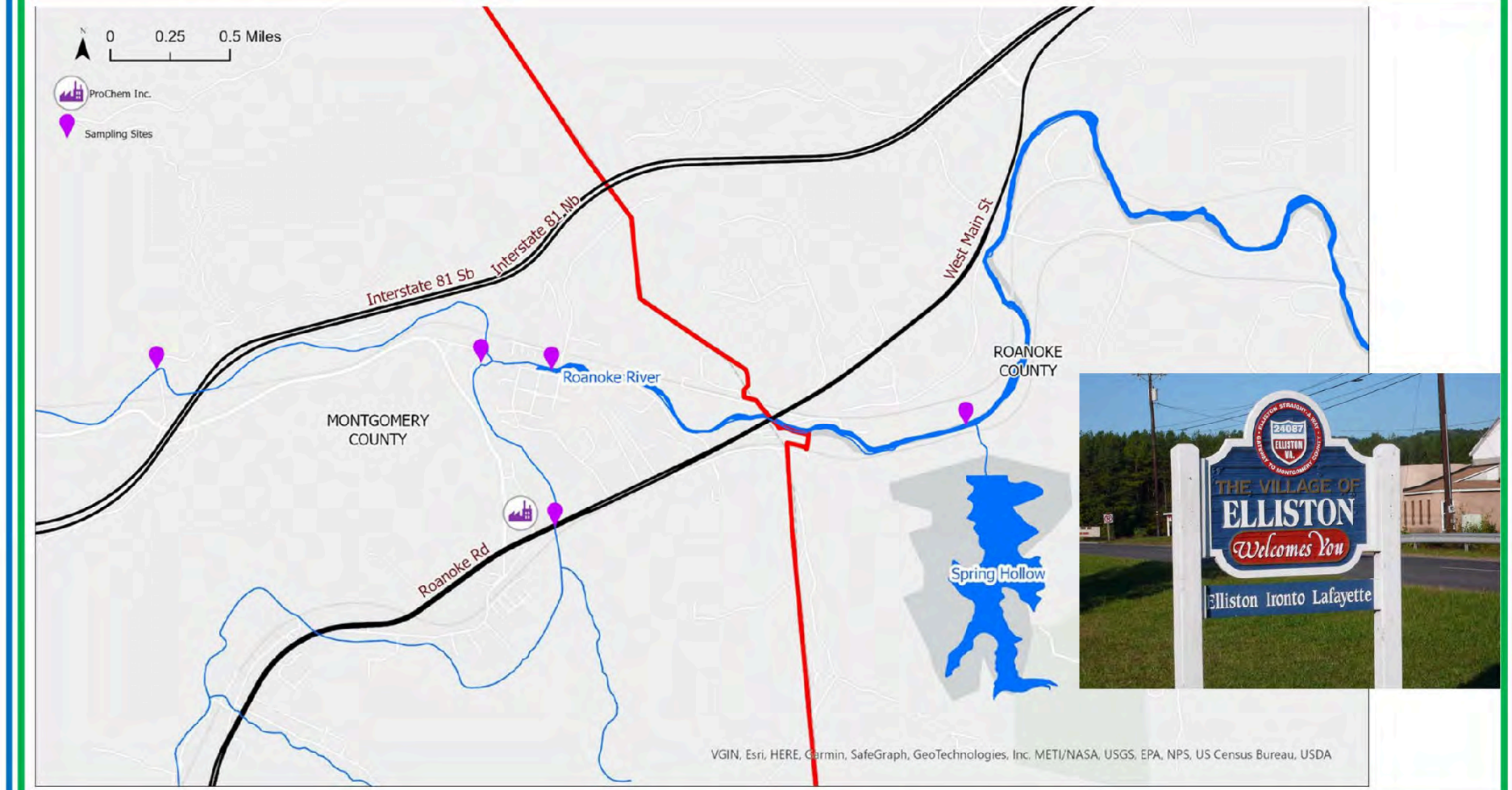
- Sampling at major Authority water sources 3 years in advance of required testing indicated presence of HFPO-DA, commonly referred to a Gen X
- Confirmed by VDH sampling
- Staff researched the chemical - uses, fate in the environment, treatment options as well as investigated possible sources
- Replacement for PFOA
- No EPA guidance on Gen X in drinking water at the time. Some state health advisories in the 140 to 300 ppt range

Detection and Investigation

- With EPA Health Advisory publication, coordinated with VDH on public notifications, increased sampling and funding solutions
- Extensive investigation by staff and DEQ located source of discharge upstream of reservoir intake station
- Compound released by ProChem, Inc. in wastewater
- Source of compound was the Chemours Washington Works facility

Roanoke Times Feb 7, 2023


Sample Collection Device


0 0.25 0.5 Miles
ProChem Inc.
Sampling Sites
Interstate 81 Sb
Interstate 81 Nb
West Main St
Roanoke River
MONTGOMERY COUNTY
ROANOKE COUNTY
Roanoke Rd
Spring Hollow
VGIN, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA
24087
ELLISTON VA.
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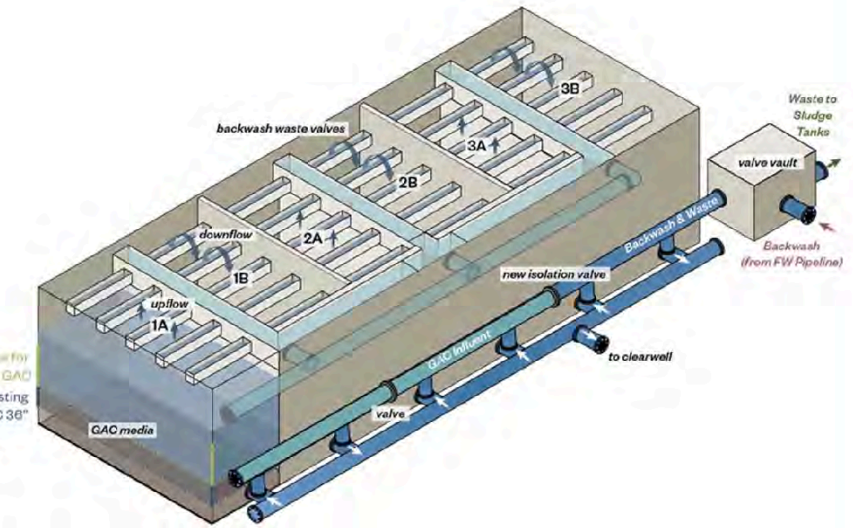
ELLISTON
Welcomes You
Elliston Ironto Lafayette

Remediation

- Granular Activated Carbon (GAC) filtration is the most common method of Gen X treatment
- Staff reconfigured an existing GAC system to treat for Gen X. This limited production to 4 mgd which was made up by other water sources.
- Have been able to remain below the health advisory value of 10 ppt
- Design Build project underway to restore capacity and operational efficiency



67% Increase in Plant O&M

WESTERN VIRGINIA WATER AUTHORITY

Customer Outreach

- Collecting weekly samples and posting data to website
- Five separate communications directly to customers with updates
- Dedicated telephone number and email address for customers to use
- Continued monitoring of Roanoke River in conjunction with DEQ
- Meetings with DEQ, VDH and others every two weeks to coordinate efforts

Emerging Contaminants in Drinking Water

Per- and Polyfluoroalkyl Substances (PFAS)

PRESENTED BY:

