CITY OF ANN ARBOR
PUBLIC SERVICES ADMINISTRATION

Committee on Energy and Commerce

Subcommittee on Environment

Hearing on Protecting Americans at Risk of PFAS Contamination & Exposure

Wednesday, May 15, 2019

Testimony of Brian Steglitz

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Good Morning Chairman Pallone and Ranking Member Shimkus and distinguished members of the subcommittee. Thank you for conducting this hearing and for inviting me to testify today. Thanks also to Congressman Upton, Congressman Walberg, and Congresswoman Dingell from Michigan for your bipartisan commitment and support to address critical public health and drinking water issues facing our State and the Nation. My name is Brian Steglitz, and I am the Manager of Water Treatment Services for the City of Ann Arbor, MI.

The City of Ann Arbor is a medium-sized city outside of Detroit in southeastern Michigan. Our utility serves approximately 125,000 customers, except for about eight Saturdays in the fall when the city's population doubles.

The city first became aware of PFAS in its drinking water in 2014 associated with regulatory required sampling as part of the Unregulated Contaminant Monitoring Rule enforced by the EPA. But it was not until 2016 when a report issued by the Environmental Working Group drew significant attention to these emerging contaminants and their presence in municipal drinking water.

In early 2017, the city began investigating options to improve removal of PFAS from its source waters, and piloted a new type of granulated activated carbon filter media. By the middle of 2018, city staff determined that the new media was

effective and recommended replacement of the media in all of its filters at a cost of approximately $850,000, which is about 10% of our annual operating budget. PFAS, however, cannot be addressed with a single capital investment. We will need to increase the annual expense of granular activated carbon replacement by over a factor of two (from $160,000 per year to $350,000 per year) to continue to achieve effective PFAS removal at our plant.

While we have come up with a solution to ensure the city's drinking water is safe and public health is protected, removing these chemicals at the end of the pipe is not the most cost effective approach. The best way to address these contaminants is at their source. Under the authority of TSCA, EPA has the ability to require comprehensive risk assessment for new chemicals before they are introduced into circulation. For those chemicals that are already in circulation and being actively used by industry, more effective controls are needed to ensure these chemicals are not allowed to enter our watersheds, as well as legislation that would require the polluter to cover the costs of abatement. Currently utilities are in a situation where chemicals of unknown health risk are entering circulation, are not being monitored, are discharged from industrial sources and municipal water treatment plants into watersheds, and enter the source water for drinking water systems. It may not be until chemicals are already detected in

drinking water, that risk assessment and exposure evaluations are initiated. This is just too late.

As we look for solutions, it is critical that we do not just move the risk from one media or source to another. PFAS chemicals are so prevalent because they have such desirable properties, one of them being that they are very difficult to destroy. In the city's case, PFAS is becoming chemically attached to the granular activated carbon. After the carbon capacity is exhausted, the carbon is removed and can be thermally regenerated, destroying the PFAS. In some cases, carbon is landfilled, which could become a new source of environmental contamination. Solutions that destroy these chemicals so they cannot re-enter the environmental should be incentivized.

Water utilities have been dealing with emerging contaminants for decades, ever since passage of the Safe Drinking Water Act. While the financial resources to address emerging contaminants like PFAS are desperately needed, it is critical that resources are optimally allocated. The science behind understanding the health risks associated with PFAS chemicals is still developing. Coincident with this developing science is the demand for regulation and the development of new treatment technologies.

As utilities develop solutions to address PFAS contaminants, many of these solutions may require significant capital investment. How is a utility to be sure that near term investments are able to address the long-term public health risks, when much of the science on public health impacts has yet to be developed? Similarly, as states and EPA consider future regulation, how will they incorporate the rapidly developing science into their proposed drinking water criteria?

While financial resources for utilities to address known PFAS contamination sites are critical, resources dedicated to research is equally important. Until the water community can understand the public health risks, it will not be able to ensure that appropriate resources are dedicated to addressing PFAS.

PFAS represent one of many challenges to drinking water utilities. It is important that other significant needs are not neglected as utilities stretch their resources to address PFAS. Aging infrastructure, lead, algal toxins, and other emerging contaminants, to name a few, remain at the forefront of water quality issues facing drinking water systems.

