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EXAMINING LEGISLATION TO ADDRESS THE RISKS ASSOCIATED WITH PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

MAY 22, 2019

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ONE HUNDRED SIXTEENTH CONGRESS
FIRST SESSION

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EXAMINING LEGISLATION TO ADDRESS THE RISKS ASSOCIATED WITH PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

WEDNESDAY, MAY 22, 2019

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The Committee met, pursuant to notice, at 9:47 a.m. in room 406, Dirksen Senate Office Building, Hon. John Barrasso (Chairman of the Committee) presiding.

Present: Senators Barrasso, Carper, Capito, Boozman, Braun, Ernst, Cardin, Markey, Whitehouse, Gillibrand, and Van Hollen.

OPENING STATEMENT OF HON. JOHN BARRASSO, U.S. SENATOR FROM THE STATE OF WYOMING

Senator BARRASSO. Good morning. I call this hearing to order.

Today we are going to continue the Committee's work examining the risks associated with per- and polyfluoroalkyl substances, or PFAS. PFAS are a large class of chemicals known for their resistance to oil and water. Since the 1940s, PFAS has been used in a broad array of industrial, commercial, and consumer applications, including non-stick cookware, waterproof clothing, stain resistant fabrics, food packaging, and firefighting foams. Scientists have found that these chemicals break down very slowly, if at all, in the natural environment. They have also found that some accumulate in the human body. These chemicals travel through water, air, and soil. Humans ingest them, inhale them, and absorb them through their skin. It is estimated that 90 percent of Americans have detectable concentrations of PFAS in their blood.

Some of these chemicals are associated with a number of negative health effects. To date, scientists have detected pollution from these chemicals all over the world and in nearly every State. It appears to be concentrated in communities located near or downstream from military bases, airports, firefighting facilities, and chemical manufacturing and processing facilities.

In March, this Committee heard from four witnesses representing the Environmental Protection Agency, the Department of Health and Human Services, and the Department of Defense in order to learn what steps the executive branch is taking to addresses the risks associated with PFAS. Today we are going to examine six bipartisan bills which have been introduced to address these risks. They include S. 638, introduced by Ranking Member Carper and Senator Capito; S. 950, introduced by Senators Stabenow and

Rounds; S. 1251, introduced by Senators Shaheen and Portman; S. 1372, introduced by Senators Stabenow and Rubio; S. 1473, introduced by Senators Gillibrand and Capito; and S. 1507, introduced by Senators Capito and Gillibrand.

Addressing this pollution is a priority of this Committee. That is why we included provisions to help public water systems address emerging contaminants, including PFAS, in America's Water Infrastructure Act. It is also why I intend to negotiate and report a bipartisan legislative package addressing PFAS pollution this Congress.

I can't support some of these bills as currently written. For example, I am concerned about sidestepping the rulemaking process used to assess the risks associated with chemical compounds under our Nation's bedrock environmental laws. Congress established these rulemaking processes decades ago. It believed that Federal agencies are better positioned to evaluate the science behind the regulation of chemicals.

In addition, I question whether we should treat all PFAS as if they posed the same level of risk to human health and the environment. These chemical substances vary widely. While much more research is needed, the risks these chemicals pose does seem to vary as well. Some of these compounds are used in medical devices, like pacemakers. Others are used as inhalers. It is critical that we acknowledge the differences among these chemicals.

I also have concerns about Congress imposing Superfund liability on parties that use these substances in good faith. For example, our Nation's airports, refineries, and others used firefighting foam containing PFAS in order to protect their workers and the public at large. Others, like metal finishers, used these chemicals as a means to successfully reduce air emission and workers' exposure to cancer causing heavy metals. All these entities were either following regulations or the industry's best practices. Still others, like wastewater treatment facilities and landfills, are often unknowing recipients of PFAS.

Congress has a critical role to play in ensuring that the Federal Government responds to the risks associated with these chemicals in a timely manner. Today's hearing is an important step in identifying how we should proceed on this issue.

I would now like to turn to Ranking Member Carper for his opening statement.

OPENING STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Thanks, Mr. Chairman.

Good morning, everyone. Thanks for joining us; nice to see you.

Thank you, Mr. Chairman, for scheduling this hearing, and for the collaborative way in which you and your staff have approached our Committee's work on addressing a lot of issues, but particularly the contamination from per- and polyfluoroalkyl substances, otherwise known as PFAS. Thank God for acronyms. I have never been a fan of acronyms, Mr. Chairman, but on this subject, I am definitely one.

I suspect that just about every member of our Committee has heard from their constituents with concerns about PFAS contami-

nation in their respective States. PFAS can be found nearly everywhere, from non-stock cookware to microwave popcorn bags to cleaning products and stain-resistant fabrics to firefighting foam used at military bases and airports across the country.

Forty-six years ago this spring, Mr. Chairman, I was a young naval flight officer stationed at Moffatt Field Naval Air Station. We operated P–3s out of there, out of Hunt for Red October, and did a lot of missions off the coast of Vietnam and Cambodia during the Vietnam war.

But in April 1973, I was driving into work one morning, didn't have to fly right away. I was a couple miles out from Moffatt Field, where we shared a base with NASA. They had some big planes there, and we had our Navy P–3s, which are not small planes, by any stretch of the imagination.

But as I drove to work on a sunny April morning, I could see from a distance, several miles away, a large black plume of smoke arising from the air station while I was some distance away. A large NASA Convair jet had been cleared to land on the same runway and at the same time as a Navy P–3 aircraft. Literally, the larger plane squashed the smaller plane.

It took over an hour for firefighters to control the blaze. Later that day we would learn that 16 people had died, I think the entire crew of the NASA Convair and all but one crew member on the P–3. I understand that the use of the chemicals that were used that day, fighting that fire, trying to save lives, has supported our military readiness and saved lives. But the cruel irony is that when PFAS ends up in a glass on a kitchen table or in this glass of water those same chemicals can endanger lives, not save them.

Our colleagues in the industry often remind Congress that PFAS chemicals are used in everything from medical devices to solar panels. I think I can speak for just about everyone when I say that is not a really good point. We want PFAS chemicals to stay in the solar panels and not in our drinking water. That is really why we are here today.

These highly persistent and ubiquitous chemicals are threatening the drinking water of millions of people in our country, and I am sure, outside of our country, too. In the southwestern corner of Delaware, for example, the people in the small town of Blades, right outside the slightly larger town of Seaford, were told last year or maybe 2 years ago to stop drinking the water there because PFAS chemicals were found to be present at nearly twice the Federal health advisory level. Just up the road at the Dover Air Force Base, roughly 50 miles away, more than half the groundwater wells tested there show dangerously, dangerously high levels of PFAS and PFOA.

I have a map here, a map of our country. This recently released map shows that more than 600 locations in 43 States are contaminated. Those are just the known locations. My hope is that the witnesses, all of you before us today, will work constructively with our Committee as we seek to forge a consensus approach to addressing this complex problem. My hope is that we all leave here today in strong agreement that Congress must take action sooner, rather than later, because this is an issue that deserves a sense of urgency.

One might think that the extent of this problem would lead the Environmental Protection Agency to respond with a sense of urgency. But sadly, that has not been the case, at least not yet. First, EPA's 2019 PFAS action plan largely includes commitments to consider, to consider whether to regulate PFAS contamination, steps that Scott Pruitt—and that is almost a year earlier, second Administrator—really, really refused to commit to setting a drinking water standard for PFAS until public and congressional outcry forced him to reverse course before he was confirmed. Finally, EPA weakened its draft guidance for cleaning up contaminated PFAS sites following pressure from the Defense Department.

So it is no surprise that many States are taking matters into their own hands and setting their own drinking water and cleanup standards. Neither is it a surprise that many elected officials have concluded that Federal legislation is needed to more urgently and decisively address this challenge.

Six pieces of bipartisan legislation that seek to do just that are the subject of today's hearing. Among other things, these bills seek to designate PFAS as a hazardous substance under the Superfund law, to compel EPA to establish a safe drinking water standard for PFAS within 2 years, inform the public when the PFAS chemicals are being released into the environment, as well as create faster cleanups and more interagency coordination and research and monitoring technologies.

While some of the bills before our Committee today propose to regulate every single PFAS chemical, and there are a lot of them, as you know, others have concluded that all of these chemicals do not pose the same safety and risks, a point raised by the Chairman in his statement. People have raised some implementation concerns about immediately regulating every single PFAS chemical at once.

One approach to addressing this concern lies in the PFAS Release Disclosure Act, authored by Senator Capito, on which my staff and I were proud to work and co-sponsor, along with Senator Gillibrand. That bill, our bill, would immediately add about 200 to the 602 PFAS chemicals currently in commerce to the Toxics Release Inventory, so that the public would be informed when those chemicals are released into our environment.

This bill does so by acknowledging the EPA's authority under the Toxic Substances Control Act to find that these specific PFAS chemicals do pose a risk. Thus, there is no need to do more research or spend more time before adding these chemicals to the Toxics Release Inventory.

The bill also ensures that in the future, whenever EPA finds that additional PFAS chemicals pose a risk, these chemicals will also be included in the Toxics Release Inventory. I am especially interested in our witnesses' views on this particular approach.

In the Navy, where I spent 23 years of my life, actually 27 years of my life, but when faced with an especially challenging mission, we would call for all hands on deck, even if we were not on a ship, we would call for all hands on deck. Today, we need a different kind of all hands on deck. But we do need one, nonetheless. When our Committee, this Committee, overhauled TSCA a couple of years ago, we did so with a partnership that included all of us, EPA, industry, and many environmental and public health organizations.

We need those same partners to pull together again now in order to support our Committee's work to expeditiously develop legislation and improve legislation already introduced to address the PFAS contamination problems that we face in communities as we saw from this map across the country. A growing number of Americans are counting on that, to do just that, and we can't let them down.

So Mr. Chairman, thanks very much for this important hearing. I will be here for part of it, but I have to slip over to another meeting at the White House on infrastructure. I will download with you later, maybe after lunch.

Senator BARRASSO. Thank you very much; thanks, Senator Carper.

We do have a wonderful group of witnesses today. We are going to hear from them now. We are joined by Dr. Kimberly Wise White, who is a Senior Director in the Chemical Products and Technology Division at the American Chemistry Council.

Thank you for being with us.

We also have with us Lisa Daniels, who is the Past President of the Association of State Drinking Water Administrators, and is currently the Director of the Bureau of Safe Drinking Water at the Pennsylvania Department of Environmental Protection. We have Scott Faber, who is Senior Vice President of Government Affairs at the Environmental Working Group. And finally, G. Tracy Mehan, who is the Executive Director of Government Affairs at the American Water Works Association.

Welcome to all of you. I want to remind you that your full written testimony will be made part of the official hearing record today. So please try to keep your statements to 5 minutes, so that we will have time for questions. I look forward to hearing your testimony.

With that, we can start with Ms. White.

STATEMENT OF KIMBERLY WISE WHITE, PH.D., SENIOR DIRECTOR, CHEMICAL PRODUCTS AND TECHNOLOGY, AMERICAN CHEMISTRY COUNCIL

Ms. WHITE. Good morning, Chairman Barrasso, Ranking Member Carper, and members of the Committee. My name is Dr. Kimberly Wise White, and I am a toxicologist with the American Chemistry Council.

My work has focused mainly on supporting scientific research and chemical risk assessment practices focused primarily on up to date scientific knowledge and the most relevant scientific approaches.

I appreciate this opportunity to provide a scientist's perspective on several of the legislative proposals before the Committee today. Addressing concerns regarding potential public health risks of PFAS and ensuring safe access to drinking water for all Americans is critically important. ACC shares this Committee's commitment to identifying ways to address and where warranted, mitigating the risk, of PFAS chemistries. The chemical industry supports a comprehensive approach to managing these substances, including specific measures to prioritize, evaluate, regulate, innovate, and monitor PFAS chemistries. Having science at the forefront of regulatory approaches allows for the most relevant data on hazard and expo-

sure, validated methodologies, and relevant, issue specific expertise to underpin decisions.

Let me take this opportunity to highlight four points which illustrate the important role science has in any chemical management strategy. First, today's PFAS chemistries play an essential role in modern life. PFAS is a term that describes a wide and diverse variety of substances in a broad range of applications that provide strength, durability, stability, and resilience. For example, today's PFAS are used in medical devices, the development of semiconductors, and applications in energy and fuel efficiency. Taking an overly broad approach to addressing PFAS chemistries that lacks a scientific foundation will make it difficult to implement effective regulatory policies.

Second, application and adherence to the administrative process is critical for PFAS chemical management. The Administrative Procedures Act governs the process by which Federal agencies develop and issue regulations. Circumventing the regulatory process by developing legislation that does not provide for public input and does not allow those Federal agencies to utilize their specific expertise undermines the process and may lead to regulatory decisions that lack a sound basis and which do not focus on the priority issues.

Third, science based approaches should be the foundation of any legislation and regulation. A robust body of science demonstrates the vast differences among individual PFAS, and peer reviewed data shows that fluoropolymers, for example, and several other PFAS chemistries do not present a risk to human health or the environment. Given this information, it is not appropriate to treat all PFAS chemistries the same. This includes when establishing drinking water levels, cleanup levels of lifetime safe exposure limits.

To be scientifically credible, proposed legislation seeking to develop maximum contaminant levels for drinking water should be consistent with the Safe Drinking Water Act. Similarly, scientifically credible and meaningful cleanup levels should use directly relevant scientific information to determine if it warranted designation as a hazardous substance or the establishment of cleanup levels. Most importantly, the leadership of Federal agencies with a primary mission to protect human health and the environment is critically important to any successful implementation of a regulatory approach.

Finally, a single class approach to evaluating PFAS is not scientifically justified. As I have mentioned, no two PFAS substances have the same hazard or environmental profile. This is critically important in evaluating specific chemical information.

Last week, the National Academies evaluated the same question of whether a single class approach could be applied to evaluating another set of chemistries, and they concluded that it was not scientifically appropriate. Instead, the National Academies suggested the identification of subclasses using chemical structure, chemical physical properties, toxicological information, and bioactivity to make determinations. ACC believes that a similar approach could be taken for addressing PFAS.

In summary, ensuring that up to date, high quality data, and science based approaches underlie regulatory decisionmaking is critical to protecting human health and the environment. This can

be achieved by recognizing that a one size fits all approach is not appropriate. Understanding and prioritizing PFAS chemistries will be critical to this Committee's effort to maximize Federal resources and focus on priority issues. This also allows technologies that are not a threat to human health or the environment to continue to achieve their intended purpose, which is advancing innovation.

Thank you for this opportunity to provide testimony, and I look forward to addressing your questions.

[The prepared statement of Ms. White follows:]

Kimberly Wise White, Ph.D.
Senior Director
American Chemistry Council

Dr. Kimberly Wise White is a Senior Director in the Chemical Products and Technology Division at the American Chemistry Council. In this position she works with multiple stakeholders to conduct scientific research that informs human health hazard assessments and implement approaches to improve the chemical risk assessment process. Dr. White received a BS and MS in Biology and a PhD in Environmental Toxicology from Texas Southern University. She is a member of the Society of Toxicology, serves on the Board of Directors for the Toxicology Forum and is a member of the U.S. Environmental Protection Agency's Science Advisory Board. Dr. White has a diverse background having worked as a laboratory researcher focusing on neurotoxicity, an environmental sustainability and compliance manager and as a scientific advisor to the petrochemical industry. For the past 7 years at ACC, she has been actively involved in supporting scientific research and chemical risk assessments that are firmly based on up-to-date scientific knowledge and are evaluated in accordance with the most relevant scientific approaches. Dr. White has also coauthored publications on adverse outcome pathways, weight of evidence frameworks, problem formulation in chemical assessment and understanding potency information associated with human exposures.