DAVE TUNGATE, DIRECTOR OF OPERATIONS & ENVIRONMENTAL SERVICES

RIVANNA RIVER BASIN CONFERENCE

SEPTEMBER 28, 2023

RIVANNA WATER & SEWER AUTHORITY

Rivanna Water and Sewer Authority

Overview

- Created in 1972 by joint action of the Charlottesville City Council and Albemarle County Board of Supervisors

- Provides wholesale drinking water and wastewater services for the public utility customers of the City and the County

- 100 Employees

- $48 M Annual Budget

- $325 M 5-year Capital Improvement Budget

RWSA Provides Wholesale Drinking Water and Wastewater Treatment for 2 Customers

~10 MGD (daily average) to >130,000 people in City of Charlottesville and Albemarle County

Rivanna Water and Sewer Authority Board of Directors

Mike Gaffney, RWSA Board Chair

Sam Sanders, RWSA Vice-Chair
City Manager, Charlottesville

Jeff Richardson, RWSA Secretary-Treasurer
County Executive, Albemarle County

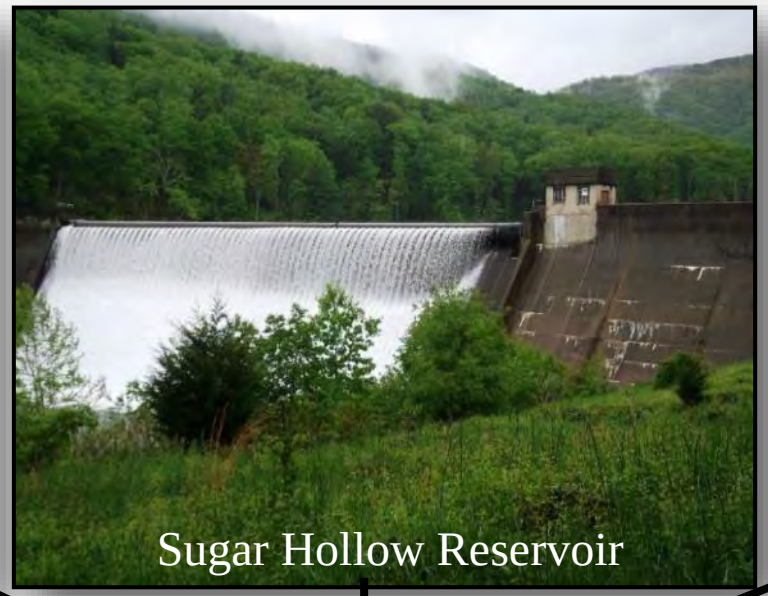
Brian Pinkston, Councilor
Charlottesville City Council