Federal government leadership will be critical to putting the country on the right path to addressing PFAS contamination and exposure. The most common question that we receive from our customers is, "is our water safe to drink?" Ann

Arbor is no different from utilities all of the country who are facing this similar question, whether it is related to PFAS, lead, or another source of contamination. Historically, utilities would commonly answer this question with an emphatic "yes, we comply with (and if applicable, exceed) all Safe Drinking Water Act requirements". Once PFAS emerged as such a widespread contamination problem for water systems, this response is no longer valid. There are no national regulatory limits for any PFAS. While EPA considers future regulation, many states, including Michigan, are not willing to wait. As you would expect, they are each taking a little different approach. Over the next few years, there will likely be many different regulatory approaches taken across the United States. Why is this problematic? It is difficult to communicate to your customers that New Jersey or Minnesota or Vermont has evaluated the risk to their residents differently, and that one state places a lower value on protection of public health than another.

Ann Arbor customers, as well as many other communities around the United State, will accept nothing less than the most stringent requirements. That is why we have taken the approach to survey the current research and current proposed regulatory initiatives around the United States, and selected the most stringent PFAS limits that exist and use these as our current water quality goals. Now, this

could change as the science develops, but this approach has satisfied our customers.

One may think that we really didn't need to take such an aggressive approach, but customer confidence and trust is the foundation of a successful utility. We, along with other utilities around the country, will be asking much from our customers in the future as we seek rate support for much needed investment. If we are unable to satisfy the water quality expectations of our customers, and if they turn to bottled water as an alternative, we will not be able to sustain the revenue support that we need to ensure that we can deliver safe water to the next generations in our communities.

In some cases access to funding through State revolving funds can be dependent on whether a utility requires investment to meet regulatory requirements. Therefore, some utilities may not be able to access low interest loans through their state programs for PFAS treatment since there are no regulatory guidelines.

For all of these reasons Federal leadership is critical. To recap, we need stronger control of the chemicals that can enter circulation in the United States, source water protection to ensure contaminants do not enter our watersheds, financial support for research to understand the public health risk of exposure to PFAS and

for development of new treatment technologies, financial support for utilities needing to invest in those remedial technologies, and finally regulatory oversight and consistent messaging that have been vetted by the best science. With these tools, utilities will be best-positioned to address PFAS contamination and succeed in their common missions to protect public health.

Thank you for your attention to this important issue.

Attached to this testimony are the following:

Attachment A – May Quality Water Matters Issue – City of Ann Arbor

Attachment B – PFAS Action Plan for the City of Ann Arbor

Attachment C – Research and the State of the Science of PFAS from The Water Research Foundation

Attachment A

A2H2O Quality Water Matters

Brought to you by the City of Ann Arbor

Volume 1, Issue 1 | May 2019

MAY IS WATER AWARENESS MONTH.

We figure it's also a perfect time to launch our first issue of A2H2O: Quality Water Matters. So here it is! Brought to you by the City of Ann Arbor, this monthly publication will provide information from our water quality team and local partners, such as the Huron River Watershed Council, the Washtenaw County Water Resources Commissioner and the Washtenaw County Health Department. While this publication is designed to keep everyone up to date on water-related topics, it is also part of our overall goal to reach out and meet more of our customers.

As you may know, we continue to face several water quality challenges with emerging contaminants. Dealing with water contaminants is not new to us. Throughout my tenure of almost 22 years, and in the decades preceding, the city has successfully addressed and overcome several water quality challenges. We've also won countless awards for water quality and efficiency in operations. Perhaps that's why utilities from all over the United States have sought input and direction from us on how to address and solve emerging contaminant issues.

To learn more about your drinking water and our efforts to protect its safety, contact us via email, telephone, social media, or visit: www.QualityWaterMatters.org.

Please know that however you choose to engage with us, your questions are always welcomed, concerns are taken seriously, and that the safety of your drinking water remains our number one priority.

Respectfully,

Brian Steglitz

Brian Steglitz, P.E., Drinking Water License F-1, Water Treatment Plant Manager, Ann Arbor resident

MAY EVENTS

Water Treatment Open House, 919 Sunset Road.
Saturday, May 11, 10 a.m.-2 p.m.