Written Statement of
Kimberly W. White, Ph.D.
Senior Director
Chemical Products and Technology Division
American Chemistry Council

Before the
U.S. Senate Committee on Environment and Public Works (EPW)
Regarding a Hearing to Consider Six Bipartisan Bills, Which Would Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)

May 22, 2019

American Chemistry Council
700 2nd Street, N.E.
Washington, D.C. 20002

Summary

Good morning, Chairman Barrasso, Ranking Member Carper and members of the Committee. My name is Dr. Kimberly Wise White. I am a toxicologist and have worked with the American Chemistry Council[1] (ACC) for the past seven years. My work at ACC has focused mainly on supporting scientific research and chemical risk evaluation processes that are firmly based on up-to-date scientific knowledge and are evaluated in accordance with the most relevant scientific approaches. I appreciate this opportunity to provide a scientist's perspective on several of the legislative proposals before this Committee today. Addressing concerns regarding potential public health risks of per- and polyfluoroalkyl substances or PFAS and ensuring access to safe drinking water for all Americans is critically important. The application of science-based approaches and policies to evaluate and manage potential risks are imperative for ensuring public confidence and trust in the regulatory process.

ACC shares this Committee's commitment to identifying ways to address and, where warranted, mitigate risk associated with PFAS chemistries. A holistic strategy is needed to coordinate overall efforts and focus resources toward immediate issues and areas of public concern. For this reason, the chemical industry supports a comprehensive approach to managing these substances, including specific measures to prioritize, evaluate, regulate, innovate, advance best practices, and monitor PFAS. ACC has worked with this Committee over the years to advance broad chemical regulation, which included passage of the 2016 amendments to the Toxic Substances Control Act (TSCA), an overwhelmingly bipartisan achievement. In those amendments, Congress established a process to reinforce public confidence in the U.S. Environmental Protection Agency's (EPA) evaluation of new and existing chemicals, requiring that the Agency use risk-based information, based on best available science, to evaluate chemicals and make affirmative regulatory decision on chemicals, in an open and transparent way. Having science at the forefront allows for the most relevant data on hazard and exposure, validated methodologies and relevant issue specific expertise to underlie decisions.

As Congress considers the issue of PFAS substances, I will focus my testimony on four areas that highlight the important role science has in any PFAS chemical management strategy.

I. Today's PFAS Chemistries Play an Essential Role in Modern Life

Fluorinated chemicals or PFAS, is a term that describes a wide and diverse array of substances characterized by the strong bond between fluorine and carbon. Because of this strong bond, PFAS provide strength, durability, stability, and resilience in a broad range of applications. These properties are critical to the reliable and safe function of a spectrum of products that are important for industry and consumers. For example, today's PFAS are used in: medical devices; the development of semiconductors in electronics; and applications in renewable energy and fuel efficiency. Multiple industries depend on today's high-performance PFAS substances because they provide unique properties that often cannot be replicated with non-fluorinated alternatives.

[1] The American Chemistry Council (ACC) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through Responsible Care®, common sense advocacy designed to address major public policy issues, and health and environmental research and product testing.

For example, fluoropolymers, which consist of a carbon-only polymer backbone with fluorines directly attached, are used in roof coatings to enhance durability and provide energy savings through solar reflectance and reduction of heat transfer into buildings. Fluorinated surfactants, are another example. These chemistries can be used in adhesives, sealants and caulks to strengthen the bond to surfaces and help prevent infrastructure failures caused by corrosion and weather. Taking an overly-broad approach to addressing PFAS chemistries that lacks a scientific foundation will make it difficult to implement effective regulatory policies. It will also impact an extensive swath of the economy, including a broad range of industries and businesses, as well as critical public entities like airports, hospitals, drinking water utilities, towns and municipalities. For these reasons, different PFAS substances require different regulatory approaches.

II. Application and Adherence to the Administrative Process is Critical for Effective PFAS Chemical Management

The Administrative Procedure Act (APA) governs the process by which federal agencies develop and issue regulations, including for example, regulations in chemical management under TSCA, drinking water regulations under the Safe Drinking Water Act (SDWA) and clean-up levels under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Importantly, the APA includes requirements for public notice of proposed and final rulemaking, opportunities for public comment, and other elements to ensure adequate review and utility of proposed regulations. There is a robust regulatory system and established policies in place for managing chemicals in the United States. Circumventing the regulatory process by developing legislation that does not provide for public input and does not allow federal agencies to exercise their expertise undermines the process and may lead to regulatory decisions that lack a sound basis and which do not focus on priority issues. In any legislation under consideration to manage PFAS, Congress must employ the APA process requirements for agency rulemaking and regulation in order to prevent arbitrary regulatory decisions. Further, agencies such as EPA must apply their statutory authorities and procedures to utilize the best available science in their regulatory decision-making. To support this process clear timelines should be established to ensure policy decisions and regulatory outcomes are completed and implemented in a timely fashion.

III. Credible Science-Based Approaches Are Imperative for Proposed Legislation and Regulation

Ensuring the safety of products and addressing the potential risks from exposure to PFAS are important objectives. Implementing an approach that incorporates current knowledge about chemical hazards and relevant human exposures must be the foundation for establishing regulations and legislation in order to provide meaningful benefit to public health. ACC supports strong chemical regulations that are protective of the safety of drinking water. However, regulation must be science-based and driven by objective and transparent approaches. This includes consideration of a substance's hazard characteristics, its use and actual levels of exposure in order to assess the potential risk of PFAS to determine the most appropriate risk management measures. These fundamental principles have unfortunately been lost in the current debate about PFAS.

A robust body of science demonstrates the vast differences among individual PFAS, and peer-reviewed data shows that fluoropolymers and several other PFAS chemistries do not

present a significant risk to human health or the environment[2,3,4,5]. For example, fluoropolymers present no significant toxicity, are inert, and are not water soluble. Another substance from today's PFAS – perfluorohexanoic acid (PFHxA) – has been found by French authorities[6] to have a toxicity value significantly higher (meaning lower in toxicity) than another PFAS chemistry – perfluorooctanoic acid (PFOA). Given this information, it is not appropriate for any regulation or legislation to treat all PFAS chemistries the same. This includes when evaluating PFAS chemistries to establish drinking water levels, clean-up levels or lifetime safe exposure limits. For example, in making future regulatory decisions, section 1412(b)(3)(A)(i) of the SDWA outlines specific criteria for incorporation of science into the regulatory process. Subsequently, to be scientifically credible, proposed legislation that seeks to direct federal agencies to develop maximum contaminant levels for drinking water should be consistent with the SDWA requirements to: (a) utilize the best available and most relevant toxicology data for the PFAS substance to determine if it may adversely affect public health, (b) utilize available exposure and monitoring data for the PFAS substance to confirm that there is a substantial likelihood that it occurs in public water systems at a frequency and at levels of public health concern and (c) ensure that any proposed level will present a meaningful opportunity for public health risk reduction.

Similarly, to develop scientifically credible and meaningful clean up levels, any legislation or regulation should ensure that it is utilizing directly relevant scientific information for a PFAS chemistry to determine if it warrants a designation as a hazardous substance. Additionally, establishment of relevant clean up levels should be based on the available science relevant for that chemistry in order to minimize any identified public health concern. Most importantly, in working to establish any regulatory actions, federal agencies are in the best position to identify, evaluate and manage chemical risk. For example, EPA has established processes, principles, and best practices which guide site remediation activities. Thus the leadership of agencies, with a primary mission to protect human health and the environment, such as the EPA, is critical to successful implementation of any regulatory approach.

IV. A Single Class Approach to Evaluating PFAS is Not Scientifically Warranted

A number of proposals suggest using a single class approach to addressing PFAS. However, PFAS encompasses a large variety of chemistries with differing characteristics, structures, physical and chemical properties, health and environmental profiles, uses and benefits. Evaluation of available scientific information to determine possible risks associated with exposure from PFAS must be a key focus. No two PFAS substances are exactly alike, thus it is critically important that chemical specific information be the foundation for any evaluation

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[2] Anderson, J. K., Luz, A. L., Goodrum, P., & Durda, J. (2019). Perfluorohexanoic acid toxicity, part II: Application of human health toxicity value for risk characterization. Regulatory Toxicology and Pharmacology, 103, 10-20.

[3] Luz, A. L., Anderson, J. K., Goodrum, P., & Durda, J. (2019). Perfluorohexanoic acid toxicity, part I: Development of a chronic human health toxicity value for use in risk assessment. Regulatory Toxicology and Pharmacology, 103, 41-55.

[4] Henry, B.J., Carlin, J.P., Hammerschmidt, J.A., Buck, R.C., Buxton, L.W., Fiedler, H., Seed, J. and Hernandez, O., (2018). A critical review of the application of polymer of low concern and regulatory criteria to fluoropolymers. Integrated Environmental assessment and Management, 14(3), pp.316-334.

[5] OECD Synthesis Paper on Per and Polyfluorinated Chemicals. Weblink: https://www.oecd.org/env/ehs/risk-management/PFC_FINAL-Web.pdf

[6] Development of Oral-Administered Treatment for TRV by Perfluorohexanoic Acid (PFHxA). French Agency for Food, Environmental and Occupational Health & Safety (ANSES), Maisons-Alfort, France (2017) (June)

of potential human health or environmental risk. Arbitrarily making risk management decisions for a class of chemistries based on information that may not represent the attributes of all substances in the class lacks scientific credibility. Severe scientific limitations exist in treating all PFAS as a single class for hazard assessment, exposure assessment or risk evaluation purposes. Two notable issues include: (a) finding a basis for consistently defining relative toxicity and potencies across chemicals within the PFAS class (e.g., even those PFAS chemicals affecting the same apical endpoint may do so by different modes of action) and (b) defining the patterns of interaction at different exposure levels when dose-response patterns differ and when complex interactions are possible.

A one-size-fits-all approach is at odds with what scientists and other experts continue to determine. Notably, the National Academy of Science, Engineering and Medicine (NASEM) empaneled a Committee to evaluate the question of whether a single class approach could be applied to evaluate the potential hazards from another set of chemistries – organohalogen flame retardants. As a result of their review, the NASEM Committee concluded [7] that a single-class approach was not scientifically credible. Importantly, instead of a single class approach NASEM suggested the identification of subclasses using information like chemical structure, physical and chemical properties, toxicology data and predicted biologic activity to facilitate decision-making for hazard characterization. ACC believes that a similar approach should be taken in addressing PFAS and notes that EPA's Office of Research and Development currently is engaged in an effort to develop subclasses of PFAS for the purposes of prioritizing the Agency's review of these chemistries.

Conclusion

In conclusion, ensuring that up to date, high quality data and science-based approaches underlie regulatory decision-making is critical to protecting human health and the environment from any potential risk that may be associated with PFAS chemistries. Congress has consistently recognized the importance of science as the foundation for regulatory decisions and codified scientific standards in the 2016 amended TSCA legislation to ensure the EPA's activities are guided by high quality, reliable and relevant scientific information. A one-size-fits-all approach to chemical management and assessment of PFAS is not scientifically based. Without a scientific basis, any legislation or regulation lacks credibility which in turn undermines the public's confidence in the government's actions to regulate chemicals to protect health and the environment. Additionally, Federal agencies with the responsibility for chemical regulation must play a vital role in developing and implementing approaches.

Thank you for this opportunity to provide testimony. ACC looks forward to working with the Committee to ensure that science-based approaches are the foundation for regulatory decision making associated with PFAS. I look forward to addressing your questions.

[7] National Academies of Sciences, Engineering, and Medicine. 2019. A Class Approach to Hazard Assessment of Organohalogen Flame Retardants. Washington, DC: The National Academies Press. https://doi.org/10.17226/25412.

U.S. Senate Committee on Environment and Public Works
Hearing entitled, *"Examining legislation to address the risks associated with per- and polyfluoroalkyl substances (PFAS)"*
Hearing Date: May 22, 2019
Responses to Questions for the Record

Responses to Chairman Barrasso's Questions:

Question 1: During the hearing, you testified that the American Chemistry Council (ACC) "does support EPA's activities to review and determine whether or not PFOS and PFOA should be designated as hazardous substances under the [Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)]." You explained that "it has to be a science-based process that outlines and follows the science and the data." You also said "[s]o as long as it is a science-based process, ACC absolutely supports EPA's review and would like to see that expedited, so we can make a determination."

a. Does ACC support Congress specifically designating, in legislation, one or more PFAS compounds as "hazardous substances" under CERCLA?

   Response – ACC supports a science-based process for evaluating whether specific PFAS should be designated as "hazardous substances" under CERCLA. There is a robust regulatory system and established policies in place for managing chemicals in the U.S., including PFAS. The government should utilize these frameworks to ensure consistent, science-based regulatory approaches that also ensure transparency, broad stakeholder input and enforceable regulations. ACC does not support direct designation by Congress. Any evaluation should include adequate and transparent review and assessment of the scientific information to make a determination regarding if a PFAS should be considered a "hazardous substance."

b. Would ACC support legislation, which would establish a deadline by which EPA must make a determination whether or not to designate certain PFAS as "hazardous substances" under CERCLA?

   Response – ACC supports establishing timely deadlines for EPA to assess the available scientific information and make science-based determinations regarding whether to designate specific PFAS as "hazardous substances" under CERLA. Clear timelines can be established to ensure policy decisions and regulatory outcomes are completed and implemented in a timely fashion.

Question 2: During the hearing, Ms. Daniels said the following: "EPA talks about [the Toxic Substances Control Act] being the gatekeeper. Right now, I think the gate is wide open, and I am not even sure where the key is. So I think if we can take a look at the authorities under TSCA and see if anything else can be done to get some of that up-front work first done, before these chemicals are already out in the environment and potentially in drinking water." Mr. Mehan said "we need to get TSCA in the game more vigorously."

Is there more EPA can do to address PFAS pollution with its existing authorities under TSCA? If so, what are those actions?

Response – The Toxic Substance Control Act (TSCA) affords EPA considerable authority to evaluate and regulate chemicals. The Lautenberg Chemical Safety Act, which passed Congress with overwhelming bi-partisan support, enhanced TSCA and significantly modernizes the way chemicals are regulated in the U.S. This includes new requirements for an affirmative safety determination of new chemicals before they can even be brought to market. Specifically, it mandates that EPA conduct risk-based reviews for all new and existing chemicals in commerce. EPA has the authority to require manufacturers to perform additional testing on chemicals if the Agency believes more data is needed to make a safety determination. EPA also has a full range of risk management options if it determines that a chemical poses an unreasonable risk to human health or the environment.

It is important to recognize that PFAS are already being managed through significant, existing policies and regulations. In particular, newer PFAS chemicals had to undergo rigorous testing and regulation before they could be placed on the market and there are broad new regulations in place for new chemicals. Policy makers and the public should have confidence that an effective regulatory framework is in place to manage new PFAS. A few specific actions that EPA could expedite regarding PFAS include: finalizing Significant New Use Rules (SNURs) to address imports of long-chain PFAS; developing and finalizing validated methods for detecting and quantifying PFAS analytes; and developing a peer-reviewed science-based framework for determining subclasses or categories of PFAS in order to accelerate the evaluation of human health, environmental and exposure information for risk-based regulatory decision-making.