Ann Mallek, Supervisor
Albemarle County Board of Supervisors

Lauren Hildebrand
Director of Utilities
City of Charlottesville

Gary O'Connell
Executive Director
Albemarle County Service Authority


South Fork Rivanna Reservoir

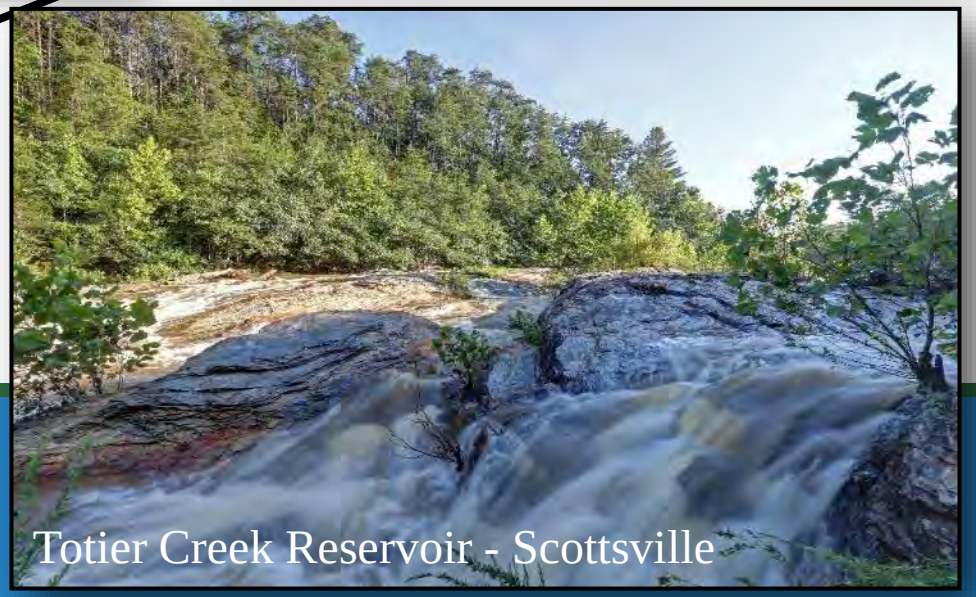

Sugar Hollow Reservoir


Ragged Mountain Reservoir


Beaver Creek Reservoir - Crozet

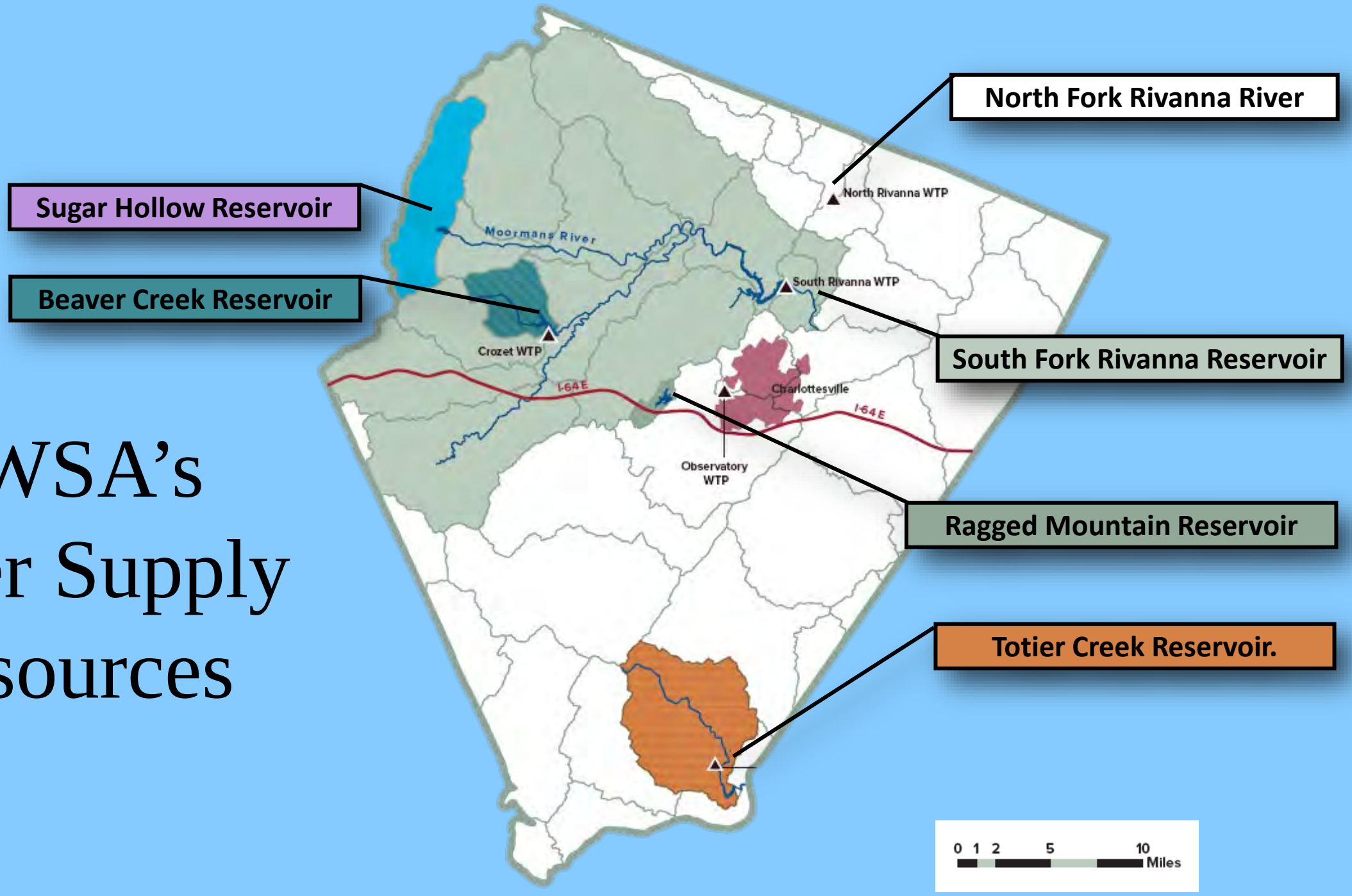
Urban
Area

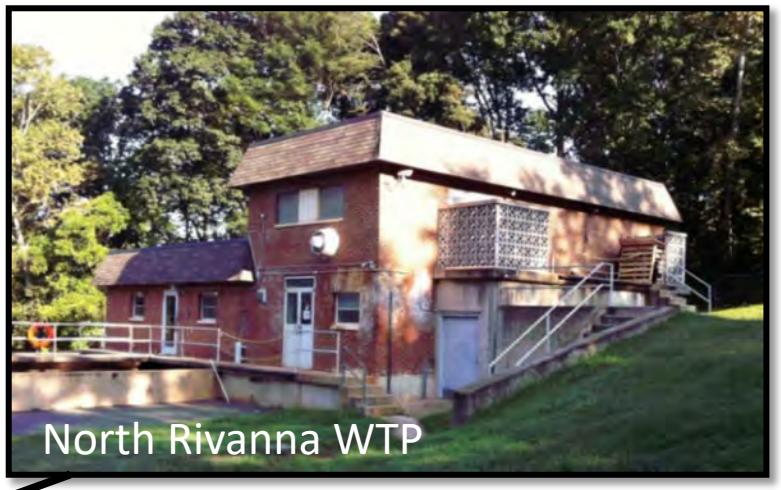
3.3 Billion Gallons


Totier Creek Reservoir - Scottsville

5 Water Supply Reservoirs

RWSA's Water Supply Resources





Urban Area

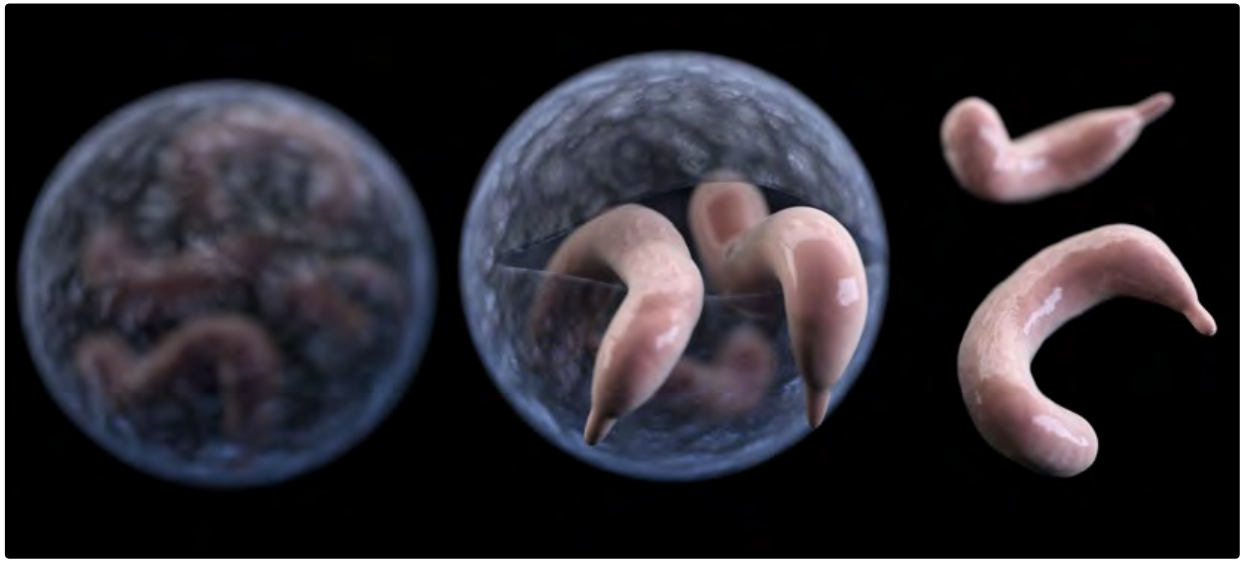
6 Water Treatment Plants

Water Production Capacity

Treatment Plant	Permitted Capacity (MGD)	2022 Average Production (MGD)
South Rivanna	12.0	7.98
Observatory	7.7	0.912
North Rivanna	2.0	0.43
Urban Total	21.7	9.32
Crozet	1.6	0.619
Scottsville	0.25	0.059
Red Hill	0.0068	0.002
Total	23.61	10.0

Condition of our source water varies

Our customers will not notice a difference



Giardia & Cryptosporidium

Drinking Water Testing Requirements

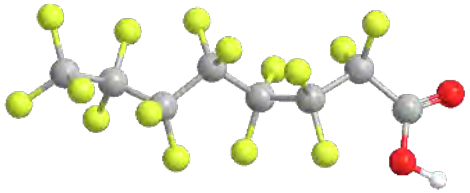
Monthly reports submitted to Virginia Department of Health include the following:

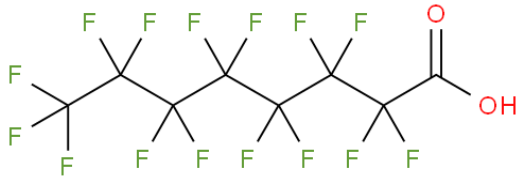
- Daily volume of water pumped in and out of each water plant
- Daily chemical dosage at each water plant (coagulant, lime, powder activated carbon, polymer, corrosion inhibitor, chlorine, and fluoride)
- Filter turbidity, water temperatures (raw and finished), and pH reports
- Finished water chlorine residuals and disinfection calculations
- Total Coliform sample results for all 4 water systems
- Safe Drinking Water Act results are posted to EPA central data exchange website

Emerging Contaminants and Regulations

- Industrial Products
  - PFAS
  - Dioxane
  - Glyphosate
- Nanoparticles
  - Microplastics
- Endocrine Interrupters
  - Pharmaceuticals by-products
  - Personal Care Products
- Cyanotoxins from blue green algae

PFAS





- PFAS: Per-and Polyfluoroalkyl substances are synthetic chemicals that included several different classes (e.g., PFOA, PFOS, Gen X)

- They make consumer products more water resistant, stain resistant (Scotchgard™), and reduce friction (Teflon)

- Primary ingredient in many fire-fighting foams

- PFAS compounds have long half-lives in humans (3—5 years)

Proposed EPA Standards

EPA is proposing a National Primary Drinking Water Regulation (NPDWR) to establish legally enforceable levels, called **Maximum Contaminant Levels (MCLs)**, for six PFAS compounds in drinking water. EPA is also proposing health-based, non-enforceable **Maximum Contaminant Level Goals (MCLGs)** for these six PFAS compounds. As of 9/2023, EPA has two approved tests for PFAS in drinking water (533 and 537.1). These 2 methods can detect 29 PFAS compounds.