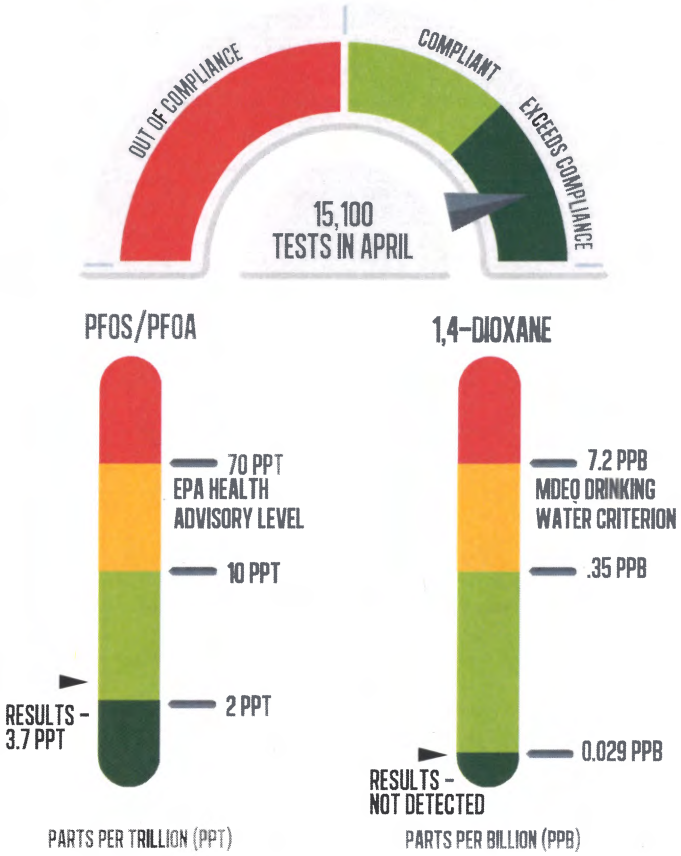
Huron River Day, Gallup Park, 3000 Fuller Road.
Sunday, May 19, noon-4 p.m.

Pop-Up Water Events, coming this summer to a space near you!

ANNUAL FIRE HYDRANT FLUSHING BEGINS

Fire hydrant inspections and system maintenance began in April and a map of scheduled areas is available at www.a2gov.org/annarborhydflush. The water discoloration could be caused by iron sediment in the water main being disturbed by the hydrant flushing. If this occurs, please run your **COLD** water for several minutes and flush your toilet to clear your lines.

MONTHLY WATER QUALITY DASHBOARD



A CLOSER LOOK

Each day, the City of Ann Arbor's water treatment staff is focused on providing clean and safe drinking water to our more than 125,000 customers. We take this responsibility very seriously. In 2018, a team of 30 water treatment professionals collected more than 58,000 water samples and conducted more than 177,000 tests to deliver high quality water.

WHAT'S IN YOUR WATER?

The current **Water Quality Report** is available online at www.a2gov.org/WaterReport and to view all data and **monthly sampling results** visit: www.QualityWaterMatters.org.

HURON RIVER WATERSHED COUNCIL:

Huron River Watershed Council

Clean water makes so many things possible. Healthy ecosystems. Plentiful wildlife. Safe drinking water. Inviting places to swim, fish, paddle or simply enjoy nature. Vibrant towns and cities. A legacy for future generations. The Huron River Watershed Council (HRWC) envisions a future of clean and plentiful water for people and nature where citizens and government are effective and courageous champions for the Huron River and its watershed. Supported through the membership of individuals, local businesses, and more than 40 communities across southeast Michigan, HRWC coordinates programs and volunteer efforts aimed at protecting and restoring the Huron River system. Learn how you can get involved at www.hrwc.org.

Look to the Huron River for kayaking, canoeing, camping, fishing on a fly, and other freshwater pursuits! The Huron is recognized as both a State and National Water Trail. Enjoy its 104-miles (167 km) and connect to the river's natural environment, its history and the communities it touches. There are a variety of paddling experiences and Milford, Dexter, Ann Arbor, Ypsilanti and Flat Rock are designated Trail Towns. Plan your summer adventure on the Huron River at www.huronriverwatertrail.org.