Question 3: During the hearing, Ms. Daniels said the following: "The challenge with PFAS, it is everywhere. It is everywhere. It is everywhere. I don't know that I have quite seen a contaminant like that, where you have to be so concerned when you are taking a sample, about cross-contamination. If you have deodorant on, if you have put lotions on that day, you have the potential to cross-contaminate that sample. So when I think about PFAS, there absolutely has to be focus on an incremental reduction of getting those chemicals out of commerce because we can't just solve this as a drinking water issue."

Does ACC agree that chemical manufacturers and processors should incrementally reduce the use of PFAS in commerce? If so, what steps can ACC members begin to take?

Response – PFAS are a diverse family of chemistry that includes a broad range of substances with different characteristics, chemical profiles and uses. It is neither scientifically accurate nor appropriate to suggest that all PFAS present a risk to human health or the environment or to recommend restrictions on the entire family of PFAS without data demonstrating an unreasonable risk. Any regulatory action to limit the use of a PFAS should be risk-based.

Most of the attention on PFAS to date has focused on a handful of long-chain substances that are no longer produced in the U.S., Europe or Japan. Historically, industry manufactured, used, and sold certain long-chain PFAS chemicals, such as PFOA and PFOS, into various products. Working closely with EPA and other regulators, starting in the early 2000s, industry voluntarily phased out long-chain PFAS products. As a result of these actions, blood levels of PFOS and PFOA in the U.S. population have declined dramatically according to the Centers for Disease Control and Prevention and EPA,

which found consistent reductions since 1999 of 85% and 70%, respectively. Recent monitoring conducted by several states has demonstrated that the vast majority of water systems showed no detections for any of the monitored PFAS, even at extremely low levels.

In conjunction with the phase out of long-chain PFAS products, industry developed new short-chain PFAS chemistries. These new PFAS products must meet relevant environmental, health and safety regulatory standards and have to undergo significant regulatory scrutiny before being brought to market, including substantial testing requirements. In the U.S., these substances have been reviewed under the TSCA new chemicals review program with specific testing requirements related to cancer, reproductive/developmental factors, systematic toxicity, bioretention, ecological endpoints, environmental fate, transport and other factors. Additional more detailed information can be found in EPA's New Chemicals Program Review of Alternatives for PFOA and Related Chemicals (webpage: https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/new-chemicals-program-review-alternatives-pfoa-and).

Today, multiple industries depend on high-performance short-chain PFAS, including aerospace, alternative energy (e.g. solar), automotive, building and construction, chemicals and pharmaceuticals, electronics, healthcare, oil and gas, outdoor apparel and equipment, and semiconductors. Today's PFAS are used in a wide array of products and play a vital role in everything from designing automobiles with lower emissions and improved safety, reliability and fuel-efficiency to manufacturing semiconductors, solar panels and high performance electronics. One key type of PFAS in use today are fluoropolymers, a type of specialty plastic. Because of their physical characteristics, fluoropolymers are not water soluble and not considered toxic. Fluoropolymers provide products with chemical resistance, thermal stability, resilience and are essential to electronics, cell phones, and medical devices. Another major type of PFAS in use today are fluorotelomers, which are well-studied and meet relevant regulatory standards for the protection of human health and the environment. Fluorotelomers provide oil repellency and soil resistance for textiles (including first responder gear and medical garments), carpeting, and specialized paper. They are also critical to certain firefighting foams and many paint and coating applications.

Question 4: During the hearing, Ms. Daniels stated that "it is absolutely necessary that we get more information out to both the public and the States in terms of where these chemicals are." She explained that "as a State, we filed multiple [Freedom of Information Act] requests in preparation for our sampling plan, because we wanted to know where the highest risk was." She said that "[n]obody could tell us where these chemicals were being used. So right now, there is a lack of information."

How can ACC help federal and state agencies understand where PFAS compounds are being used?

Response – A considerable amount of information is available on how today's PFAS compounds are being used. For example, the following website, https://fluorocouncil.com/, has a wealth of information regarding the uses and applications of PFAS chemistries. It is important to note that newer PFAS chemistries have undergone rigorous testing and regulation before they were placed on the market in order to demonstrate that they do not present significant health or environmental concerns. Additionally, there has also been a shift toward best practices in both manufacturing facilities and downstream users to help minimize emissions.

Responses to Ranking Member Carper's Questions:

Question 5: EPA has issued several Significant New Use Rules (SNURs) for PFAS using its Toxic Substances Control Act authority.

One[1] of these SNURs was issued for perfluoroalkyl sulfonates (like PFOS), and was added to at least once. EPA said that it had promulgated the SNUR because "these chemical substances may be hazardous to human health and the environment," saying further that they added these chemicals because "EPA believed the action was warranted given the similarity of these chemicals to those currently included in 40 CFR 721.9582[2] and the strong likelihood of similar health and environmental concerns, as discussed in Unit III of the March 10, 2006 document" and that "EPA has concerns regarding adverse human health and environmental effects of PFAS. It is highly persistent in the environment, it tends to bioaccumulate, and it is toxic. In its voluntary phase-out of perfluorooctane sulfonate (PFOS) and PFOS-related products, the 3M Company, which had been the sole U.S. manufacturer of the chemicals, committed to stop production of all perfluoroalkyl sulfonic acid products with alkyl chain lengths of C8 or greater. 3M completed its phase-out of PFOS production in 2002, which led to a significant reduction in the use of all PFAS-related substances.....As described in Unit III of the proposed SNUR, EPA has concerns regarding the reproductive and subchronic toxicity, persistence, and bioaccumulative potential of the chemical substances that are included in this SNUR. These concerns lead the Agency to believe that humans and the environment could suffer adverse effects from their use. Any use of these PFAS chemicals would continue to add to the reservoir of perfluoroalkyl sulfonic acids (PFASA) in the environment, resulting in additional human/ environmental exposure. There is evidence that PFAS-containing chemicals degrade to perfluoroalkyl sulfonic acids (PFASA), which exist in the anionic form in the environment, or to PFASA precursors."

The second[3] SNUR EPA issued was for long-chain perfluoroalkyl carboxylate substances, and was also amended at least once. This SNUR was for PFOA and PFOA-like substances. In the rule, EPA observed that "PFOA is persistent, widely present in humans and the environment, has long half-lives in humans, and can cause adverse effects in laboratory animals, including cancer and developmental and systemic toxicity (Refs. 11, 12, 13, 14, and 15). PFOA precursors, chemicals which degrade or may degrade to PFOA, are also present worldwide in humans and the environment and, in some cases, might be present at higher concentrations than PFOA and be more toxic (Refs. 16, 17, 18, 19, and 20). PFOA higher homologues are chemicals with carbon chain lengths longer than PFOA. Available evidence suggests that toxicity and bioaccumulation appear to be higher for chemical substances with longer carbon chain lengths compared to those with shorter chain lengths (Refs. 21, 22, 23, and 24)."

EPA has also issued two draft health assessments proposing safe thresholds of exposure for specific PFAS chemicals (GenX and PFBS) for public comment,[4] stating that "the available oral toxicity studies show that the liver is sensitive to GenX chemicals, and the kidney and thyroid are sensitive to

[1] https://www.govinfo.gov/content/pkg/FR-2007-10-09/pdf/E7-19828.pdf
[2] https://www.govinfo.gov/content/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-sec721-9582.pdf
[3] https://www.govinfo.gov/content/pkg/FR-2015-01-21/pdf/2015-00636.pdf
[4] https://www.epa.gov/sites/production/files/2018-11/documents/factsheet_pfbs-genx-toxicity_values_11.14.2018.pdf

PFBS." In its draft toxicity assessment[5] for GenX chemicals, EPA stated that it is working on five additional health assessments for PFAS that have not yet been released.

EPA has the authority to list chemical substances or categories of chemical substances on the EPA's Toxic Release Inventory, when, in the Administrator's judgement, there is sufficient evidence to establish any one of the following:

"(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.
(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—
(i) cancer or teratogenic effects, or
(ii) serious or irreversible—
(I) reproductive dysfunctions,
(II) neurological disorders,
(III) heritable genetic mutations, or
(IV) other chronic health effects.
(C) The chemical is known to cause or can reasonably be anticipated to cause, because of—
(i) its toxicity,
(ii) its toxicity and persistence in the environment, or
(iii) its toxicity and tendency to bioaccumulate in the environment,
a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section."

a. In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-referenced SNURs also indicate that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.

   Response – Based on information gathered from the aforementioned SNURs, EPA should have sufficient information to evaluate each PFAS included in the SNUR and make an expedited determination regarding whether or not it warrants TRI reporting.

b. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, EPA will have established that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.

   Response – Once EPA has finalized health assessments for GenX and PFBS it should have sufficient evidence to make an expedited determination regarding whether or not TRI reporting is warranted for these two substances.

c. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Administrator has the authority to designate as a hazardous substance any "elements, compounds, mixtures, solutions, and substances which, when released into the

[5] https://www.epa.gov/sites/production/files/2018-11/documents/genx_public_comment_draft_toxicity_assessment_nov2018-508.pdf

environment may present substantial danger to the public health or welfare or the environment." In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-referenced SNURs also indicate that these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.

Response – Based on information gathered from the aforementioned SNURs, EPA should have sufficient information to evaluate each PFAS included in the SNUR and make an expedited determination regarding whether or not it should be designated as a hazardous substance under CERLCA.

d. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.

Response – Once EPA has finalized health assessments for GenX and PFBS, it should have sufficient evidence to make an expedited determination regarding whether or not these two substances should be designated as hazard substances under CERLA.

Question 6: EPA has informed Congress that it intends to set a Maximum Contaminant Level for PFOA and PFOS[6] under the Safe Drinking Water Act (SDWA), and stated that EPA "is also gathering and evaluating information to determine if a SDW A regulation is appropriate for a broader class of PFAS."

a. Do you agree that a National Primary Drinking Water Regulation for perfluorinated compounds that at minimum includes PFOA and PFOS should be promulgated by EPA? If not, please specifically explain why not.

Response – A risk-based review of the available PFAS data under a proposed National Primary Drinking Water Regulation would allow for assessing and setting appropriate science-driven standards and treatment techniques.

b. Do you believe that, subject to the availability of appropriations, EPA should be required to include all PFAS chemicals for which there is an EPA-validated detection technology in its next Unregulated Contaminant Monitoring Rule (UCMR) in order to determine whether and where these other PFAS chemicals might be found in drinking water? If not, please specifically explain why not.

Response – EPA-validated techniques that provide meaningful information on the detection and quantification of specific PFAS analytes should be considered for inclusion in the next UCMR.

c. Since each UCMR by statute cannot include more than 30 contaminants on its list for monitoring, would you support excluding the PFAS chemicals described in a) from that cap

[6] https://www.epw.senate.gov/public/_cache/files/f/c/fc854d2e-c57d-4e26-ace8-e067fbdbde06/907052B84EFCDC96899D1240F07BEFFA.2019-02-15-epa-response-to-sen-carper-re-pfas-003-.pdf

in order to maximize occurrence data on PFAS without preventing EPA from requiring monitoring to be undertaken on other important potential drinking water contaminants? If not, please specifically explain why not.

Response – PFAS (with EPA-validated techniques that provide information on the detection and quantification of specific PFAS analytes) that would be considered for inclusion in the next UCMR should be excluded from the 30 contaminant cap.

d. Should EPA be provided with clear authority to regulate sub-classes of PFAS chemicals (for example, groups of PFAS chemicals with similar chemical structures and modes of action on the body) under the Safe Drinking Water Act? If not, please specifically explain why not.

Response – EPA should be afforded clear authority to establish a science-based process that includes chemical structure, physiochemical properties, biological activity, toxicology/mechanism of action, and exposure information to identify subclasses of PFAS and utilize that information to make risk-based regulatory decisions.

e. Do you believe that EPA should be held to a statutory deadline for making regulatory determinations on whether to promulgate National Primary Drinking Water Regulations for PFAS chemicals about which the Agency has both toxicity information and occurrence data in drinking water? If not, please specifically explain why not.

Response – EPA should be held to statutory deadlines for making regulatory determinations.

Responses to Senator Capito's Questions:

Question 7: My understanding is that ACC does not support a direct designation by Congress of any PFAS chemicals as a hazardous substance under CERCLA. Is that accurate and would ACC support some kind of process based off the recent NAS review on a similar question?

Response – Any PFAS designation under CERLA should be risk-based and include an evaluation of the available science relevant for that specific PFAS under consideration for designation. PFAS are a diverse family of chemistry that includes a broad range of substances with different characteristics, chemical profiles and uses. ACC does not support direct designation by Congress. It is not appropriate to imply that all PFAS present a risk or to recommend a hazardous substance designation under CERLA on the entire family of PFAS without data demonstrating an unreasonable risk. The National Academy of Sciences, Engineer and Medicine (NASEM) approach includes information that would be helpful to inform the development of a subclass approach for PFAS.

Question 8: The week before our hearing, the National Academies of Science found that certain flame retardants, OFRs, cannot and should not be regulated as a class. Peer reviewers of the report included EPA, academics, and industry representatives. The NAS found that a focus on hazard rather than like physical properties should be the focus of evaluating and regulating OFRs. Can this emphasis on hazard help inform a process for adding PFAS to the Safe Drinking Water Act and CERCLA that could be incorporated into statute?

Response – The National Academy of Sciences, Engineer and Medicine (NASEM) identified multiple parameters in their report titled "A Class Approach to Hazard Assessment of Organohalogen Flame Retardants" (weblink: https://www.nap.edu/catalog/25412/a-class-approach-to-hazard-assessment-of-organohalogen-flame-retardants) that would be helpful to inform the development of a subclass approach for PFAS. This included utilizing structure, physicochemical properties, and biological information to determine similar substances for a subclass, then using available toxicological information to conduct a hazard assessment. It is important to note that exposure information is also a critical piece of information in determining human health risk. The NASEM committee's review was limited to evaluating data that would inform the hazard characterization phase of a risk assessment.

Question 9: For CERCLA, would it be appropriate for such an approach to be triggered by the ATSDR's Minimum Risk Level reviews or some other similar review process?

Response – The development of an ATSDR Minimum Risk Level (MRL) review should not automatically trigger an action under CERLA. MRLs are intended to serve as screening levels and are not intended to define clean-up or action levels for ATSDR or other agencies. However, the information gathered from this type of review or chemical assessment reviews completed by the EPA may provide relevant information for use in evaluating whether any action under CERLCA is warranted.

Question 10: How can we link PFAS contamination at multi-use sites to particular industrial or government entities? For example, if a landfill has taken decades' worth of PFAS contaminated materials, from consumer and industrial sources, how should liability be considered – whether in statute or by the courts?

Response – In the past, federal agencies have utilized existing regulatory frameworks to identify contaminated sites, evaluate potential human health and environmental risk, and make risk management decisions regarding site contamination. Similar approaches should be applied to making risk management decisions associated with PFAS.

Question 11: Are there adequate analysis technologies to identify particular PFAS chemistries to link contamination back to a particular industrial or government actor? If so, how many PFAS compounds have test methodologies adequate to identify a single compound or subclass of compounds out of the broader class of all PFAS?

Response – ACC supports federal agency efforts to develop, finalize and utilize validated methods for detecting and quantifying PFAS analytes. These methods provide critical information to improve understanding regarding the levels of PFAS chemistries in the environment and can directly inform regulatory decision-making.

Senator BARRASSO. Thank you very much, Dr. White. We appreciate your testimony.

Now, Ms. Daniels.