Proposed EPA Standards

Compound	Proposed MCLG	Proposed MCL
PFOA	Zero	4.0 parts per trillion (ppt or ng/L)*
PFOS	Zero	4.0 ppt
PFNA	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFHxS		
PFBS		
HFPO-DA (commonly referred to as GenX Chemicals)		

1 part per trillion is the same as :

- 1 inch in 16 million miles
- 1 penny in $10 B
- 1 second in 32,000 years

Granular Activated Carbon Contactors

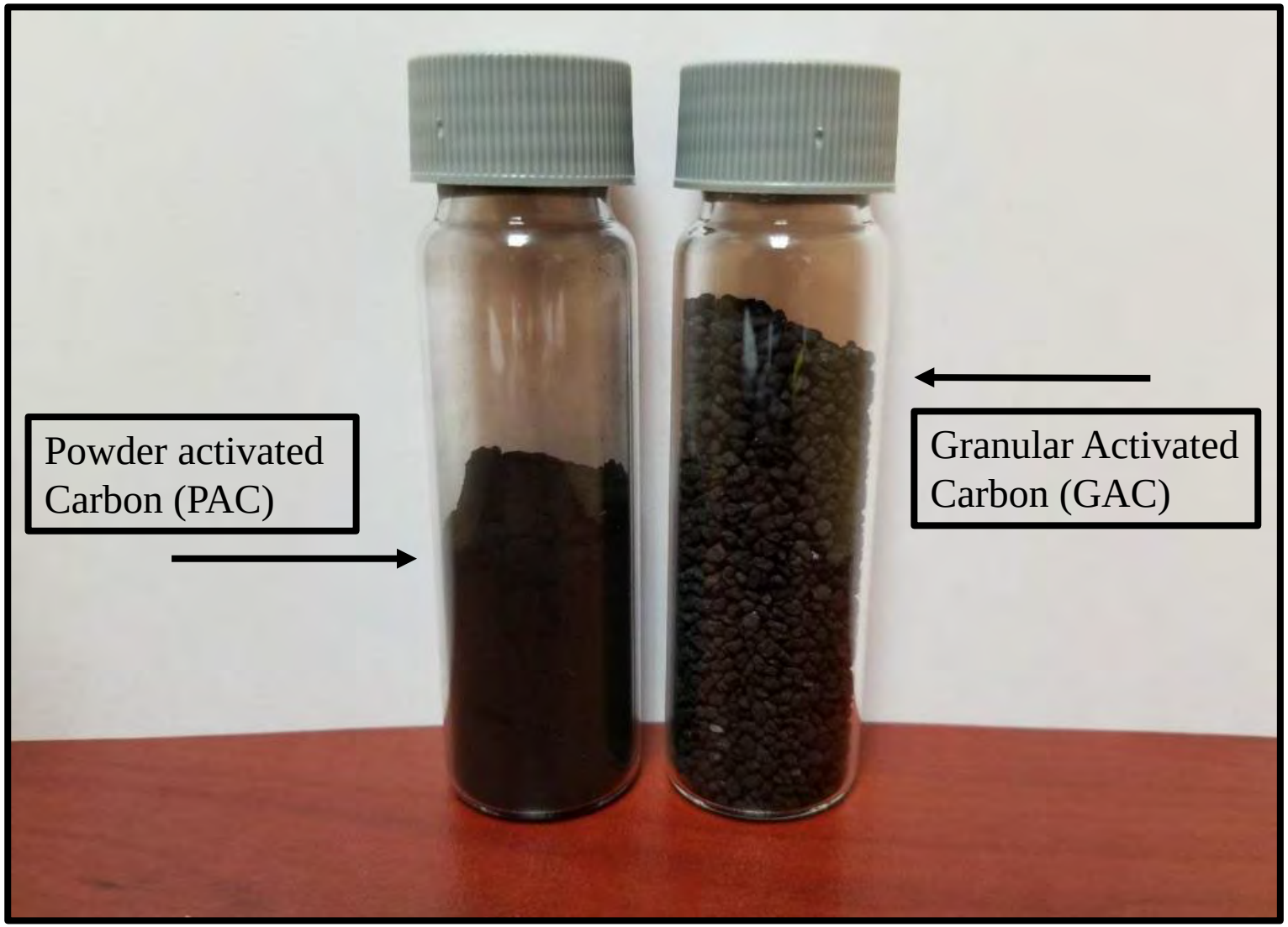
South Rivanna WTP
8 Contactors
320,000 pounds of GAC
8 MGD Capacity

Observatory WTP
6 Contactors
240,000 pounds of GAC
6 MGD Capacity

North Rivanna WTP
1 Contactor
40,000 pounds of GAC
1 MGD Capacity

Crozet WTP
2 Contactors
40,000 pounds of GAC
1 MGD Capacity

Scottsville WTP
2 Contactors
12,000 pounds of GAC
0.25 MGD Capacity



Activated Carbon

North Rivanna Water Treatment Plant

	North Rivanna WTP	Sampling Location		
	Sampling Date	Raw Total PFAS (ng/L)	Finished Total PFAS (ng/L)	Lab Method
	12/20/2018	BDL	BDL	537
	12/11/2019	BDL	BDL	537.1
	7/30/2020	2.1/4.0	BDL/3.6	537.1
	3/10/2021	BDL	BDL	537.1
	9/22/2021	2.8	BDL	533
	3/9/2022	BDL	BDL	537.1
	7/12/2022	2.00	BDL	537.1
	8/23/2022	BDL	4.9/2.1	1633
	2/22/2023	BDL	BDL	537.1
UCMR 5	5/24/2023	N/S	70.7	533/537.1
	7/7/2023	BDL	BDL	533/537.1
	7/10/2023	11.9	BDL	533/537.1
UCMR 5	8/9/2023	14.9	BDL	533/537.1