COUNTY NEWS:

Washtenaw County Health Department

Washtenaw County Health Department's mission is to assure, in partnership with the community, the conditions necessary for people to live healthy lives through prevention and protection programs. Water plays a central role in public health through consumption, hygiene and recreation. Our department works with many partners to assure drinking water is safe and available. Some of the services we provide include:

- Provide education for residents on the quality and safety of their drinking water, both from private wells and municipal supplies.
- Offer water testing services to residents through a contract with a certified laboratory.
- Sample all public swimming pools and beaches for water quality parameters and to ensure safe swimming conditions.
- Investigate contaminations that may impact drinking water and recreational water.
- Investigate illnesses that may be transmitted through water.
- Permit drinking water wells for private homes.
- Inspect and regulate well water supplies for schools, churches, day care centers, etc.
- Review water well suitability for homes involved in a property transfer.
- Permit non-potable wells for irrigation, contamination investigation, etc.

For additional information, www.washtenaw.org/envhealth or call 734.222.3800.

The Washtenaw County Water Resources Commissioner's (WRC) mission is to provide for the health, safety, and welfare of Washtenaw County citizens and the protection of surface water and the environment and to promote the long term environmental and economic sustainability of Washtenaw County by providing storm water management, flood control, development review and water quality programs. The WRC coordinates storm water management, develops strategies for flood and erosion control, and participates in the development of related storm water and land use policies, plans and programs. The office also conducts activities to protect the quality of storm drains and waterways. In performing these duties, the office is involved with the following activities:

- Determining special assessments.
- Maintaining court-set lake levels.
- Constructing and maintaining associated facilities including dams and pumps.
- Establishing standards, reviewing and approving plans and specifications for storm drainage projects.
- Managing and financing drain construction projects.

Learn more at http://www.washtenaw.org/drain.

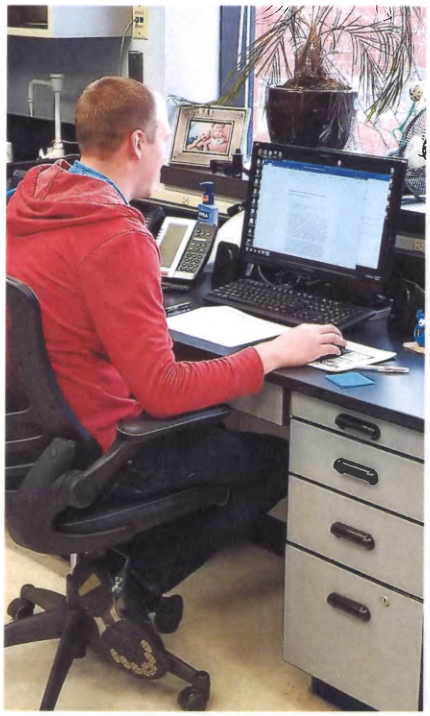
WATER CHAMPION:

Sarah Page, Ph.D.

Each month, the city will feature a member of our community who is working to protect one of the city's most valued resources: water.

Meet our first water champion, the City of Ann Arbor's Drinking Water Quality Manager Sarah Page, Ph.D., Drinking Water License F-4, Ann Arbor resident. Sarah works to ensure the city delivers high quality and safe water to our customers each and every day. On a daily basis, Sarah is analyzing thousands of measurements to ensure our water quality is excellent and she continually seeks improvements.

QUALITY WATER MATTERS: KEEPING OUR CUSTOMERS INFORMED ABOUT PFAS



The number one focus of the city's drinking water quality team is to provide safe drinking water; and we take this responsibility very seriously. That is why we have produced this handout and continue to revise it as needed.

REMOVING PFAS ACTION PLAN: As you may have heard, we continue to face water quality challenges such as with per- and polyfluoroalkyl substances (commonly referred to as PFAS). So, we created an action plan to keep residents informed about what we are doing to eliminate PFAS contamination in our source and drinking waters. As part of our action plan, we recently installed a new type of granular activated carbon in our filters which improved the water quality by reducing PFAS even further below health advisory levels. For PFAS contaminants with a health advisory level, our goal is to keep levels below 10 ppt (parts per trillion). This means for every trillion gallons of water, which is the equivalent of 20 Olympic-sized swimming pools, there are only a few drops or less of PFAS.