STATEMENT OF LISA DANIELS, PAST PRESIDENT, ASSOCIATION OF STATE DRINKING WATER ADMINISTRATORS, AND DIRECTOR, BUREAU OF SAFE DRINKING WATER, PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Ms. DANIELS. Good morning, Chairman Barrasso, Ranking Member Carper, and members of the Committee. Thank you for inviting me to speak today.

My name is Lisa Daniels. I am the Past President of the Association of State Drinking Water Administrators, whose members include the 50 State drinking water programs, five territorial programs, the District of Columbia and the Navajo Nation. ASDWA members have primary oversight responsibility for implementing the Federal Safe Drinking Water Act. Our members and their staff provide technical assistance, support, and oversight of drinking water systems which is critical to ensuring safe drinking water.

I am also the Director of the Bureau of Safe Drinking Water within the Pennsylvania Department of Environmental Protection.

Today, I will discuss ASDWA's perspective on gaps in existing Federal laws and regulations and how the proposed legislation and strengthened Federal actions can more effectively address PFAS.

PFAS had been a growing concern for the drinking water community for more than a decade. The solubility, mobility, and bioaccumulative properties of PFAS continue to heighten concerns about potential adverse health effects. States, water systems, and the public need national leadership to address this growing public health problem.

ASDWA believes the question is not whether to regulate PFAS, but how and when, using sound science. ASDWA's key issues include the following. No. 1, coordinated Federal leadership is needed to effectively address PFAS. States are at different stages in their knowledge and implementation of PFAS measures. While some States have the authority and the technical and financial resources to develop their own standards, many do not. EPA's PFAS action plan is a step in the right direction, but without firm timelines and commitment, many are looking to States to take the lead on PFAS.

In my own State of Pennsylvania, we have announced steps to move forward with setting an MCL. To support this effort, we are coordinating statewide sampling to generate occurrence data, we are contracting for additional toxicology services, and we are gearing up to be able to analyze for PFAS in our State lab. It is important to know that this will be the first time that Pennsylvania has set its own MCL, and these actions have been and will continue to be a challenge due to limited resources. We estimate that at least $1.5 million annually will be needed for us to be able to move forward and set this proposed rulemaking.

Twelve other States have taken some action to set the State standards or advisory levels, which has led to a patchwork of regulations which pose significant challenges in terms of risk communication and certainly a burden on these States in terms of resources.

No. 2, ASDWA believes that PFAS must be addressed using a multi-media and cross-statutory approach. To fully address PFAS, actions under CERCLA, TSCA, the Clean Water Act, and the Safe Drinking Water Act should be evaluated and strengthened where needed to remediate legacy PFAS and reduce or eliminate the introduction of these chemicals into the environment, and most importantly, make the manufacturers responsible for those costs. ASDWA also advocates for regulation as a class or classes, rather than one contaminant compound by compound basis.

No. 3, ASDWA supports the development of a national priority framework and research agenda for PFAS and other emerging contaminants. Additional occurrence data is needed to quantify the extent of PFAS in water. Increased availability of toxicity and human health data is also necessary to support policy decisions. Other related needs include a total organic fluorine method for screening purposes, additional PFAS analytical methods for other matrices like wastewater and soil. Increased lab capacity is a real concern across the State, and treatment efficacy, design and construction standards for treatment.

No. 4, additional funding for EPA, the States, and water suppliers is essential. At present, State primacy agencies are diverting resources from core drinking water programs, including inspections and plan reviews, to address PFAS. Without additional funding, both the core program and the work to address PFAS will suffer. Increased funding is needed for EPA to support the development of treatment technologies, laboratory methods, and really help with lab capacity issues.

Certainly, alternate funding sources are going to be needed for our public water systems to deal with treatment costs when a responsible party cannot be identified. We will not be able to identify a responsible party in all cases. And SRF programs, although they can provide loans, do not have the subsidy to address the big issue of PFAS and continue to deal with other important issues, like lead, for example.

So in conclusion, ASDWA applauds Congress for moving the ball forward and introducing several bills in both the House and Senate that gives us a much broader perspective on PFAS.

Thank you.

[The prepared statement of Ms. Daniels follows:]

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Testimony of Lisa Daniels

Past President, Association of State Drinking Water Administrators (ASDWA) and

Director, Bureau of Safe Drinking Water

Pennsylvania Department of Environmental Protection

to the

Senate Committee on Environment and Public Works

Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)

Wednesday, May 22, 2019



Executive Summary

Per- and Polyfluoroalkyl Substances (PFAS) have been a growing concern for the drinking water community for more than a decade. The solubility, mobility, and bio-accumulative properties of PFAS continue to heighten concerns about potential adverse health effects. States, water systems, and the public need national leadership to address this growing public health problem. ASDWA believes the question is not whether to regulate PFAS, but when and how, using sound science and following the robust regulatory development processes in the Safe Drinking Water Act (SDWA) and other environmental statutes. States are each at different stages in their knowledge, evaluation, and implementation of the appropriate PFAS risk management measures. While some states have the authority and technical and financial resources to develop and implement their own standards, many do not or cannot. The Environmental Protection Agency's (EPA's) PFAS Action Plan[1] is a step in the right direction but without firm timelines and commitments, it has left many states to continue to take the lead on PFAS risk management.

ASDWA applauds Congress for advancing PFAS management with the introduction of several bills in both the House and the Senate. ASDWA believes that PFAS must be addressed using sound science and a holistic, multi-media approach using cross-statutory authority. Much of the focus on PFAS has been around occurrence in water, but the burden of addressing PFAS should not fall solely to water utilities and the state drinking water programs that oversee them. Actions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Toxic Substance Control Act (TSCA), the Clean Water Act (CWA), and SDWA should be evaluated so that PFAS are removed from or prevented from entering the whole environment, not just drinking water, through efforts that are coordinated across all contributing

[1] EPA, EPA's Per- and Polyfluoroalkyl Substance (PFAS) Action Plan, February 2019, available online at https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf

media. ASDWA also advocates for regulation as a class or classes rather than approaching regulation on a compound-by-compound basis.

Six PFAS(perfluorooctanesulfonic acid [PFOS], perfluorooctanoic acid [PFOA], perfluorononanoic acid [PFNA], perfluorohexanesulfonic acid [PFHxS], perfluoroheptanoic acid [PFHpA], perfluorobutanesulfonic acid [PFBS]) were included in the UCMR 3 testing under the SDWA[2], however, with new analytical methods that include additional PFAS and lower detection limits, collecting additional occurrence data to quantify the extent of PFAS presence in water is critical to better inform regulatory decisions. Increased toxicity and human health effects data on PFAS and other emerging contaminants of concern is necessary to solving this growing problem. With over 40,000 chemicals in commerce, developing a holistic approach to protecting the environment and public health is critical. Developing a national agenda for contaminants of emerging concern will support policy and regulatory decisions through robust data.

Additional funding to EPA and the states, for both existing and new programs, is essential to adequately address PFAS. At present, state primacy agencies are diverting resources from core drinking water programs (including inspections, technical assistance and training, permitting/plan approvals, and compliance/enforcement) to address PFAS. Without additional funding, both the core program and the additional work to address PFAS will suffer. Funding and technical assistance is vital to support the development and approval of treatment technologies, laboratory methods for all applicable media, and the development of lab capacity across the country.

[2] EPA, The Third Unregulated Contaminant Monitoring Rule (UCMR 3): Data Summary, January 2017, available online at: https://www.epa.gov/sites/production/files/2017-02/documents/ucmr3-data-summary-january-2017.pdf

Testimony

Good Morning Chairman Barrasso, Ranking Member Carper, and Members of the Committee. Thank you for this opportunity to talk about how we can best address public health protection issues associated with per- and polyfluoroalkyl substances (PFAS) found in drinking water and the environment.

My name is Lisa Daniels and I am the Past President of the Association of State Drinking Water Administrators (ASDWA), whose 57 members include the 50 state drinking water programs, five territorial programs, the District of Columbia and the Navajo Nation. Our members have primary oversight responsibility, known as primacy, for implementing the Federal Safe Drinking Water Act (SDWA). Our members and their staff are on the front lines every day, providing technical assistance, support, and oversight of drinking water systems, which is critical to ensuring safe drinking water and protecting public health. I am also the Director of the Bureau of Safe Drinking Water within the Pennsylvania Department of Environmental Protection.

Today, I will discuss ASDWA's perspective on gaps in existing federal laws and regulations and how the proposed legislation and strengthened federal actions can more effectively address PFAS and other emerging contaminants and protect public health. ASDWA has not taken positions on all of the provisions in these bills but I will provide the state drinking water program perspective on six key issues/concerns, and potential impacts and outcomes from the implementation of such provisions.

PFAS compounds have been a growing concern for the drinking water community for more than a decade. PFAS compounds have been found in ground water or drinking water in at least 38 states. The solubility, mobility, and bio-accumulative properties of PFAS continue to heighten

concerns about potential adverse health effects. Hundreds of PFAS compounds have been approved for use in the U.S. and thousands more are being used worldwide and imported in goods. Despite increased awareness of these chemicals, there are many unanswered questions. Where are these compounds being manufactured and used in commerce? How widespread are they in the environment? What are their toxicity levels? How are they impacting the environment and public health? And much of this information has been confounded by federal agency silos and industry trade secrets. I would like to discuss ASDWA's perspectives on six key issues/concerns.

1. Federal Leadership is Needed to Address PFAS

ASDWA believes that federal leadership is needed to effectively and efficiently address PFAS. Without Federal leadership, states are left on their own to make the tough decisions on whether and/or how to address PFAS in drinking water and in other media. Some states have statutory or policy restrictions that prevent them from implementing a health advisory level (HAL) or setting their own state-level standard. Other states may face significant obstacles in setting state standards because they do not have the technical expertise or resources to dedicate towards the effort. The February 2019 EPA PFAS Action Plan[3] is a step in the right direction, but without firm commitments and timelines it has left many states to continue to take the lead on addressing PFAS in the environment.

For example, in my own state of Pennsylvania, the Department of Environmental Protection announced last month that we are taking steps to move forward with setting a state maximum contaminant level (MCL). In order to support this effort we are rolling out a statewide sampling plan to identify drinking water sources impacted by PFAS. The sampling plan will test water

[3] See supra note 1

from approximately 400 public water systems (PWS) including about 360 PWSs with increased potential for contamination, based on proximity to potential sources of PFAS, such as military bases, fire training sites, landfills, and manufacturing facilities, and 40 PWSs in primarily forested areas to determine background levels. The sampling plan will begin in a few weeks and last approximately 1 year. We are also contracting for additional toxicology services and gearing up to analyze for PFAS in our state lab. These efforts are being taken because the U.S. EPA did not commit to doing so in February 2019. This will be the first time that Pennsylvania has set a state MCL for a chemical contaminant rather than adopting standards set by the federal government and I can tell you that these actions have been and will continue to be a challenge due to limited resources. Regarding costs to the safe drinking water program in Pennsylvania, it is estimated that a minimum of $1.5 million annually will be needed to move forward with the proposed rulemaking. ASDWA is in the process of compiling data from states regarding the level of effort being directed at addressing PFAS and other unregulated contaminants and non-regulatory drivers.

Currently, about a dozen states have taken some action to set state advisory or notification levels, or standards. However, these actions, in the absence of a federal regulation, lead to a patchwork of regulations that pose significant challenges for risk communication to the public and can be a burden to states in terms of implementation and for water companies operating in multiple states.

2. National Priority Framework and Research Agenda is Needed

ASDWA supports the development of a national priority framework and research agenda for PFAS and other contaminants of emerging concern (CECs). ASDWA along with their counterparts, the Association of Clean Water Administrators (ACWA), recently released a report

with recommendations for how state and federal agencies and other partners can more efficiently and effectively manage CECs in the water cycle. The recommendations include such ideas as addressing CECs through all federal statutes, not just those specific to water; exploring legislative or regulatory changes to increase chemical manufacturer sharing of toxicity information; development of a shared comprehensive dataset to facilitate better information sharing across states; development of a communications playbook to assist states with risk communication; and increased funding to federal programs that are charged with reviewing substances.[4] The final report is available and can be shared with any interested Member or their staff. PFAS is not just a drinking water issue – all sources of exposure should be considered and PFAS must be addressed in other media as well. In addition to the EPA, the Department of Health and Human Services (HHS), Food and Drug Administration (FDA), Department of Agriculture (USDA), United States Geological Service (USGS), and the Department of Defense (DOD) also have roles to play. Therefore, states feel very strongly that PFAS must be addressed at the national level using a holistic approach.

3. Consider Listing PFAS as Hazardous Substances

One approach to address PFAS is by designating PFAS as hazardous substances under CERCLA. The hazardous substance designation would ensure that PFAS use, releases or discharges, and disposal are properly tracked and regulated. Currently, none of these protection measures and right-to-know provisions are in place, which means states and water suppliers have no idea where PFAS are being used. The designation would also ensure that appropriate PFAS removal actions are taken and also allows EPA to enforce against potentially responsible parties. However, it is important to consider the implications or unintended consequences of a

[4] ASDWA, ACWA and ASDWA Recommendations Report: Contaminants of Emerging Concern Workgroup, May 2019, available online at: https://www.asdwa.org/asdwa-acwa-report-on-contaminants-of-emerging-concern-2019/

hazardous substance designation for disposal of water treatment plant residuals and biosolids. Since PFAS has already entered the water cycle, removal of the substances at the drinking water treatment plant or at the wastewater treatment plant will create media, brines, and/or biosolids that have high concentrations of PFAS. With a CERCLA hazardous substance designation, there could be unintended consequences that hold public utilities potentially liable for cleanup costs, particularly where biosolids from the treatment process containing PFAS have been beneficially land applied for their fertilizer value. Removing these chemicals from drinking water or from wastewater influent/effluent requires advanced treatment techniques such as granular activated carbon (GAC), ion exchange (IX) or reverse osmosis (RO). These treatment methods are prohibitively expensive for the volume of water that needs to be treated and it remains unclear how and where to dispose of the PFAS-contaminated concentrate generated from these processes. This could potentially limit drinking water treatment options and place a heavy burden on drinking water and wastewater systems, particularly small systems, for the responsibility of not only removing these chemical pollutants from the waters, but also disposing of the hazardous waste in accordance with federal law. It's important to consider the unintended consequences of such a designation. One way to address this would be to stagger the effective dates for various provisions, for example, right-to-know and monitoring and reporting requirements could go into effect in year one to better characterize the scope of the problem and provisions to address disposal issues could be deferred for an additional period of time.

The Water Quality Standards (WQS) provisions in the CWA can be another tool to address PFAS. The WQS establish beneficial uses of a water body, including public and private water supply, and numeric and narrative criteria for hundreds of potential contaminants. These standards support source water protection and help address impacts of discharges upstream.

EPA has not developed WQS for PFAS, once again leaving states to produce these on their own.

4. Strengthen TSCA Requirements

Creating a hazardous substance designation under CERCLA, developing WQS under CWA or setting an MCL under SDWA, are all single approaches that can help remove existing or legacy PFAS from the environment but none of these actions will "solve PFAS" on their own. Reducing human exposure to PFAS will take multiple efforts through all applicable statutes. In order to fully address PFAS, actions under TSCA are needed to reduce or eliminate the introduction of these chemicals to the environment and place the responsibility on the manufacturers and producers of PFAS. Once these chemicals have been released to water or the broader environment, it is too late for states and water suppliers to take proactive and preventative source water protection measures. Instead, water suppliers are left to bear the burden of very costly treatment facilities.