*- BDL is Below lab Detection Level

N/S - No sample

North Rivanna WTP	Sampling Location				
Sampling Date	Raw PFAS (ng/L)	Finished PFAS (ng/L)	PFAS detected (ng/L)	Concentration (ng/L)	Lab Method
7/30/2020	2.1	BDL	Perfluorooctanoic Acid (PFOA)	2.1	537.1
7/30/2020	4.0	3.6	Perfluorohexanoic Acid (PFHxA)	4.0	537.1
			Perfluorohexanoic Acid (PFHxA)	3.6	537.1
9/21/2021	2.8	BDL	Perfluoropentanoic acid (PFPeA)	2.8	537.1
7/12/2022	2.0	BDL	Perfluorohexanoic acid(PFHxA)	2.0	537.1
8/23/2022	BDL	4.9	Perfluoropentanoic acid (PFPeA)	4.9	537.1
8/23/2022	BDL	2.1	Perfluorohexanoic Acid (PFHxA)	2.1	537.1
5/24/2023	N/S	3.8	Perfluorobutanoic acid (PFBA)	3.8	533
5/24/2023	N/S	6.0	Perfluoropentanoic acid (PFPeA)	6	533
5/24/2023	N/S	8.9	Perfluorohexanoic Acid (PFHxA)	8.9	533
5/24/2023	N/S	8.2	Perfluoroheptanoic Acid (PFHpA)	8.2	533
5/24/2023	N/S	25	Perfluorooctanoic Acid (PFOA)	25	533
5/24/2023	N/S	4.6	Perfluorobutanesulfonic Acid (PFBS)	4.6	533
5/24/2023	N/S	2.5	Perfluorpentanesulfonic Acid (PFPeS)	2.5	533
5/24/2023	N/S	5.2	Perfluorohexanesulfonic Acid (PFHxS)	5.2	533
5/24/2023	N/S	6.5	Perfluorooctanesulfonic Acid (PFOS)	6.5	533
7/10/2023	3.1	BDL	Perfluorobutanoic acid (PFBA)	3.1	533
7/10/2023	3.5	BDL	Perfluoropentanoic acid (PFPeA)	3.5	533
7/10/2023	2.9	BDL	Perfluorohexanoic Acid (PFHxA)	2.9	533
7/10/2023	2.4	BDL	Perfluorooctanoic Acid (PFOA)	2.4	533
8/9/2023	3.6	BDL	Perfluorobutanoic acid (PFBA)	3.6	533
8/9/2023	6.0	BDL	Perfluoropentanoic acid (PFPeA)	6.0	533
8/9/2023	3.0	BDL	Perfluorohexanoic Acid (PFHxA)	3.0	533
8/9/2023	2.3	BDL	Perfluorooctanoic Acid (PFOA)	2.3	533

South Rivanna Water Treatment Plant

	South Rivanna WTP	Sampling Location		
	Sampling Date	Raw Total PFAS (ng/L)	Finished Total PFAS (ng/L)	Lab Method
	2/19/2014	No data	BDL	537
	5/28/2014	No data	BDL	537
	8/14/2014	No data	BDL	537
	11/6/2014	No data	BDL	537
	12/20/2018	BDL	BDL	537
	12/11/2019	BDL	BDL	537.1
	7/30/2020	BDL	BDL	537.1
	3/10/2021	BDL	BDL	537.1
	9/22/2021	BDL	BDL	533
	3/10/2022	BDL	BDL	537.1
	7/12/2022	BDL	BDL	537.1
	8/23/2022	BDL	1.7	1633
	2/22/2023	BDL	BDL	537.1
UCMR 5	5/25/2023	N/S	BDL	533/537.1
UCMR 5	8/9/2023	4.8	BDL	533/537.1

*- BDL is Below lab Detection Level

N/S - No sample

South Rivanna WTP	Sampling Location				
Sampling Date	Raw PFAS (ng/L)	Finished PFAS (ng/L)	PFAS detected	Concentration (ng/L)	Lab Method
8/23/2022	BDL	1.7	Perflorooctanesulfonamide(PFOSA)	1.7	1633
8/9/2023	2.4	BDL	Perfluorobutanoic acid (PFBA)	2.4	533
8/9/2023	2.4	BDL	Perfluoropentanoic acid (PFPeA)	2.4	533

Observatory Water Treatment Plant

	Observatory WTP	Sampling Location		
	Sampling Date	Raw Total PFAS (ng/L)	Finished Total PFAS (ng/L)	Lab Method
	8/18/2014	No data	BDL	537
	11/6/2014	No data	BDL	537
	12/20/2018	BDL	BDL	537
	12/11/2019	BDL	BDL	537.1
	7/30/2020	BDL	BDL	537.1
	3/10/2021	BDL	BDL	537.1
	9/22/2021	BDL	BDL	533
	3/10/2022	BDL	BDL	537.1
	7/12/2022	BDL	BDL	537.1
	8/23/2022	BDL	1.7	1633
	2/22/2023	BDL	BDL	537.1
UCMR 5	5/25/2023	N/S	BDL	533/537.1
UCMR 5	8/9/2023	2.2		533/537.1
	9/18/2023	BDL	BDL	533/537.1

*- BDL is Below lab Detection Level

N/S - No sample

Observatory WTP	Sampling Location				
Sampling Date	Raw PFAS (ng/L)	Finished PFAS (ng/L)	PFAS detected	Concentration (ng/L)	Lab Method
8/23/2022	BDL	1.7	Perflorooctanesulfonamide (PFOSA)	1.7	1633
8/9/2023	2.2		Perfluorobutanoic acid (PFBA)	2.2	533

Crozet Water Treatment Plant

	Crozet WTP	Sampling Location		
	Sampling Date	Raw Total PFAS (ng/L)	Finished Total PFAS (ng/L)	Lab Method
	12/20/2018	BDL	BDL	537
	12/11/2019	BDL	BDL	537.1
	7/30/2020	BDL	BDL	537.1
	3/10/2021	BDL	BDL	537.1
	9/21/2021	2.5	BDL	533
	3/9/2022	BDL	BDL	537.1
	7/12/2022	BDL	BDL	537.1
	8/23/2022	BDL	BDL	1633
UCMR 5	2/22/2023	BDL	BDL	537.1
UCMR 5	5/25/2023	N/S	BDL	533/537.1
	8/9/2023	8.1	BDL	533/537.1

*- BDL is Below lab Detection Level

N/S - No sample

Crozet WTP	Sampling Location				
Sampling Date	Raw PFAS (ng/L)	Finished PFAS (ng/L)	PFAS detected (ng/L)	Concentration (ng/L)	Lab Method
9/21/2021	2.5	BDL	Perfluoropentanoic acid (PFPeA)	2.5	537.1
8/9/2023	3.7	BDL	Perfluorobutanoic acid (PFBA)	3.7	533
8/9/2023	4.4	BDL	Perfluoropentanoic acid (PFPeA)	4.4	533

Scottsville Water Treatment Plant

	Scottsville WTP	Sampling Location		
	Sampling Date	Raw Total PFAS (ng/L)	Finished Total PFAS (ng/L)	Lab Method
	12/20/2018	BDL	BDL	537
	12/10/2019	BDL	BDL	537.1
	8/5/2020	2.3	BDL	537.1
	3/16/2021	BDL	BDL	537.1
	9/21/2021	BDL	4.3	533
	3/9/2022	BDL	BDL	537.1
	7/12/2022	2.5	BDL	537.1
	8/23/2022	BDL	2.1	1633
	2/22/2023	BDL	BDL	537.1
UCMR 5	5/24/2023	N/S	BDL	533/537.1
UCMR 5	8/9/2023	8.9	4.5	533/537.1

*- BDL is Below lab Detection Level

N/S - No sample

Scottsville WTP	Sampling Location				
Sampling Date	Raw PFAS (ng/L)	Finished PFAS (ng/L)	PFAS detected (ng/L)	Concentration (ng/L)	Lab Method
8/5/2020	2.3	BDL	Perfluorobutanesulfonic Acid (PFBS)	2.3	537.1
9/21/2021	BDL	4.3	Perfluorobutanoic acid (PFBA)	4.3	537.1
7/12/2022	2.5	BDL	Perfluorobutanesulfonic acid(PFBS)	2.5	537.1
8/23/2022	BDL	2.1	Perflorooctanesulfonamide (PFOSA)	2.1	1633
8/9/2023	3.3	4.5	Perfluorobutanoic acid (PFBA)		533
8/9/2023	5.6	BDL	Perfluorobutanesulfonic acid(PFBS)	5.6	533

Summary

- Testing indicates our community has low concentrations of PFAS in our source water and even lower concentrations in the treated drinking water we produce.
- RWSA has granular activated carbon (GAC) filters to reduce the levels of PFAS in our drinking water.
- If proposed PFAS standards are approved, the cost of water treatment may increase.