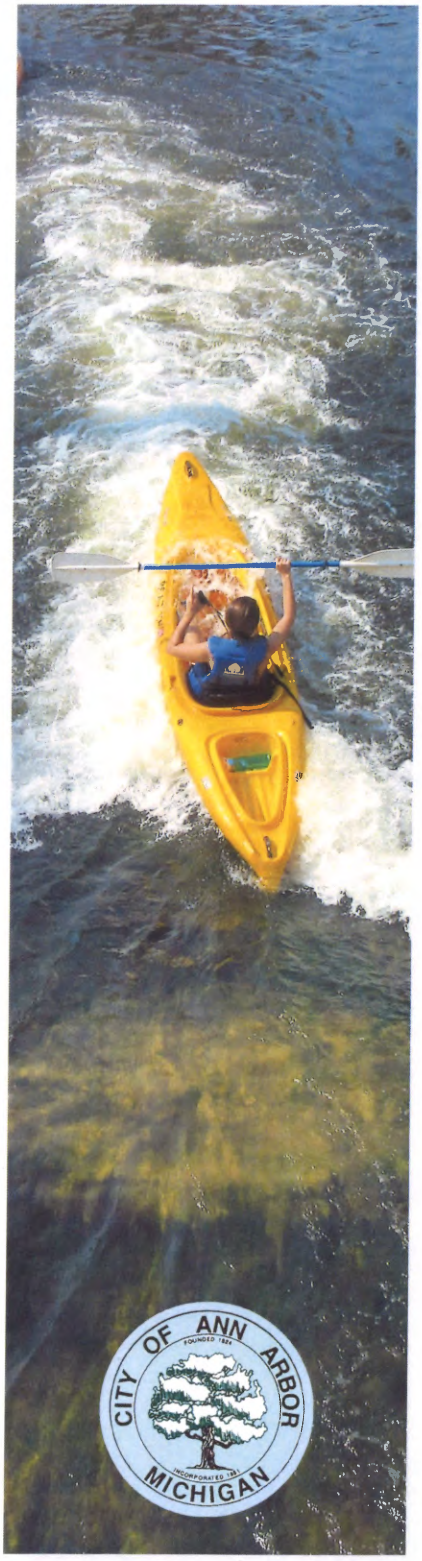
MONITORING AND TESTING: Each month, our water quality team sends water samples from the intakes at Barton Pond and finished drinking water to an independent lab to test for PFAS. Testing and analysis for PFAS requires specialized protocols and equipment and the method is very complex. Water samples are sent to an independent lab where they can detect PFAS levels as low as 2 ppt.

PROTECTING OUR WATERWAYS: The water quality team at the City of Ann Arbor continues to support on-going investigations to determine any possible sources of PFAS that could enter our source waters. We understand eliminating the sources of PFAS is the best way to keep it out of our drinking water. That's why the city has partnered with the Michigan Department of Environmental Quality (MDEQ) in its efforts to identify sources and prevent PFAS from entering our waterways.

LOOKING AHEAD: Even though the city's PFAS levels are well below the Environmental Protection Agency's (EPA) health advisory levels, that's not good enough for us, which is why we continue to improve our treatment processes and strive to learn more about other emerging contaminants. One way the city is dedicated to continuous improvement is by actively participating in research. In partnership with North Carolina State University, a leader in PFAS research in the U.S., the city is exploring new technologies for removing PFAS from drinking water. What's important for our more than 125,000 customers to know is we are dedicated to searching for solutions for any water quality challenge we may face. After all, we all drink Ann Arbor's water – and we take the responsibility to stay ahead of any potential threats to the safety of our drinking water very seriously.

STAY INFORMED: Our drinking water team will continue sharing PFAS water quality data on our website as soon as the data is validated. We also address water quality concerns and provide customer updates through a variety of city communication channels, such as Facebook, Twitter, NextDoor, a monthly online resident newsletter and regular email notifications. To review the PFAS levels and to learn more about your drinking water and the City of Ann Arbor's efforts to protect its safety, visit www.a2gov.org/PFAS.

QUALITY WATER MATTERS: Keeping Our Customers Informed



Frequently Asked Questions about PFAS

What is PFAS?
It is an abbreviation for per- and polyfluoroalkyl substances which are man-made chemicals used in metal plating and a wide variety of consumer products including fire-suppressing foam, carpets, paints, polishes and waxes. The most studied types of PFAS are perfluorooctanoic acid (PFOA) and perfluoroctanesulfonic acid (PFOS).

What are the advisory levels for PFAS?
The EPA has set a lifetime health advisory level for the combined amount of PFOS and PFOA in drinking water not to exceed 70 parts per trillion (ppt). That is the level, or amount, below which no harm is expected from these chemicals, based on daily consumption over a lifetime. The State of Michigan has indicated their intent to regulate PFAS and develop a maximum contaminant level by October 2019. City staff will be following the regulatory process.