Some PFAS have been subject to risk management action under TSCA, including: 1) a 2002 Significant New Use Rule (SNUR) to require notification to EPA before any future manufacture (including import) of 75 PFAS chemicals specifically included in the voluntary phase out of PFOS by 3M that took place between 2000 and 2002[5], 2) a 2007 SNUR on 183 PFAS chemicals believed to no longer be manufactured (including imported) or used in the United States[6], and 3) a 2015 SNUR to require manufacturers of PFOA and PFOA-related chemicals and processors of these chemicals to notify EPA at least 90 days before starting or resuming

[5] Federal Register Vol. 67, No. 236, December 9, 2002; https://www.govinfo.gov/content/pkg/FR-2002-12-09/pdf/02-31011.pdf
[6] Federal Register Vol. 72, No. 194, Tuesday, October 9, 2007; https://www.govinfo.gov/content/pkg/FR-2007-10-09/pdf/E7-19828.pdf

new uses of these chemicals in any products[7]. Additionally, the TSCA New Chemicals program reviews alternatives for PFOA and related chemicals before they enter the marketplace.

However, there are authorities the agency could and should use under TSCA[8] to gather information from industry that could inform a prioritization effort under the existing chemicals program and if deemed appropriate, initiate a risk evaluation on PFAS chemicals. EPA has the authority to require manufacturers or processors of chemicals and mixtures to conduct testing to evaluate the health and environmental effects of such chemicals. EPA can also require that manufactures and processors of chemicals keep records and report on the identity of those chemicals, their use, production volume, byproducts, health and environmental effects and exposure, and other data. EPA should use these mechanisms in TSCA to gather the data needed to initiate a prioritization process under the existing chemicals program, which under statutory process will prioritize PFAS chemicals that are stored near drinking water sources. Additionally, ASDWA recommends Congress direct EPA to organize existing data on PFAS collected under TSCA or other relevant statutes in a report and release it to Congress, States, and other stakeholders so that we can begin to fill the significant data gaps on health and environmental effects of PFAS.

5. National Focus on Research and Data Needs

In order to make sound regulatory decisions at the state and federal level to address PFAS, additional occurrence data is needed. Whether the data is collected through SDWA mechanisms or from another federal agency, such as USGS, any national study on PFAS occurrence in drinking water or ambient water must include a plan for risk communication to the

[7] 40 CFR Part 721; https://www.regulations.gov/document?D=EPA-HQ-OPPT-2013-0225-0001
[8] 15 U.S.C. §2603 and 15 U.S.C. §2607

public and to water systems before, during, and after sampling. The communications plan would need to include protocol for communicating to the public when PFAS is found in a drinking water source so as not to cause widespread public panic or alarm and premature or unnecessary abandonment of drinking water sources. If PFAS is found at low levels, how should a state and a water system respond? Will treatment need to be installed? What if sampling finds significant occurrence for a substance with no existing or very little health effects data? The public will rightfully demand to know if the water coming out of their taps is safe to drink or in the case of ambient water, if they can safely use that water body for recreation or consume fish caught from waters with PFAS detection. These questions and any others are not a reason to cease work to identify PFAS occurrence in water, but they are important considerations that must be thought through before commencing a national or state-level PFAS sampling program.

Aside from additional occurrence research, other needs include developing a total organic fluorine method for screening purposes and developing and approving laboratory methods for PFAS for drinking water, groundwater cleanup, discharges under the National Pollutant Discharge Elimination System (NPDES), and biosolids. There is a need to define and approve basic laboratory methods and a need to develop laboratory capacity for PFAS testing. Adequate, quality laboratory services are necessary to developing data sets for PFAS occurrence and conducting essential studies. Currently there is a lack of laboratory capacity and some regions do not have an accredited laboratory that can perform PFAS testing. Finally, a national monitoring program will require substantial funding.

ASDWA supports the development of a National Task Force and Research Agenda for contaminants of emerging concern. Several significant data gaps include the lack of data on the exposure of the public to potentially harmful drinking water contaminants, the health effects of

such contaminants, lack of treatment technique efficacy, design, and construction standards, and a lack of analytical methods for such contaminants which creates significant challenges for states and federal agencies to make appropriate regulatory decisions on these contaminants. Under the SDWA, the timelines for data collection, research, analysis, stakeholder and public input, and regulatory or policy decision-making often take decades. This is not an efficient or effective process to address the emerging contaminants that are being detected at increasingly low levels. An effort to develop a work group to advance a national agenda for managing emerging contaminants in water supported by a national research agenda could help fill the gap in SDWA on rapidly emerging contaminants. ASDWA and ACWA, recognized this need in the industry which lead to the development of the previously mentioned report which includes an evaluation of federal points of involvement and possible intervention under existing federal laws for contaminants with potential exposure routes through drinking water and the broader environment. ASDWA would like to recommend that the potential work group should include a diverse group of state and industry stakeholders who are already doing this work on a state- or utility-level scale. Broadening the workgroup beyond federal agency representatives will ensure a stronger agenda that considers multi-level needs and actions. A diverse workgroup should include federal, state, and industry members that represent varied geographies, populations, and levels of engagement on emerging contaminant research and regulation. Any effort to build a national work group and research agenda needs to have additional funding authorized and appropriated. This work is important and would have a real impact on informing future policy and regulatory decisions that protect public health and the environment. This work deserves funding and federal collaboration.

6. Addressing Costs, Funding, and Additional Challenges

Protecting public health and addressing PFAS comes at significant costs to states, water systems, and ultimately the public. Unregulated contaminants are having a significant impact to core activities in the state drinking water programs. State and territorial drinking water programs are chronically underfunded, which limits their ability to protect public health. Federal support for the Public Water System Supervision (PWSS) Program and the set-asides from the Drinking Water State Revolving Fund (DWSRF) have remained flat for the past decade, forcing state funds and/or water systems fees to attempt to make up the difference. When accounting for years of flat funding, inflation, and increased non-regulatory demands such as PFAS, ASDWA estimates a total funding gap of up to $500 million or 73.3% between available and needed resources for comprehensive public water supervision programs across the United States[9]. In the absence of EPA leadership and additional federal funding, states are having to divert FTEs away from essential and regulatory programs to work on PFAS related activities.

There are also significant costs to water systems. Monitoring costs for PFAS are approximately $350 to $500 per sample. Recently, state sampling at a water system in Newberry Township, York County, PA cost $19,800 to collect and analyze samples from 10 wells and 6 entry points to the water distribution system. Sampling and analytical costs are extremely high for PFAS due to the limited number of accredited labs (approximately 12 labs nationwide), and the high potential for cross contamination due to the prevalence of these substances in personal care products and in our environment (i.e., several quality assurance/quality control samples are required for each sampling site). Then there are the treatment costs, estimated to include capital costs of $500,000 - $1 million per well for granular activated carbon treatment. A report

[9] ASDWA, ASDWA's Beyond Tight Budgets Report, 2018, available online at: https://www.asdwa.org/wp-content/uploads/2018/12/Beyond-Tight-Budgets-2018.pdf

prepared for a large water system in North Carolina evaluating costs to install advance treatment for PFAS, including GenX, and other emerging contaminants estimated $99 million to install either reverse osmosis or ozone and additional filtration. For reverse osmosis treatment, operation and maintenance (O&M) costs, including replacement of membranes, were estimated to be $2.9 million annually (at a flow of 16 million gallons per day) and the 25-year net present worth of O&M costs to be $59 million[10]. Ongoing O&M costs even for small systems that install carbon filtration could be $10,000 - $20,000 per year.

During investigation and remediation of PFAS contamination, states have not and will not always be able to identify a responsible party. This means water suppliers and their customers will bear the cost of treatment. It has been suggested the Clean Water and Drinking Water State Revolving Funds (SRFs) can provide grants to water systems for PFAS treatment. EPA provides capitalization grants to states to finance state-level revolving funds, which, in turn, make loans for drinking water infrastructure projects. SRF dollars are intended to provide low-interest loans to water systems to finance their water infrastructure projects. Water systems repay these loans to the state, and the interest from the loans ensures a revolving loan fund. Only a percentage of the funds can be provided as principal forgiveness or negative interest loans. Although it is important for states to have the ability to provide subsidy for disadvantaged communities or to use subsidies to encourage innovative or necessary projects, using large percentages of the capitalization grants for subsidy can impede program growth and impact the ability to borrow as a state DWSRF program. Every dollar that is used for subsidy is a dollar that is taken out of the state revolution forever. Additionally, there are competing priorities for the limited subsidy available at the states, such as lead and aging infrastructure.

[10] "Advanced Treatment Options for the Northwest Water Treatment Plant, Prepared for: Brunswick County Public Utilities, Brunswick County, NC by CDM Smith; April 2018. Available online at: http://www.brunswickcountync.gov/wp-content/uploads/2018/04/CDM-Smith-Brunswick-Final-Report-April-2018.pdf

Alternate funding sources for PFAS remediation in the environment as well as water treatment will be needed. In situations where no responsible party has been found or the determination of a responsible party is pending, it would be beneficial to have a funding source for rapid response to initiate clean up and mitigation in order to limit exposure without having to wait for the identification of a responsible party. There are existing programs this could be modeled after, such as funds in place for leaking petroleum storage tank removal and petroleum release cleanup or the Superfund Trust Fund. PFAS manufacturers, processors, and/or importers could pay into a fund through an excise tax or other fee and funds would then be available to address PFAS contamination. This fund could be used by states or individual water systems to tackle emerging contaminants without having to absorb those costs into traditional funding programs.

Of the 52,000 community water systems in the United States, just 8 percent (4,132) serve 82 percent of the population[11]. Furthermore, 56 percent of the water systems are very small and serve fewer than 500 people. From a financial perspective, the median annual revenue of systems serving fewer than 500 people is about $25,000. Small water systems will likely face the biggest burden in addressing PFAS. Not only will their rate payers likely face significant increases in their water rates if filtration or advanced treatment is required to remove PFAS from drinking water, there is often a lack of technical and/or managerial capacity to address emerging contaminants at these systems. There is a need for small drinking water systems to have access to technology and expert personnel to address PFAS. Although partnerships to increase the technical, managerial and financial capacity of small systems and consolidation of systems to create economies of scale can be great options to overcome the barriers small and very small systems face, the fact is partnership and consolidations take years, even a decade, to develop

[11] EPA, National Characteristics of Drinking Water Systems Serving 10,000 People or Fewer, July 2011. Available online at: https://www.epa.gov/sites/production/files/2015-12/documents/epa816r10022.pdf

and implement. Additionally, many of these systems are isolated and may be 10 to 20 or more miles to the next drinking water system and 50 to 100 miles to a water system that can be a technical resource. Consideration of small water system impacts will be important for any work to address PFAS moving forward.

Conclusion

ASDWA applauds Congress for moving the ball forward with the introduction of several bills in both the House and Senate. Ongoing PFAS research into health effects, analytical methods, occurrence, and treatment efficacy is essential. We must be mindful to base any decision for a regulatory approach or standard on sound scientific principles. ASDWA appreciates that introduced Senate legislation looks beyond developing an MCL and focuses on broader approaches to reducing PFAS in the environment. EPA must address PFAS in a holistic fashion. To accomplish this, more attention needs to be given to development of additional PFAS analytical methods for drinking water, wastewater, and other media which also requires greater lab capacity. We strongly believe that EPA must follow a deliberative and sound process to achieve a reasonable protective health level for PFAS. In order to accomplish this, it's vital that funding be authorized and appropriated to complete the work necessary to make accurate regulatory and policy decisions. At present, state primacy agencies are having to divert resources from core drinking water program implementation efforts (inspections, rule implementation and compliance, technical assistance and training, and supporting system infrastructure needs) to address all aspects of PFAS management – source identification, mitigation, research, and public messaging. In this era of flat funding, the additional demands on states' resources are impacting their core programs. ASDWA looks forward to continuing the PFAS dialogue with both Congress and our Federal agency partners to develop workable

solutions that respect the processes necessary for sound decisions on how best to solve the PFAS problem.

Attachment One
Questions for the Record for Ms. Daniels from Chairman Barrasso

1. In your testimony, you explained that "[w]ith a CERCLA hazardous substance designation, there could be unintended consequences that hold public utilities potentially liable for cleanup costs, particularly where biosolids from the treatment process containing PFAS have been beneficially land applied for their fertilizer value."

   You stated that "[r]emoving these chemicals from drinking water or from wastewater influent/effluent requires advanced treatment techniques [that] are prohibitively expensive for the volume of water that needs to be treated and it remains unclear how and where to dispose of the PFAS-contaminated concentrate generated from these processes."

   You stated that "[t]his could potentially limit drinking water treatment options and place a heavy burden on drinking water and wastewater systems, particularly small systems, for the responsibility of not only removing these chemical pollutants from the waters, but also disposing of the hazardous waste in accordance with federal law."

   You said "[o]ne way to address this would be to stagger the effective dates for various provisions, for example, right-to-know and monitoring and reporting requirements could go into effect in year one to better characterize the scope of the problem and provisions to address disposal issues could be deferred for an additional period of time."

   Would you elaborate on your suggestion?

   Answer: Significant research will be needed to better understand the potential PFAS issues resulting from the ongoing appropriate disposal of biosolids and waste streams from water and wastewater treatment plants. The right-to-know and monitoring and reporting requirements could go into effect in the first year to better characterize the scope of the problem while this research is being conducted to evaluate treatment and biosolids disposal options.

2. During the hearing, you said the following: "Specifically for PFAS, I do think we need to look at alternate funding sources. Because I do believe the incredible costs, so just to put GAC on one well, for example, could be anywhere from $500,000 up to $1 million. When you are talking about other advanced technologies for the shorter chain chemicals, like GenX, you are talking tens of millions of dollars. We are going to have to think long and hard about alternate funding sources for these systems. Because there are already a lot of great needs within the [Drinking Water State Revolving Fund] program itself to deal with lead and some of the other problems that we have been talking about here."

   Would you please elaborate on the importance of providing funding for drinking water utilities in the event that EPA sets a national primary drinking water regulation for one or more PFAS compounds?

Answer: If and when EPA sets a national primary drinking water standard for one or more PFAS compounds there will likely be hundreds or even thousands of water systems that will need to install additional treatment to remove the contaminant(s) and meet the maximum contaminant level (MCL). Water systems will encounter both monitoring costs (approximately $350 to $500 per sample, with samples needed for each water source and entry point) and treatment costs. This will not be cheap or simple, as in some cases this will require small or very small systems to install granular activated carbon (GAC) or advanced treatment such as reverse osmosis (RO). These projects will require not only upfront investments for installing the physical infrastructure, but continued operation and maintenance (O&M) as well as sufficient technical and managerial knowledge. A PFAS MCL will apply to all community and nontransient noncommunity water systems (includes schools, childcare facilities and other small businesses). These costs will be borne by water systems and their customers when a responsible party for the PFAS contamination cannot be found.

As outlined in my written testimony, treatment costs are estimated to include capital costs of $500,000 - $1 million per well for granular activated carbon treatment plus ongoing operation and maintenance, including media replacement, estimated at $10,000 - $20,000 per year. A report prepared for a large water system in North Carolina evaluating costs to install advance treatment for PFAS, including GenX, and other emerging contaminants estimated $99 million to install either reverse osmosis or ozone and additional filtration. For reverse osmosis treatment, O&M costs, including replacement of membranes, were estimated to be $2.9 million annually and the 25-year net present worth of O&M costs to be $59 million.

These are sobering numbers particularly when juxtaposed with the ongoing struggle in the water industry to balance costs with affordable rates. Even when a water system takes advantage of low-interest loans through the SRFs the costs are passed on to the customers through the system's rates. An increase in capital and O&M cost will likely mean an increase in water rates, potentially creating affordability problems where there currently are none or exacerbating existing affordability issues in a community.