Unregulated Contaminant Monitoring Rule 5

RIVANNA
WATER & SEWER AUTHORITY

National Primary Drinking Water Regulation

- Step 1
  - The Safe Drinking Water Act amendments of 1996 require the Environmental Protection Agency to publish a Contaminant Candidate List (CCL) every 5 years. This is a list of currently unregulated contaminants which may pose risks in drinking water.
- Step 2
  - The EPA must choose no fewer than 5 contaminants from the CCL to determine whether to regulate them with a National Primary Drinking Water Regulation.

National Primary Drinking Water Regulation

- Step 3
  - The EPA issues a list of no more than 30 unregulated contaminants to be monitored by Public Water Supplies in the form of the Unregulated Contaminant Monitoring Rule (UCMR).

Contaminant Candidate List 5

- Published in November 2022 with 66 individual chemicals, three groups of chemicals, and 12 microbes on the list.

- The three chemical groups are :
  - **Cyanotoxins** – Chemicals produced by blue green algae
  - **Disinfection By-Products (DBPs)** – Chemicals produced during water treatment process when organic matter combines with a disinfectant like chlorine.
  - **Per and Poly fluoroalkyl Substances (PFAS)** – A class of synthetic compounds used to make products resistant to water, heat, and stains. They are found in clothing, food packing, cookware, cosmetics, carpeting, and fire fighting foams. There are more than 4,000 PFAS compounds used since the 1940s.

Chemical Contaminant Candidate List 5

* Include 23 unregulated DBPs

** PFAS contaminants must meet certain Carbon-Fluoride structures

1,2,3-Trichloropropane
1,4-Dioxane
17-alpha ethynyl estradiol
2,4-Dinitrophenol
2-Aminotoluene
2-Hydroxyatrazine
6-Chloro-1,3,5-triazine-2,4-diamine
Acephate
Acrolein
alpha-Hexachlorocyclohexane
Anthraquinone
Bensulide
Bisphenol A
Boron
Bromoxynil
Carbaryl
Carbendazim (MBC)
Chlordecone (Kepone)
Chlorpyrifos
Cobalt
Cyanotoxins[3]
Deethylatrazine
Desisopropyl atrazine
Desvenlafaxine
Diazinon
Dicrotophos
Dieldrin
Dimethoate
23 Disinfection byproducts (DBPs) *
Diuron
Ethalfluralin
Ethoprop
Fipronil
Fluconazole
Flufenacet
Fluometuron
Iprodione
Lithium
Malathion
Manganese
Methomyl
Methyl tert-butyl ether (MTBE)
Methylmercury
Molybdenum
Nonylphenol
Norflurazon
Oxyfluorfen
Per-and polyfluoroalkyl substances (PFAS)
Permethrin
Phorate
Phosmet
Phostebupirim
Profenofos
Propachlor
Propanil
Propargite
Propazine
Propoxur
Quinoline
Tebuconazole
Terbufos
Thiamethoxam
Tri-allate
Tribufos
Tributyl phosphate
Trimethylbenzene (1,2,4-)
Tris(2-chloroethyl) phosphate (TCEP)
Tungsten
Vanadium

12 Microbes in Contaminants Candidate List 5

Adenovirus

Caliciviruses

Campylobacter jejuni

Enteroviruses

Escherichia coli (O157)

Helicobacter pylori

Legionella pneumophila

Mycobacterium abscessus

Mycobacterium avium

Naegleria fowleri

Pseudomonas aeruginosa

Shigella sonnei

Unregulated Contaminant Monitoring Rule

The Safe Drinking Water Act amendments of 1996 require the EPA to publish a list of 30 priority unregulated contaminants to be monitored by Public Water Supplies every five years. This monitoring requirement is known as the Unregulated Contaminant Monitoring Rule. RWSA will begin sampling for UCMR 5 in May of 2023.

Water System Size (# of people served)	UCMR 5 participation
Small systems (fewer than 3,000)	800 randomly selected systems
Medium systems (3,300 – 10,000)	All surface water, ground water under direct influence, mixed water, and groundwater systems
Large systems (10,000 and over)	All surface water, ground water under direct influence, mixed water, and groundwater systems

UCMR 5 List

- EPA has only approved two laboratory methods (533 and 537.1) to test for PFAS in drinking water. These methods will test for 29 PFAS compounds.
- Lithium is also on the UCMR 5 list

29 PFAS chemicals in UCMR 5

Contaminant	Minimum Reporting Level
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	0.005 µg/L
9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (9Cl-PF3ONS)	0.002 µg/L
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	0.003 µg/L
hexafluoropropylene oxide dimer acid (HFPO DA)	0.005 µg/L
nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	0.02 µg/L
perfluorobutanoic acid (PFBA)	0.005 µg/L
perfluorobutanesulfonic acid (PFBS)	0.003 µg/L
1H,1H, 2H, 2H-perfluorodecane sulfonic acid (8:2FTS)	0.005 µg/L
perfluorodecanoic acid (PFDA)	0.003 µg/L
perfluorododecanoic acid (PFDoA)	0.003 µg/L
perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	0.003 µg/L
perfluoroheptanesulfonic acid (PFHpS)	0.003 µg/L
perfluoroheptanoic acid (PFHpA)	0.003 µg/L
1H,1H, 2H, 2H-perfluorohexane sulfonic acid (4:2FTS)	0.003 µg/L
perfluorohexanesulfonic acid (PFHxS)	0.003 µg/L
perfluorohexanoic acid (PFHxA)	0.003 µg/L
perfluoro-3-methoxypropanoic acid (PFMPA)	0.004 µg/L
perfluoro-4-methoxybutanoic acid (PFMBA)	0.003 µg/L
perfluorononanoic acid (PFNA)	0.004 µg/L
1H,1H, 2H, 2H-perfluorooctane sulfonic acid (6:2FTS)	0.005 µg/L
perfluorooctanesulfonic acid (PFOS)	0.004 µg/L
perfluorooctanoic acid (PFOA)	0.004 µg/L
perfluoropentanoic acid (PFPeA)	0.003 µg/L
perfluoropentanesulfonic acid (PFPeS)	0.004 µg/L
perfluoroundecanoic acid (PFUnA)	0.002 µg/L
N-ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)	0.005 µg/L
N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	0.006 µg/L
perfluorotetradecanoic acid (PFTA)	0.008 µg/L
perfluorotridecanoic acid (PFTrDA)	0.007 µg/L

UCMR 5 Sample Collection

- Water samples are collected after the final step in the water treatment process. This is called the entry point to the distribution system

- Sampling frequency is quarterly for 1 year at our five surface water treatment plants, and every six months for 1 year at Red Hill since it is a groundwater system.

- Sampling analysis costs will be approximately $23,000.

- Scottsville and Red Hill water systems are included in the sampling program for parity.