What are the levels of PFAS in Ann Arbor's drinking water?
In 2019, PFOA and PFOS levels in Ann Arbor's drinking water have been less than 10 ppt. As part of our action plan, it is our goal to keep PFOS and PFOA below 10 ppt, significantly below the 70 ppt health advisory level. Levels for the 24 PFAS that we are testing for twice per month can be found on our website at www.QualityWaterMatters.org. Ultimately, our goal is to work with local and state partners to eliminate PFAS at the source and keep it from entering our waterways.

What is being done to protect our drinking water from PFAS?
In 2018 and 2019, the city installed a new type of granular activated carbon in our filters to increase removal of PFAS from our drinking water. The filters have been working as expected and the levels of PFAS have further dropped below the EPA's health advisory levels, some to undetectable amounts.

How does the Michigan Department of Health and Human Services (MDHHS) new health screening limits for five types of PFAS affect the city's water quality management plans?
On April 4, 2019, MDHHS published health screening levels for five PFAS: PFOS, PFOA, PFNA, PFHxS and PFBS. The city's current PFAS management strategy remains more restrictive than current regulations and is protective of public health, even with the announcement of these new screening levels. The city anticipates that new information on PFAS health impacts will continue to be released over the coming months and year. The city is committed to reviewing all new information and will adjust its management strategy as necessary to ensure public health is protected.

Why doesn't the city test for PFAS at my home?
PFAS concentrations do not change from the water treatment plant to your home, therefore, there is no need to test for PFAS within homes.

Can people bathe and swim in water containing PFAS?
Since PFAS does not easily absorb into the skin, people can bathe, swim and also do laundry and household cleaning with water containing PFAS as getting it on the skin is not harmful. However, in August 2018, the MDHHS issued a "Do Not Eat Fish" advisory for the Huron River and advised people and their pets to avoid swallowing foam from the river as it can have higher concentrations of PFAS.

What are you doing to protect our waterways?
We continue to leverage our partnerships with local organizations, such as the Huron River Watershed Council, to help ensure that our watershed is adequately protected from substances that might impact your drinking water. In addition, the city is lobbying to ensure that the state and its environmental regulatory agencies remain focused on protecting our waterways. While emerging contaminants may continue to be detected, our dedicated staff are prepared to not only face these challenges, but also remain an industry leader in pioneering solutions.

Where can I see test results of PFAS in our water?
Independent lab verified testing results of PFAS in the source water and finished drinking water are posted on the city's website at www.a2gov.org/PFAS.

Attachment C

The Water Research Foundation - Research and State of the Science on PFAS:

1. WRF has completed two projects addressing PFAS:
    a. Project WRF 4322: Treatment Mitigation Strategies of Poly & Perfluorinated Chemicals (http://www.waterrf.org/Pages/Projects.aspx?PID=4322) The first objective of this project was to conduct a literature review covering the global occurrence and treatability of perfluorinated compounds (PFCs). The second objective was to conduct a limited, strategically targeted assessment to determine the fate of these compounds in North American water treatment plants (from source to finished water) in order to validate the findings from the literature. Published in 2016
    b. Project WRF 4344: Removal of Perfluoralkyl Substances by PAC Adsorption and Ion Exchange (http://www.waterrf.org/Pages/Projects.aspx?PID=4344) This project assessed the effectiveness of innovative powdered activated carbon (PAC) adsorption and magnetic anion exchange processes for the removal of perfluorinated compounds (PFCs) from drinking water sources. Apart from the more commonly studied perfluorooctanic acid and perfluorooctane sulfonate, the removal of eight additional PFCs that are commonly detected in water were studied at environmentally relevant concentrations. Published in 2015.

2. WRF has a State of the Science paper on PFAS – link is: http://www.waterrf.org/resources/StateOfTheScienceReports/PFCs_StateOfTheScience.pdf#search=state%20of%20science%20pfas.

3. WRF held a webcast on "Per- and Polyfluoroalkyl Substances (PFAS) in Water: Background, Treatment and Utility Perspective." It provides a great overview of the issues. A link to the recording is here: http://www.waterrf.org/resources/webcasts/pages/PublicWebcasts-detail.aspx?ItemID=110.