It is vital that additional funding be made available for water systems that need to install additional treatment to meet an MCL for PFAS. Augmentation of the state revolving loan funds (SRFs) is a good option, with some funding being made available as negative interest loans or grants to small and disadvantaged systems. At current funding levels, SRFs are likely not equipped to fund the needed infrastructure for installing treatment for PFAS, particularly with upcoming changes in drinking water standards such as lead and copper rule revisions and perchlorate also vying for funding. Drinking water infrastructure funding needs will be clarified through the 2020 Drinking Water Needs Survey.

It's important to note that water system costs are only part of the funding consideration as there is a need for additional funding for EPA, state programs (for both drinking water programs to implement the MCLs and cleanup programs to provide remediation), and laboratories, as outlined in my written testimony.

Attachment Two
Questions for the Record for Ms. Daniels from Ranking Member Carper

1. EPA has issued several Significant New Use Rules (SNURs) for PFAS using its Toxic Substances Control Act authority.

One[1] of these SNURs was issued for perfluoroalkyl sulfonates (like PFOS), and was added to at least once. EPA said that it had promulgated the SNUR because "these chemical substances may be hazardous to human health and the environment," saying further that they added these chemicals because "EPA believed the action was warranted given the similarity of these chemicals to those currently included in 40 CFR 721.9582[2] and the strong likelihood of similar health and environmental concerns, as discussed in Unit III. of the March 10, 2006 document" and that "EPA has concerns regarding adverse human health and environmental effects of PFAS. It is highly persistent in the environment, it tends to bioaccumulate, and it is toxic. In its voluntary phase-out of perfluorooctane sulfonate (PFOS) and PFOS-related products, the 3M Company, which had been the sole U.S. manufacturer of the chemicals, committed to stop production of all perfluoroalkyl sulfonic acid products with alkyl chain lengths of C8 or greater. 3M completed its phase-out of PFOS production in 2002, which led to a significant reduction in the use of all PFAS-related substances.....As described in Unit III of the proposed SNUR, EPA has concerns regarding the reproductive and subchronic toxicity, persistence, and bioaccumulative potential of the chemical substances that are included in this SNUR. These concerns lead the Agency to believe that humans and the environment could suffer adverse effects from their use. Any use of these PFAS chemicals would continue to add to the reservoir of perfluoroalkyl sulfonic acids (PFASA) in the environment, resulting in additional human/ environmental exposure. There is evidence that PFAS-containing chemicals degrade to perfluoroalkyl sulfonic acids (PFASA), which exist in the anionic form in the environment, or to PFASA precursors."

The second[3] SNUR EPA issued was for long-chain perfluoroalkyl carboxylate substances, and was also amended at least once. This SNUR was for PFOA and PFOA-like substances. In the rule, EPA observed that "PFOA is persistent, widely present in humans and the environment, has long half-lives in humans, and can cause adverse effects in laboratory animals, including cancer and developmental and systemic toxicity (Refs. 11, 12, 13, 14, and 15). PFOA precursors, chemicals which degrade or may degrade to PFOA, are also present worldwide in humans and the environment and, in some cases, might be present at higher concentrations than PFOA and be more toxic (Refs. 16, 17, 18, 19, and 20). PFOA higher homologues are chemicals with carbon chain lengths longer than PFOA. Available evidence suggests that toxicity and bioaccumulation appear to be higher for chemical substances with longer carbon chain lengths compared to those with shorter chain lengths (Refs. 21, 22, 23, and 24)."

[1] https://www.govinfo.gov/content/pkg/FR-2007-10-09/pdf/E7-19828.pdf
[2] https://www.govinfo.gov/content/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-sec721-9582.pdf
[3] https://www.govinfo.gov/content/pkg/FR-2015-01-21/pdf/2015-00636.pdf

EPA has also issued two draft health assessments proposing safe thresholds of exposure for specific PFAS chemicals (GenX and PFBS) for public comment,[4] stating that "the available oral toxicity studies show that the liver is sensitive to GenX chemicals, and the kidney and thyroid are sensitive to PFBS." In its draft toxicity assessment[5] for GenX chemicals, EPA stated that it is working on five additional health assessments for PFAS that have not yet been released.

EPA has the authority to list chemical substances or categories of chemical substances on the EPA's Toxic Release Inventory, when, in the Administrator's judgement, there is sufficient evidence to establish any one of the following:

"(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.
(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—
(i) cancer or teratogenic effects, or
(ii) serious or irreversible—
(I) reproductive dysfunctions,
(II) neurological disorders,
(III) heritable genetic mutations, or
(IV) other chronic health effects.
(C) The chemical is known to cause or can reasonably be anticipated to cause, because of—
(i) its toxicity,
(ii) its toxicity and persistence in the environment, or
(iii) its toxicity and tendency to bioaccumulate in the environment,
a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section."

a. In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-referenced SNURs also indicate that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.

   Answer: Yes, there is sufficient evidence for TRI reporting. Additionally, the SNUR is helpful to ensure new chemicals do not come onto the market without the proper controls in place. But it does nothing to help states with the historical use of these chemicals – states have no idea where PFOS and PFOA have been used, which means we are operating in the dark regarding knowing where to sample or focus our remediation efforts.

[4] https://www.epa.gov/sites/production/files/2018-11/documents/factsheet_pfbs-genx-toxicity_values_11.14.2018.pdf
[5] https://www.epa.gov/sites/production/files/2018-11/documents/genx_public_comment_draft_toxicity_assessment_nov2018-508.pdf

b. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, EPA will have established that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.

Answer: Yes, there will be sufficient evidence for GenX and PFBS for TRI reporting.

c. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Administrator has the authority to designate as a hazardous substance any "elements, compounds, mixtures, solutions, and substances which, when released into the environment may present substantial danger to the public health or welfare or the environment." In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-referenced SNURs also indicate that these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.

Answer: Given the above information, and without additional research, ASDWA does not have the appropriate expertise to provide a definitive response to the question. ASDWA believes EPA must follow the science and should use any information they have to make a hazardous substance determination in an expedited manner.

d. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.

Answer: Given the above information, and without additional research, ASDWA does not have the appropriate expertise to provide a definitive response to the question. ASDWA believes EPA must follow the science and should use any information they have to make a hazardous substance determination in an expedited manner.

2. EPA has informed Congress that it intends to set a Maximum Contaminant Level for PFOA and PFOS[6] under the Safe Drinking Water Act (SDWA), and stated that EPA "is also gathering and evaluating information to determine if a SDW A regulation is appropriate for a broader class of PFAS."

[6] https://www.epw.senate.gov/public/_cache/files/f/c/fc854d2e-c57d-4e26-ace8-e067fbdbde06/907052B84EFCDC96899D1240F07BEFFA.2019-02-15-epa-response-to-sen-carper-re-pfas-003-.pdf

a. Do you agree that a National Primary Drinking Water Regulation for perfluorinated compounds that at minimum includes PFOA and PFOS should be promulgated by EPA? If not, please specifically explain why not.

Answer: EPA has committed to making a regulatory determination for PFOA and PFOS by the end of 2019. If EPA has sufficient health effects, occurrence and other data to justify an MCL, then the agency should move forward with a proposed rulemaking in order to allow wider public comment on the issues. However, regulatory determinations are "In the sole judgment of the Administrator", and it is difficult to challenge or debate another person's judgment on challenging science policy issues.

b. Do you believe that, subject to the availability of appropriations, EPA should be required to include all PFAS chemicals for which there is an EPA-validated detection technology in its next Unregulated Contaminant Monitoring Rule (UCMR) in order to determine whether and where these other PFAS chemicals might be found in drinking water? If not, please specifically explain why not.

Answer: Yes, all PFAS chemicals for which there is an EPA-validated method should be included.

c. Since each UCMR by statute cannot include more than 30 contaminants on its list for monitoring, would you support excluding the PFAS chemicals described in a) from that cap in order to maximize occurrence data on PFAS without preventing EPA from requiring monitoring to be undertaken on other important potential drinking water contaminants? If not, please specifically explain why not.

Answer: Yes, however, cost considerations are an important component of the regulatory development process and should be evaluated as EPA develops UCMR5.

d. Should EPA be provided with clear authority to regulate sub-classes of PFAS chemicals (for example, groups of PFAS chemicals with similar chemical structures and modes of action on the body) under the Safe Drinking Water Act? If not, please specifically explain why not.

Answer: Yes, EPA has regulated classes of disinfection by-products (DBPs) in the past, and from ASDWA's perspective, has the authority to regulated sub-classes of PFAS.

e. Do you believe that EPA should be held to a statutory deadline for making regulatory determinations on whether to promulgate National Primary Drinking Water Regulations for PFAS chemicals about which the Agency has both toxicity information and occurrence data in drinking water? If not, please specifically explain why not.

Answer: EPA has committed to making a regulatory determination for PFOA and PFOS by the end of 2019. If EPA makes positive determinations for PFOA and PFOS, then the Safe Drinking Water Act (SDWA) has statutory deadlines for both proposing and finalizing the regulations, based on the date of the final positive regulatory determination.

Attachment Three

Questions for the Record for Ms. Daniels from Senator Capito

1. Can you elaborate on your written testimony, which made the argument that the state revolving funds are inappropriate funding vehicles for addressing this challenges posed by PFAS contamination?

   Answer: To clarify, ASDWA does not believe that the state revolving loan funds (SRFs) are inappropriate funding vehicles for addressing PFAS.

   EPA has confirmed that the SRFs can be used to fund the installation of treatment to remove PFAS contaminants from drinking water. What I expressed in my testimony is that the SRFs are not equipped to provide grants to every water system for PFAS treatment. The SRFs are a loan fund, and although they provide zero interest and negative interest loans to qualified water systems, states cannot reserve all the available grant funding for PFAS treatment, as disadvantaged water systems have needs that may be of greater concern than PFAS. Most states already maximize the use of their SRFs without taking PFAS into account.

   Ultimately, the SRFs are a great option for helping systems to fund PFAS treatment, however, the funding will predominantly be in the form of low-interest loans, not grant funding. More importantly, without additional appropriations for the SRFs, the SRFs alone will not be able to fund the significant investment needed for water systems across the nation to install treatment for PFAS.

2. What sort of program would be more helpful?

   Answer: Supplementing the drinking water SRF with additional funding for PFAS will certainly assist water systems that are monitoring for or installing treatment for PFAS in their drinking water. To compliment the SRFs, it would be helpful to have a funding source for rapid response to initiate clean up and mitigation in order to limit exposure without having to wait for the identification of a responsible party. As outlined in our written testimony, there are existing programs this could be modeled after, such as funds in place for leaking petroleum storage tank removal and petroleum release cleanup or the Superfund Trust Fund.

3. Are there regulatory mechanisms that would be appropriate as an "on-ramp" towards an MCL, to ensure that the EPA acts in a timely fashion while also addressing your concerns about designating the entire class?

   Answer: Such a regulatory mechanism already exists within the Safe Drinking Water Act (SDWA) – the Six-Year Review. The intent of the Six-Year Review is for EPA to evaluate new health effects, analytical methods, occurrence and treatment data, and to determine if a revision to the existing regulation is warranted. If additional information, such as structural activity data, becomes

available that EPA determines warrants adding sub-classes of PFAS to the MCLs that would be developed for PFOA and PFOS (based on the recently marked-up legislation), then the regulations could be revised.

4. What is the state of testing technologies for "whole fluorine" monitoring of drinking water?

   Answer: The analytical methods using bulk organofluorine measurement to quantify the (yet) unidentified fraction of PFAS are still being developed and refined by research laboratories and are not yet commercially available. ASDWA contacted researchers at Southern Nevada Water Authority (SNWA), who provided the recently published paper by McDonough, et al (Attachment Four) that summarizes the state of the science. Dr. Eric Dickenson at SNWA believes that work is still needed in developing an analytical method for total organic fluorine. Currently, SNWA is working with the University of Nevada Reno on developing a time-of-flight (TOF) method using Combustion Gas Analysis.

5. What challenges are raised by having the states develop their own MCLs and regulatory processes for PFAS in a piecemeal fashion?

   Answer: The challenges that occur when states develop individual MCLs cannot be overstated. The first challenge is setting the MCL. Many states do not have the funding, in-house expertise, processes in place, and, in some cases, authority to set their own standards. Setting drinking water standards is highly technical and resource intensive and traditionally has been completed by EPA, an agency that is designed to set these standards. Although many states may not have a prohibitive law or policy that keeps them from setting individual state standards, most drinking water programs have not set state MCLs and do not have the resources necessary to do so.

   In many situations, the few states that set their own MCLs do so because EPA did not find nationwide occurrence of a contaminant at levels that require a national response. States may decide to develop a state MCL to address a regional issue. However, once states begin to set individual MCLs for a contaminant like PFAS that has been found across the nation, a patchwork of regulation begins to emerge. Because states each have their own requirements for setting an MCL, states can reach different numbers for the limit. For example, some states do not have to incorporate a benefit-cost analysis as a part of their standard setting process, which typically means that state will have a different MCL than a state that must include a benefit-cost analysis in their MCL development.

   The patchwork of regulations creates confusion and significant risk communications problems. The complexity of MCL-setting is not widely known by the average citizen, and while industry and public health experts can understand why states may have different MCLs for the same contaminant, communicating this to the general public is difficult. Additionally, water systems

that operate across state lines or operate multiple water systems in multiple states must comply with a myriad of rules, posing challenges to the business sector.

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Attachment Four
Research Paper by McDonough, Guelto, and Higgins

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Current Opinion in Environmental Science & Health

Measuring total PFASs in water: The tradeoff between selectivity and inclusivity

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Abstract

Millions of people around the world may be exposed to drinking water impacted by per- and polyfluoroalkyl substances (PFASs) at levels exceeding local or national advisories. Many studies indicate that the full extent of PFAS contamination is significantly underestimated when only targeted analytical methods are used. Here, we review techniques using bulk organofluorine measurement to quantify the (as of yet) unidentified fraction of PFASs. We discuss advantages and disadvantages of specific approaches and their applicability to water analysis with a focus on the tradeoff between selectivity and inclusivity, and provide suggestions for a path forward to better characterize the wide array of PFASs present in environmental samples.

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Organic fluorine, PFAS, Drinking water, Nontarget analysis.

Background

Per- and polyfluoroalkyl substances (PFASs) are compounds whose potential for persistence [1], bioaccumulation [2], and toxicity [3,4], coupled with documented global distribution in humans [5] and the environment [6,7], has led to concern regarding exposure through routes such as drinking water ingestion [8]. Millions of people in the U.S. may be exposed to PFAS-impacted drinking water that exceeds state standards or national advisories issued by local regulatory agencies (e.g. VT, NJ) [9–12] and the US EPA [11,12]. PFASs have been detected in human serum [13,14] and have been shown to bioaccumulate [2,15]. Toxicological studies of some PFASs have found associations with health impacts including hepatoxicity [16], developmental impacts [17], and immunosuppression [18].

There are several challenges to understanding PFASs in drinking water and associated risks to human health. First, there are a large number of potentially relevant compounds. When polyfluoroalkyl transformation products are added to PFASs which are or have been on the global market, more than 3000 PFASs may be environmentally relevant [19]. To date, drinking water studies have focused primarily on perfluoroalkyl acids (PFAAs) [8], which are a small subset of potentially relevant PFASs. Others have identified the presence of "new" PFASs such as GenX in drinking water [20,21]. However, health impacts and widespread occurrence of many PFASs in drinking water are still poorly understood. Second, many products and applications utilize a proprietary (or unintended) mix of multiple PFASs, so release and occurrence in the environment and humans occurs in unknown mixtures [11,14,22]. Additionally, after release, a single polyfluoroalkyl parent can generate a mixture of related intermediate polyfluoroalkyl transformation products and terminal recalcitrant PFAAs [23,24]. Third, our understanding of sources and composition of PFAS releases to drinking water is hindered by a lack of information regarding facilities associated with PFAS synthesis, use, and disposal [25].