UCMR 5 Sample Collection

- Our samplers must take the following steps on the day of sample collection:
  - Avoid wearing clothing or boots containing Gore-Tex material or fabric softeners
  - Avoid using cosmetics, moisturizer, or insect repellants
  - Must use PFAS free sunscreens

UCMR 5 Sample Collection

- Samplers must take the following steps during sample collection:
  - Sample bottles must be labelled with ball point pens only
  - Samplers must wash their hands and immediately put on nitrile gloves at each sampling location

Field Reagent Blanks

- Measure the PFAS contribution from the sampling environment, personnel, and shipping conditions.

- PFAS-free water is provided for each sampling site and poured into sample bottles at every sample location.

UCMR 5 Sample Containers

Sampling Containers

Fill all empty sampling containers included in this kit.

Method	FS Bottle	FRB Bottle (blue label)	Reagent Water Bottle (blue label)
EPA 533 PFAS 3 x 250 mL	 ☐	 ☐	 ☐
Preservatives	Ammonium acetate	Ammonium acetate	No preservative
EPA 537.1 PFAS 2 x 250 mL	 ☐	 ☐	 ☐
Preservatives	Trizma	Trizma	No preservative
EPA 200.7 Lithium 1 x 250 mL	 ☐		
Preservatives	Nitric acid		

Summary and Questions

- The data gathered from the UCMR 5 will help EPA regulators to determine the prevalence of unregulated contaminants in drinking water

- This may eventually lead to additional National Primary Drinking Water Standards

Navigating Clean Water Funding

Opportunities Through the DEQ Clean Water Financing and Assistance Program

James Moneymaker
Project Officer
Virginia Department of Environmental Quality
09/28/2023

Background – CWFAP

- DEQ's Clean Water Financing and Assistance Program
  - Mission statement – We provide cost effective funding solutions and technical assistance to localities, organizations, and citizens to protect and enhance water quality in the Commonwealth

DEQ

Background – CWFAP

- “Funding solutions” – We provide low and no interest loans and grants from five funds and administer state-funded CSO grants
  - Virginia Clean Water Revolving Loan Fund (VCWRLF)
    - Co-administer with Virginia Resources Authority (VRA)
    - Also called Clean Water State Revolving Fund (CWSRF)
  - Stormwater Local Assistance Fund (SLAF)
  - Water Quality Improvement Fund (WQIF) – point source portion
  - Combined Sewer Overflow (CSO)
- Recently added funds
  - American Rescue Plan Act (ARPA) Wastewater funds
  - Overflow and Stormwater Grant (OSG) Program

DEQ

VCWRLF History and Purpose

- Federal Authorization – Federal Water Quality Act of 1987 established a State Revolving Fund (SRF) Capitalization Grant Program
  - Federal Capitalization Grants are awarded to states for deposit in a State Water Pollution Control Revolving Loan Fund
  - From this fund, states provide loans to local governments for wastewater treatment improvements to publicly-owned facilities
  - Loan repayments then provide a continuing source of revenue available to localities for solving water pollution control problems

DEQ

VCWRLF History and Purpose

- State Authorization – In 1986, Virginia General Assembly created the Virginia Water Facilities Loan Fund to facilitate self-sufficiency for wastewater financing at the state and local levels and to provide a long-term renewing source of funding for wastewater treatment improvements
  - The Fund is separate, permanent, and perpetual, dedicated solely to wastewater treatment improvements at publicly-owned facilities
  - Money from the Fund is loaned to local governments at rates at or below current market rates; all principal and interest is repaid into the Fund; money is then reloaned for additional projects

DEQ

VCWRLF Overview

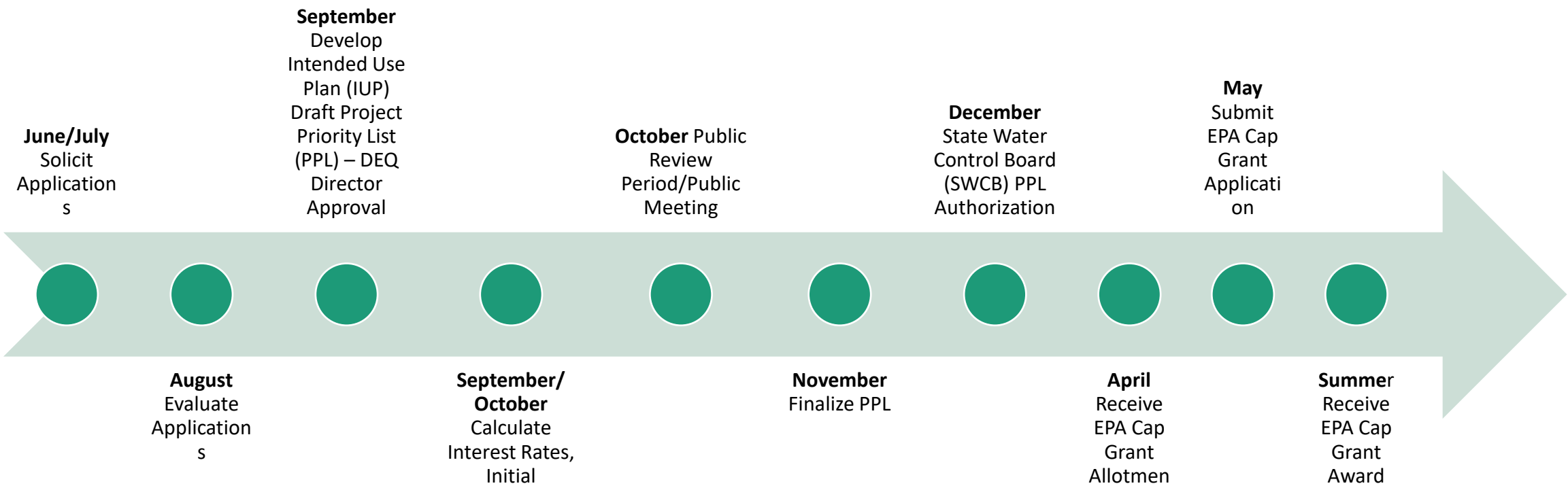
- Program initially focused solely on wastewater
- Eligible applicants and project types have expanded over time
  - Currently eligible applicants (varies depending on project type)
    - Local governments (county, city, town, municipal corporation, authority, district, commission, or political subdivision created by the GA)
  - Currently eligible project types
    - Wastewater treatment plant and conveyance system upgrades
    - Stormwater
    - Brownfields remediation
    - Land conservation
    - Living shorelines
    - Agricultural BMPs
    - On-site septic

DEQ

VCWRLF Annual Funding Process

- June/July – Solicitation of applications
- August/September – Application evaluation
  - Eligibility determination
  - Project scoring/ranking
- September – Development of Intended Use Plan (IUP) and Project Priority List (PPL)
  - Tentative approval by DEQ Director – late Sept
- September/October – Project evaluation
  - Calculate interest rates based on affordability
  - Initial meetings/site visits
  - VRA capacity analysis
- October – Public review and comment period and public meeting
- November – Finalize PPL
- December – State Water Control Board authorization of PPL
- April – Receive EPA capitalization grant allotment, calculate additional principal forgiveness
- May – Submit cap grant application to EPA
- Summer – Receive cap grant award from EPA

VCWRLF Annual Funding Process



VCWRLF Annual Funding Process – add'l information

- Application Evaluation
  - Eligibility determination
    - Review federal and state eligibility requirements
    - Discuss with EPA Region 3 as needed
  - Project scoring/ranking
    - Project type
    - Environmental impact
    - Use of innovative technology
    - Locality fiscal stress
    - Project schedule/readiness to proceed
    - Previous compliance history