4. WRF approved a new Focus Area in 2018 on PFAS Management, Analysis, Removal, Fate and Transport of Per- and Polyfluoroalkyl Substances (PFASs) in Water. A summary of the Focus Area objectives, and other projects we have on PFAS outside the Focus Area is summarized here: http://www.waterrf.org/the-foundation/research-programs/focus-area-program/Pages/PFASs-in-water.aspx

5. Ongoing PFAS Projects:

a. Concept Development of Chemical Treatment Strategy for PFOS-Contaminated Water – 4877. The primary goal of this research is to develop a practical high-efficiency chemical treatment strategy for perfluorooctane sulfonate (PFOS) in water. Research mainly investigates advanced oxidation integrated with chemical reduction to decompose PFOS.

b. Last year, WRF was awarded a DoD grant on PFAS (~$1M), and work is just initiating on it. It's titled "Evaluation and Life Cycle Comparison of Ex-Situ Treatment Technologies for Per-and Polyfluoroalkyl Substances (PFASs) in Groundwater". The project will develop a framework for assessing PFAS treatment techniques from a life cycle cost/assessment perspective, which will be structured based on input gathered during an expert workshop. The project team will also develop a treatment testing protocol and conduct laboratory-scale studies to evaluate the performance of various technologies for PFAS removal under different treatment scenarios. The results will be used to develop an Excel-based decision support tool to help DoD, utilities, and other practitioners select the most viable treatment technologies for different scenarios on a life cycle cost/assessment basis by identifying advantages, disadvantages, limitations, and costs of the various technologies.

c. Investigation of Treatment Alternatives for Short-Chain PFASs – 4913. This project will systematically investigate short-chain PFAS removal by readily implementable treatment processes - and to a limited extent, innovative techniques-in a wide range of water matrices (groundwater, surface water, treated wastewater) at multiple scales (bench, pilot, and full). Specific objectives are to advance the state-of-the-art of short chain PFAS removal by:
    - Evaluating conventional an innovative sorbents
    - Identifying essential membrane properties
    - Assessing the impact of background water matrix parameters
    - Comparing pre-treatment options to enhance downstream adsorption
    - Developing scale-up protocols to estimate full-scale sorbent use rates
    - Generating data for residuals management
    - Modeling quantitative structure-property relationships to predict removal by adsorption, anion exchange, and membrane processes

d. Determining the Role of Organic Matter Quality on PFAS Leaching from Sewage Sludge and Biosolids – 5002 ($25K Add-On to NSF proposal). The overarching project objective is to understand how solid characteristics and water quality affect PFASs desorption from sewage-derived solids, which the following main sub-objectives:
    - Evaluate the effect of wastewater treatment plant practices on sludge quality and associated PFAS leaching.
    - Determine how water quality impacts PFASs leaching from wastewater secondary and anaerobically digested sludges.
    - Quantify conversion of PFAS precursor compounds to perfluoroalkyl acids during anaerobic digestion.

- Evaluate the effects of biological weathering processes on PFASs leaching from biosolids
- Evaluate the effects of biological weathering processes on PFASs leaching from biosolids
- Develop recommendations for wastewater treatment plant operators and biosolids users to minimize contamination from PFASs.

e. Assessing Poly- and Perfluoroalkyl Substance Release from Finished Biosolids. The overall goal of this proposal is to assess poly- and perfluoroalkyl substance (PFAS) release from finished biosolids. Specifically, this release will be examined as a function of PFAS loading in the finished biosolids, the post-digestion processing of the biosolids, and the age of the biosolids (freshly produced vs. field-aged). Specific objectives will be to:
   - Quantify PFAS levels, including potential perfluoroalkyl acid (PFAA) precursors, in finished biosolids from multiple water resource recovery facilities (WRRFs)
   - Assess the impacts of anaerobic digestion on PFAS levels and potential for release from finished solids
   - Determine the extent to which PFAS release from biosolids occurs (both dissolved and colloidal) and the fraction of PFASs which remain irreversibly sequestered to the biosolids
   - Determine the impacts of field-aging (which likely will facilitate precursor transformation and sequestration) on the fraction of PFAS that is released
   - Develop preliminary guidelines or rules of thumb for mitigating PFAS levels and release in biosolids

f. Project 5031 - Occurrence of PFAS Compounds in US Wastewater Treatment Plants (Currently an active RFP). Objectives of this study are to:
   - Evaluate PFAS occurrence in US wastewater treatment plant
   - Determine the fate of PFAS compounds during wastewater treatment