Addressing these challenges requires analytical tools that are both selective (specific only for PFASs and no other organic or inorganic fluorine species) and inclusive (able to detect thousands of known and unknown PFASs with adequate recoveries). Targeted analysis using liquid chromatography (LC) with either high resolution mass spectrometry (HRMS, e.g. quadrupole time-of-flight; Q-TOF) or tandem mass spectrometry (MS/MS) can capture many known PFASs. Non-targeted HRMS can also be applied to identify many additional suspected or previously uncharacterized PFASs. However, for LC-MS/MS or LC-HRMS to be applied towards unequivocal PFAS identification and quantification, analytical standards must be available, and such standards are currently available for <100 of

the 3000 + potentially relevant PFASs. A number of techniques for measuring bulk organofluorine have been developed to address our need to study and quantify the unidentified fraction of PFASs in environmental samples, though the selectivity and inclusivity of these methods vary. In this review, we summarize these methods, discuss advantages and disadvantages, and provide suggestions for a path forward to improved analysis of PFASs in water.

Techniques to quantify total PFASs in water

Since the initial detection of "non-exchangeable fluorine" in human blood [26], several methods have been developed to quantify bulk organofluorine in environmental and biological samples. Methods vary greatly in terms of sensitivity, selectivity, and applicability to different sample matrices.

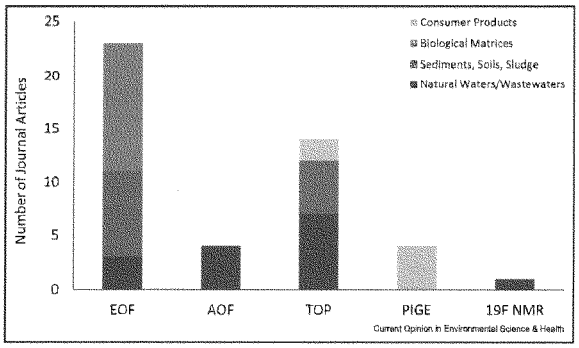
Combustion ion chromatography methods

The **extractable organic fluorine (EOF)** and **adsorbable organic fluorine (AOF)** assays make use of combustion ion chromatography (CIC) to mineralize and measure organic fluorine. Samples are combusted at 900–1000 °C to convert organic fluorine (and any residual inorganic fluorine not removed during sample preparation) to hydrofluoric acid, which is absorbed into a solution of sodium hydroxide. The total concentration of fluoride ion is then measured via ion chromatography (IC) after calibration with sodium fluoride. CIC does not differentiate between organic fluorine and fluoride, nor does it offer any structural details about the detected compounds. Any selectivity in EOF and AOF assays is imparted by the choice of sample preparation approach used for isolation of the organofluorine-containing fraction prior to CIC analysis.

The **EOF** assay, also referred to as **total organofluorine-combustion ion chromatography (TOF-CIC)** is a somewhat broad term describing methods in which the organic fluorine fraction is isolated by ion pairing methods and total fluorine is measured by CIC. The EOF assay is the most frequently used method for total organofluorine measurements in environmental research literature, and it has been applied to a variety of matrices (Figure 1). EOF was first demonstrated for trace-level organofluorine in seawater [27] and human blood [28] and has since been applied to freshwater [29], sediments and soils [30–32], and biological materials such as protein pellets [33], fish tissue [34], and liver tissue from marine mammals [35].

The EOF fraction is operationally defined and methods for isolation and enrichment depend on the matrix considered. For water, weak anion exchange solid-phase extraction (SPE) is typically used to remove fluoride and other impurities from the sample before CIC analysis, selecting for anionic and neutral organofluorines [27]. In some cases, total organic fluorine has been inferred by subtracting total inorganic fluorine from total fluorine [29]. Additional extraction and fractionation steps can also be used to improve selectivity and separate organofluorine fractions with different chemical characteristics [29,36].

Figure 1



Organofluorine methods in literature. Number of journal articles presenting primary data in which each total organofluorine method was applied (search only included articles written since 2000), separated into categories based on the sample matrix. Consumer products refers to solid materials including textiles, food wrappers, and paper. Biological materials encompasses blood, serum, various tissues, protein pellets, and cellular components. Journal search conducted using Google Scholar (search terms: "extractable organic fluorine"; "total organic fluorine"; "TOF-CIC"; "adsorbable organic fluorine"; "total oxidizable precursor"; "particle-induced gamma fluorine"; "19F NMR organic fluorine".

The AOF assay, originally described by Wagner et al. [37], differs from the EOF assay in the way organofluorines are extracted from the surrounding matrix. The sample is passed through cartridges containing synthetic polystyrenedivinylbenzene-based activated carbon (AC), selecting only for species that can be adsorbed to AC. Residual fluoride is removed with a sodium nitrate washing solution. The adsorbent is then analyzed by CIC. To date, AOF has only been applied to water (Figure 1). [37–40] To our knowledge, no study directly comparing organofluorine content from EOF and AOF fractions in the same samples has been published.

Nondestructive methods

Particle-induced gamma ray emission (PIGE) spectroscopy is a surface analysis technique for quantification of elemental fluorine in which an accelerated beam of protons strikes the surface of the sample of interest, exciting ^{19}F nuclei. Gamma rays emitted upon de-excitation provide a unique signature proportional ro the number of fluorine atoms on the surface. Previously used in biological and medical applications, PIGE has only recently been applied to the measurement of PFAS-impacted samples. PIGE has been made quantitative by creating calibration standards consisting of textiles soaked in solutions of a known organofluorine at a range of concentrations [41].

PIGE is a high-throughput, mostly non-destructive method for measurement of total fluorine with good sensitivity (13–45 nmol F/cm^2) [41]. However, this technique can only measure fluorine content within a certain penetration depth (maximum of about 0.22 mm) [41]. To date, the technique has been demonstrated primarily for solid-phase samples, including textiles [41–43], paper [41,43], and food packaging [44]. Water samples can be evaporated to dryness and the residue desiccated, pelletized, and mounted on a slide frame for analysis by PIGE [45]. However, due to the high concentrations of fluoride in natural waters, this approach is unlikely to be useful in measuring total organic fluorine in water samples unless a means of separating the inorganic and organic fluorine in a manner compatible with PIGE is developed. PIGE has previously only been used to measure total fluoride in water [45].

Fluorine-19 nuclear magnetic resonance spectroscopy (^{19}F NMR) has been used for decades to identify and characterize organofluorine compounds [46] and can also be used to quantify total organic fluorine in a sample hy integrating multiple peaks associated with organofluorines. ^{19}F NMR was developed into a more selective method for measuring total concentrations of PFAS-related compounds by Moody et al. [47] By monitoring the chemical shift associated with the terminal CF_3 peak, this method mainly selects for fluorinated surfactants, eliminating most interferences from common classes of organofluorine pesticides or pharmaceuticals, as well as inorganic fluoride. Despite advantages associated with its selectivity, this method is not often applied to water samples, most likely due to high detection limits (10 μg/L for a 100 mL water sample) [47].

Total oxidizable precursors

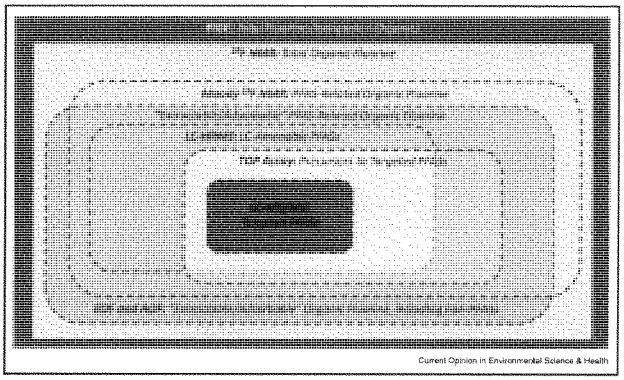
The **total oxidizable precursor (TOP) assay** is the most selective of PFAS surrogate analytical methods, in that it selects only for compounds that can be oxidized to form targeted PFAAs. This method was developed by Houtz and Sedlak to infer and indirectly quantify the total amount of chemical "precursors" to PFAAs in a sample by comparing the concentrations of specific PFAAs before and after oxidation of the sample by an excess of hydroxyl radicals [48]. Sample preparation follows the same procedures as are traditionally used for targeted LC-MS/MS analysis. Inclusivity is limited to compounds that oxidize to form LC-amenable hydroxyl-radical resistant PFASs, and is dictated by the choice of which products to monitor. Any precursors that oxidize to unmonitored PFASs will be missed. Furthermore, low and variable recoveries may lead to false negatives, especially in samples that are not heavily impacted [43].

The TOP assay has been applied to urban runoff [48], wastewater [49], and groundwater [50,51], as well as solids [51,52], including commercial products [43]. It has also been used to investigate the mass balance of PFASs in materials amended with aqueous film-forming foam mixtures (AFFF) after aerobic and anaerobic biotransformation [23,53]. This method is very valuable for assessing the potential of PFAS mixtures to eventually degrade into PFAAs. However, the identity of the precursors present in a mixture can rarely be deduced beyond general observations (i.e. "PFOA precursors"), as transformation processes are complex and nonspecific [48].

Challenges for analysis of organofluorines in water

One of the most challenging aspects of choosing a method to measure total organofluorines in water is the tradeoff between selectivity and inclusivity. As shown in Figure 2, each method discussed here captures a unique fraction of the total fluorinated compounds present in a sample. When dealing with drinking water or natural water samples, it is often desirable to remove fluoride interferences and to capture highly mobile short-chain PFASs. Methods that may be too inclusive (for example, PIGE) do not allow differentiation between organic and inorganic fluorine, and so are impractical for measuring PFAS-related organofluorines in natural waters. In contrast, EOF has a distinct advantage, as its selectivity can be modified depending on sample preparation strategies and fractionation can be used to learn more about the nature of the organofluorines present.

Figure 2



Selectivity and inclusivity associated with total organofluorine methods. Methods for total organofluorine analysis and the fraction of total fluorinated species each method is associated with. Sizes of boxes are meant only to recognize more specific and more general fractions and do not represent the actual relative abundance of each fraction.

Achieving sufficient detection limits is also challenging when considering drinking water and natural water samples. The TOP assay is the most sensitive among surrogate methods (typically 0.1–0.5 ng/L for individual PFASs) [48], as it relies on LC-MS/MS of targered precursors. Among the more inclusive surrogate methods, EOF and AOF may be most well suited to achieve sufficient sensitivity to measure total PFASs in natural waters (typical detection limits $\leq$1 μg F/L) [27], while ^{19}F NMR would require extensive preconcentration to achieve sufficient detection limits for non-impacted sites. PIGE, while sensitive (detection limit of 0.1 μg F/L) [45], suffers from aforementioned issues with fluoride interference.

The TOP assay provides the best assurance that unidentified organofluorines are associated with PFAS contamination. However, this assurance comes at a cost, as the TOP assay is limited in its ability to screen for emerging PFASs of concern, such as GenX (HFPO-DA) and ADONA, that either do not oxidize or do not oxidize to familiar PFAAs. Expanding the list of targeted compounds for TOP assay analysis to include additional oxidation products as they are discovered will improve this method's inclusivity. Additionally, using the TOP assay in conjunction with LC-HRMS suspect screening to monitor a wide range of suspected oxidation products can greatly improve inclusivity. However, the TOP assay is subject to the selectivity issues inherent in reverse-phase LC, meaning that short-chain compounds that are not retained by traditional LC analytical columns will be lost. Use of the TOP assay in combination with other less selective methods like EOF, PIGE [43], or AOF [39,40] may become a popular approach to gain additional information about the nature of the unidentified fluorine fraction and its relevance as a source of PFAAs, while also acquiring information about general fluorine content.

Conclusions

Many studies indicate that the full extent of PFAS contamination at impacted sites is significantly underestimated when surrogate and/or nontargeted methods are not employed, as many precursors, degradation/transformation products, and other PFASs with no analytical standards are ignored [54]. For assessment of AFFF-impacted waters, we recommend that bulk organofluorine measurements by EOF and/or the TOP assay be combined with HRMS as well as targeted analytical methods to obtain a comprehensive understanding of PFAS composition, sources, and health risks. Further, standard techniques for these approaches should be developed to facilitate routine application at sites.

Acquiring additional information on the nature of organofluorines detected by total fluorine methods is the critical next step to improve our understanding of how to effectively remediate PFAS-impacted sites and prioritize specific PFASs for cleanup and regulation. As the wide array of PFASs is increasingly recognized, more and more compounds are being added to target analyte lists

for quantitative analysis. However, analytical standards for the majority of PFASs remain unavailable, and the fraction of total organic fluorine accounted for by target analytes is typically low, especially in samples of natural waters from non-AFFF-impacted sites (about 40–100% in some studies) [27,29,38]. The addition of HRMS for nontargeted and suspect screening analyses can offer valuable information about the unidentified fraction of organic fluorine. In one of the few studies to combine total organofluorine measurements and nontargeted HRMS methods, D'Agostino and Mabury discovered 12 novel and 10 infrequently-reported classes of PFASs in commercial formulations [36]. Future research should focus on improving our ability to provide semi-quantitative data via HRMS screening. Using these techniques along with traditional targeted analysis and measurements of bulk organofluorines will pave the way to uncover the chemical composition of the vast unidentified fraction of bulk organofluorines in water.

Conflict of interest statement

Nothing declared.

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Senator BARRASSO. Thanks so much for your testimony, Ms. Daniels.

Mr. Faber.

STATEMENT OF SCOTT FABER, SENIOR VICE PRESIDENT, GOVERNMENT AFFAIRS, ENVIRONMENTAL WORKING GROUP

Mr. FABER. Thank you, Chairman Barrasso, and Ranking Member Carper.

Last week, Ken Cook, the President of EWG, and I had the opportunity to spend a day on Capitol Hill with Sue Bailey, who is a resident of Parkersburg, West Virginia, who was exposed to PFOA in the 1960s while she was pregnant, and with her son, Bucky Bailey. While we were meeting with Senator Carper, Senator Carper asked Sue, how would you address, how would you tackle the PFAS problem.

Senator Carper, you remember what Sue said. She said, how do you eat an elephant? And of course, the answer is one bite at a time.

I think this hearing really reflects the spirit of Sue Bailey, that while we won't solve all of the challenges facing the PFAS contamination crisis by passing these six bills, these six bills will tell us much more about the extent of PFAS contamination. They will tell us much more about the sources of PFAS contamination. And they will begin to start the cleanup process and cleanup a mess that, frankly, has taken three generations to create.

As you have heard, nearly all of us are contaminated with these forever chemicals. We are exposed to dozens of PFAS every day through our food, water, dust, clothing, carpets, even through our cosmetics. And exposure to even very low doses of PFAS are associated with very serious health risks. While the health effects of PFOA and PFAS are well understood, due in large part to what happened in Parkersburg, West Virginia, there is growing evidence that replacement chemicals, like GenX and PFBS and many others pose many of the same risks.