DEQ

VCWRLF Federal Requirements

- Federal funds means federal requirements
  - Documentation and reporting requirements
  - Annual reviews
  - Limitations on eligibilities
  - Program requirements
  - Principal forgiveness amounts

Bipartisan Infrastructure Law (BIL)

- Passed in late 2021, BIL appropriates $1 billion to Clean Water State Revolving Funds nationally to address emerging contaminants including PFAS in wastewater, stormwater and nonpoint source pollution.
- Virginia has received $10,618,000 in emerging contaminant funding.
- Funding provided is 100% principal forgiveness

Bipartisan Infrastructure Law (BIL) - Continued

- Eligible Activities
  - Funding for planning and design of capital projects
  - Development and implementation of treatment technologies that remove or reduce emerging contaminants in drinking water, surface water or wastewater
    - granulated activated carbon
    - reverse osmosis
    - ion exchange.
  - BMPs to reduce the release of ECs to the environment

Bipartisan Infrastructure Law (BIL) – Continued

- Ineligible Activities
  - Project components not specific to emerging contaminants
  - Operation and maintenance
  - Water quality monitoring activities (including monitoring associated with NPDES permit or pretreatment requirements) at POTWs

Bipartisan Infrastructure Law (BIL) – Continued

- How to Apply
  - Applications for BIL Emerging Contaminant funds are accepted through the VCWRLF solicitation
  - Visit the EC Funding Fact Sheet and FAQ for more information
    - https://www.deq.virginia.gov/home/showdocument?id=18340
  - Submit applications via:
    - MyDEQ Portal
    - Fillable PDF uploaded to VRA ShareFile site

DEQ

Build America Buy America (BABA) Act Requirements

- Requires iron, steel, manufactured products and construction materials be manufactured in the United States
- Options available if unable to meet BABA requirements
  - Waiver
  - Alternatives

Contact

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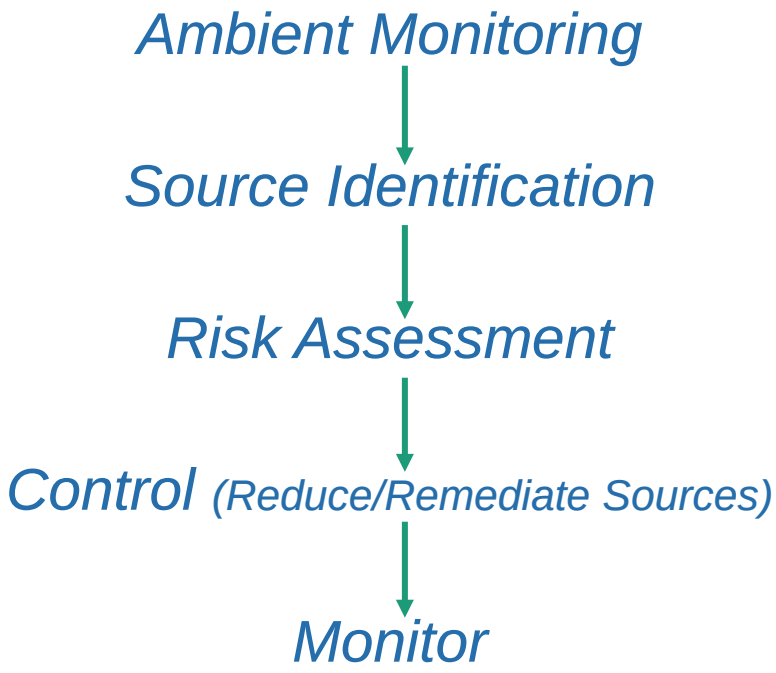
https://www.deq.virginia.gov/our-programs/water/clean-water-financing-and-assistance

Questions???

DEQ

Strategic Concepts for DEQ's Response to PFAS

Goal- to protect Virginia's air and water resources from PFAS levels that negatively impact human health and the environment.



Strategic Concepts for DEQ's Response to PFAS

- Prioritize Areas of Concern
  - Source Inventory
  - Drinking Water Surveillance Monitoring Review
  - Source Self Monitoring
- Evaluate Pathways into the Environment
- Government Response to Impacts
- General Community/Stakeholder Engagement & Education
- Review and Implement Best Management Practices for Reductions at Industrial Sources
- Remediation of Historic PFAS Contaminated Sites
  - Current priority at DoD and NASA facilities

DEQ's Response Plan to PFAS

- Broad Identification of Possible Sources
  - Wastewater and stormwater discharges
    - Industrial surveys
    - Effluent monitoring (currently not required)
  - Landfill leachate
  - Biosolids (awaiting EPA guidance and regulatory requirements)
  - Firefighting form sites
- Investigation of Confirmed Impacts to Environmental Media
  - Coordination with local, state, federal partners
  - Develop risk communication plans with partners
  - Identification of potential responsible parties (PRPs)
    - Comprehensive Environmental Compensation & Liability Act (CERCLA) issues
- Ambient Surveillance of Surface & Ground Water Monitoring

Government Response to Impacts

- Response Plan for Identified High Risk Areas
  - Impacts to drinking water, fish tissue, agricultural irrigation, wildlife
- Interagency Coordination with VDH, VDACs, DWR
- Impacts to Road Construction Projects
  - Coordination with VDOT and local agencies to address contaminated soil management
- Role of Local Government in Managing Issues at High Risk Impacts
  - Use of Unified Command (UC) for decision-making and communication

§ 62.1-44.15:5.3. Requirements to test for PFAS chemicals; publicly owned treatment works.

B. The pretreatment standards adopted by the Board shall require any industrial user of a publicly owned treatment works that receives and cleans, repairs, refurbishes, or processes any equipment, parts, or media used to treat any water or wastewater from any off-site manufacturing process that the industrial user knows or reasonably should know uses PFAS chemicals to test its wastestream for PFAS chemicals prior to and after cleaning, repairing, refurbishing, or processing such items. The results of such tests shall be transmitted to the receiving publicly owned treatment works within three days of receipt of the test results by the industrial user of the publicly owned treatment works.

DEQ Response to Comments Regarding PFAS Self Monitoring Requirements in VPDES Permit Renewals

As specified in 40 CFR 125.3, technology-based treatment requirements under CWA Section 301(b) represent the minimum level of control that must be imposed in NPDES permits, or VPDES for the Commonwealth of Virginia. NPDES/VPDES permits must include water quality-based effluent limits (WQBELs) as derived from water quality standards. There are currently no WQBELs and no EPA-approved methods in Title 40 Code of Federal Regulations Part 136 for PFAS. Upon publication of an approved method in Title 40 Code of Federal Regulations Part 136, permittees may be required to report the results of operational or process control samples for PFAS. EPA is currently validating PFAS Method 1633 in collaboration with the Department of Defense (DoD).

PFAS Tracking Tool (https://www.deq.virginia.gov/topics-of-interest/per-and-polyfluoroalkyl-substances-pfas)

- Online tool launched on March 29, 2023, regularly updated as data becomes available
- Fully interactive map integrating DEQ generated data
  - Surface and groundwater ambient monitoring
  - Fish tissue
  - Sediment
- Can filter data by freshwater probable monitoring stations, USGS nontidal stations and special studies
- Future data my include
  - VPDES point source effluent monitoring
  - Virginia Department of Health source water survelience monitoring
  - Biosolids at land application sites

PFAS Tracking Tool