So clearly, it is time to act. But as Senator Carper said, EPA's proposed action plan really fails to treat this contamination crisis like a crisis, or as Senator Capito said at your hearing in March, EPA is not acting like this is personal. And for people like Sue Bailey or Bucky Bailey or people who live near F.E. Warren Airbase or Dover Airbase, this is very personal. And that is why today's hearing is so important.

Bills like S. 950, the PFAS Detection Act, will help us better understand just how extensive the PFAS crisis is. In addition, requiring water utilities to monitor for all detectable PFAS in the next unregulated contaminant monitoring rule is equally important. Bills like S. 1507, the PFAS Disclosure Act, will add hundreds of PFAS to the Toxics Release Inventory, which is an important first step that will tell us much more about where PFAS pollution is coming from.

Bills like S. 638 and S. 1372 will help us accelerate PFAS cleanup efforts, and in particular, S. 638, the PFAS Action Act, will kick start the PFAS cleanup process, and S. 1372, the PFAS Accountability Act, will ensure that Federal agencies, including the Department of Defense, take responsibility for their legacy pollution.

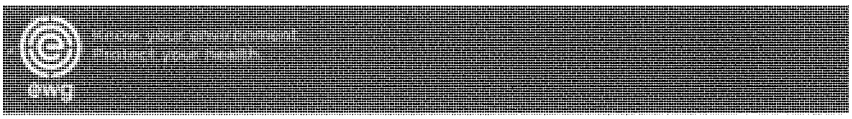
S. 1473, the Protecting Drinking Water from PFAS Act, will require EPA to finally set a drinking water standard for water utilities. As you have heard, States are leading the way, setting tough science based PFAS drinking water standards. EPA standards should build on the progress being made in States like New Jersey and Pennsylvania. But you shouldn't have to live in New Jersey or Pennsylvania to have clean water.

So as Sue would say, we have to eat this elephant one bite at a time. But there are some other steps that Congress should also take to ensure that we don't make the PFAS problem worse. First, we should address ongoing releases of PFAS into the air and water. Second, we should ensure that sewage sludge contaminated with PFAS is not being spread on our farm fields. And third, we should ensure that PFAS wastes are being properly disposed.

Last year, Congress took steps to reduce the use of fluorinated foams at civilian airports. The bills that are the subject of today's hearing, and the other steps I have just mentioned would help build on that progress.

Thank you for the opportunity to testify.

[The prepared statement of Mr. Faber follows:]



Testimony of

Scott Faber

Senior Vice President

Environmental Working Group

Before the

Senate Committee on the Environment and Public Works

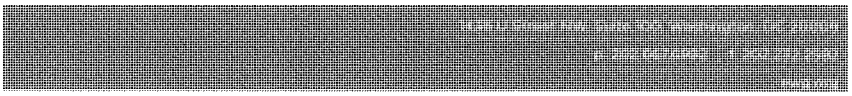
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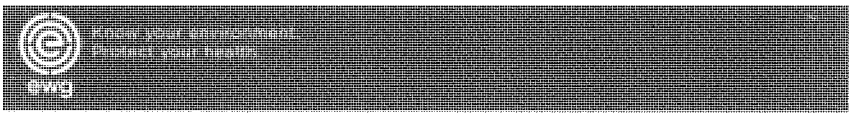
Examining Legislation to Address the Risks Associated with Per- and Poly- Fluoroalkyl Substances (PFAS)

May 22, 2019

Thank you for the opportunity to testify on behalf of the Environmental Working Group, a national environmental health organization which has sought to address the health risks posed by per- and poly- fluoroalkyl substances for two decades.

To address the growing PFAS contamination crisis, Congress should address ongoing sources of PFAS contamination, measure the scope of existing PFAS contamination, notify communities impacted by PFAS contamination, and dramatically accelerate efforts to clean up PFAS contamination. More broadly, Congress should reform our federal environmental and public health laws to better address the threats posed by contaminants like PFAS.





PFAS Chemicals Pose Serious Health Risks

Nearly all of us are contaminated by PFAS chemicals.[1] Americans are exposed to dozens of PFAS every day -- through our food, water, air, indoor dust, carpets, clothing and cosmetics. While diet and dust are likely significant sources of PFAS exposure, even low PFAS concentrations in drinking water can substantially increase our body burden.[2]

Exposure to very low doses of some PFAS chemicals is associated with serious health risks, including cancer, reproductive harm, developmental harm, damage to the immune system, hormone disruption, and liver and kidney damage.[3] Because some PFAS chemicals have a long half-life in our bodies,[4] some PFAS bio-accumulate, or build up, in our blood serum and organs. Once released into the environment, PFAS are highly mobile and do not readily break down -- thus leading to the designation of PFAS as "forever chemicals."[5]

While the health effects of PFOA and PFOS are well known, there is growing evidence that replacement chemicals -- such as GenX and PFBS -- pose many of the same health risks.[6] Other PFAS chemicals linked to chronic health problems include PFHxS, PFNA, PFDeA, PFDoA,

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[1] Centers for Disease Control and Prevention, National Biomonitoring Program, Per- and Polyfluorinated Substances (PFAS) Factsheet, https://www.cdc.gov/biomonitoring/PFAS_FactSheet.html (last updated April 7, 2017). *See also* https://www.ewg.org/news-and-analysis/2019/02/children-s-exposure-pfas-chemicals-begins-womb

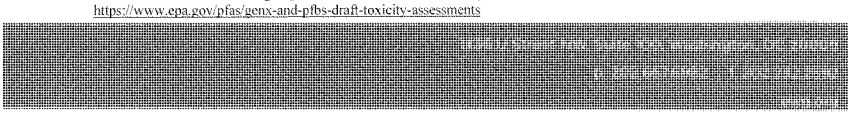
[2] *See, e.g.*, Gloria B. Post & Jessie A. Gleason, *Technical Support Document: Interim Specific Ground Water Criterion for Perfluorooctanoic Acid (PFOA, C8)(CAS #335-67-1; Chemical Structure: CF3(CF2)6COOH)*, (New Jersey Department of Environmental Protection, Division of Science, Research & Environmental Health, at 4 (Jan. 2019), https://www.nj.gov/dep/dsr/Technical%20Support%20Document%20Draft%20ISGWQC%20for%20PFOA.pdf.

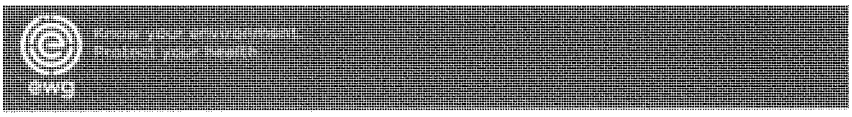
[3] Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* (2018) https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf

[4] Half-life estimates range from over 2 years from PFOA and PFNA to 5.4 years for PFOS to 8.5 years for PFHxS. *See* Anna Reade, Tracy Quinn, & Judith S. Schreiber, *Scientific and Policy Assessment for Addressing PFAS in Drinking Water* (2019) at 12, https://www.nrdc.org/sites/default/files/assessment-for-addressing-pfas-chemicals-in-michigan-drinking-water.pdf.

[5] Joseph G. Allen, *These Toxic Chemicals are Everywhere--Even in Your Body. And They Won't Ever Go Away*, Wash. Post, Jan. 2, 2018, https://www.washingtonpost.com/opinions/these-toxic-chemicals-are-everywhere-and-they-wont-ever-go-away/2018/01/02/82e7e48a-e4ee-11e7-a65d-1ac0fd7f097e_story.html?utm_term=.af2b55788f59

[6] Environmental Protection Agency, GenX and PFBS Draft Toxicity Assessments (2018), https://www.epa.gov/pfas/genx-and-pfbs-draft-toxicity-assessments





PFUA, PFHxA, and PFBA.[7] Short-chain PFAS can be equally persistent, more mobile in the environment, and also accumulate in the body.[8]

PFAS chemicals impact our health at all stages of life but pose unique risks to infants and children.[9] As EPA addresses the health impacts of PFAS, EPA should be directed to consider the impacts of PFAS on infants as well as on breast-feeding women, should consider all health effects including damage to the immune system, and should apply appropriate uncertainty factors. PFAS safety standards which protect infants and which consider all health impacts, including harm to the immune system, range from 8 ppt and 9 ppt for PFOS and PFOA, as proposed by Michigan[10]; to 13 ppt and 14 ppt for PFOS and PFOA, as proposed by New Jersey[11]; to a sum of 20 ppt for five and six PFAS, as proposed by Vermont[12] and Massachusetts[13], respectively. Other studies and public health agencies have recommended even lower values.[14] Fortunately, some water treatment technologies can reduce concentrations of PFOA, PFOS, PFNA, PFHxS, GenX and other PFAS chemicals to levels below 1 ppt and address other contaminants of concern.[15]

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[7] Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* (2018) https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf

[8] Reade et al., *supra* note 4, at 25-26.

[9] Kristen M. Rappazzo, Evan Coffman, & Erin P. Hines, *Exposure to Perfluorinated Alkyl Substances and Health Outcomes in Children: A Systematic Review of the Epidemiological Research*, 14 Int. J. Environ. Research & Public Health 691 (2017), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5551129/

[10] Michigan Department of Health and Human Services, Division of Environmental Health, PFAS Action Response Team Human Health Working Group, *Public Health Drinking Water Screening Levels for PFAS* (Feb. 22, 2019), https://www.michigan.gov/documents/pfasresponse/MDHHS_Public_Health_Drinking_Water_Screening_Levels_for_PFAS_651683_7.pdf.

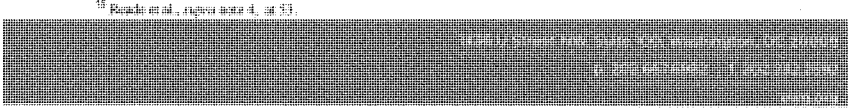
[11] New Jersey Department of Environmental Protection, Site Remediation Program, https://www.nj.gov/dep/srp/emerging-contaminants/ (last updated March 13, 2019).

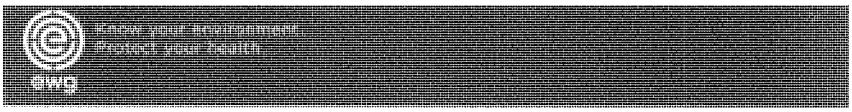
[12] Press Release, State of Vermont Agency of Natural Resources, Health Department Updates Health Advisory for PFAS, State Expands Testing Plan to Include 10 Schools in Pilot Project (July 10, 2018), https://anr.vermont.gov/node/1223.

[13] Letter from Yvette DePieza, Program Director, Drinking Water Program, Massachusetts Department of Environmental Protection, to Public Water Suppliers (April 17, 2019), https://www.mass.gov/files/documents/2019/04/18/pfas-letter-faq.pdf.

[14] *See e.g.* https://www.ewg.org/research/ewg-proposes-pfas-standards-fully-protect-children-s-health

[15] Reade et al., *supra* note 4, at 33.





Congressional Action Urgently Needed

In February, EPA released a PFAS Action Plan that failed to treat the PFAS contamination crisis with appropriate urgency.[16] In particular, EPA failed to address ongoing PFAS releases into air and water, failed to add any PFAS chemicals to the Toxic Release Inventory, failed to expand efforts to monitor for PFAS, and took no concrete steps to clean up existing PFAS contamination. To reduce the risks posed by PFAS contamination, Congress should: address ongoing sources of PFAS contamination; document the sources and scope of existing contamination; and dramatically accelerate efforts to clean up existing PFAS contamination.

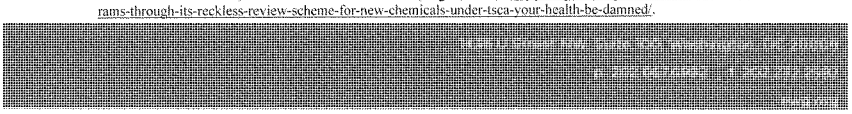
Address Ongoing PFAS Contamination

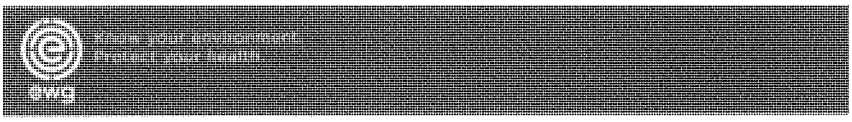
To address ongoing air and water releases of PFAS, Congress should subject industrial PFAS releases to Sec. 307 and Sec. 311 of the Clean Water Act and Sec. 112 of the Clean Air Act, direct EPA to limit the application of bio-solids containing PFAS,[17] and should, at a minimum, phase out non-essential uses of PFAS in cookware, food packaging, textiles, cosmetics and other consumer products.[18] Congress should also address the management of PFAS waste, and replace fluorinated fire-fighting foams with safe and effective alternatives.

[16] Press Release, Environmental Working Group, Trump PFAS Plan is a Recipe for More Contamination, (Feb. 14, 2019), https://www.ewg.org/release/trump-pfas-plan-recipe-more-contamination

[17] Congress should direct EPA to revise 40 CFR Part 503.13 to add PFAS to the list of pollutants to be regulated, and to prohibit land application of biosolids containing PFAS on agricultural lands. *See* Environmental Protection Agency, Office of Inspector General, *EPA Unable to Assess the Impacts of Hundreds of Unregulated Pollutants in Land-Applied Biosolids, Report #19-P-0002* (Nov. 2018), https://www.epa.gov/office-inspector-general/report-epa-unable-assess-impact-hundreds-unregulated-pollutants-land

[18] New PFAS should not be approved until EPA and FDA regulators meet existing statutory obligations to assess health effects. The Environmental Defense Fund has documented both agencies failure to do so. *See, e.g.*, Tom Neltner, *FDA-Approved PFAS: A Serious Breakdown in Assessing Food Additive Safety*, Environmental Defense Fund (Nov. 4, 2018), http://blogs.edf.org/health/2018/11/04/fda-approved-pfas-breakdown-assessing-food-additive-safety/; Richard Denison, *Part 1: EPA Rams Through its Reckless Review Scheme for New Chemicals Under TSCA, Your Health Be Damned*, Environmental Defense Fund (Aug. 1, 2018), http://blogs.edf.org/health/2018/08/01/epa-rams-through-its-reckless-review-scheme-for-new-chemicals-under-tsca-your-health-be-damned/.





Document the Scope of PFAS Contamination

Congress should also expand our ability to understand the scope of PFAS contamination. In particular, Congress should improve our ability to detect PFAS in water and soil, as proposed by S. 950, the PFAS Detection Act of 2019.[19] S. 950 would authorize the U.S. Geological Survey to conduct nationwide sampling for PFAS and to develop new PFAS detection methods.[20] S. 950 is an important first step. Congress should also amend Sec. 1445(a)(2)(B)(i)[21] of the Safe Drinking Water Act to add all detectable PFAS to the next Unregulated Contaminant Monitoring Rule.[22] In combination, monitoring ground and surface water, monitoring soil, and monitoring tap water will allow us to better characterize the full scope of PFAS contamination. Congress should also expand efforts to monitor PFAS in household dust, food, and blood,[23] and should ensure that communities impacted by PFAS contamination are notified, especially military families, as proposed in S. 1105, the PFAS Registry Act of 2019.[24]

Congress should also improve our ability to identify the sources of PFAS contamination. Many PFAS chemicals currently in use can be reasonably anticipated to cause serious health risks, including GenX, PFBS, PFHxS, and PFNA, PFDeA, PFDoA, PFUA, PFHxA, and PFBA,[25] and many of these PFAS are being detected in water.[26] All PFAS that are reasonability anticipated to

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[19] The PFAS Detection Act of 2019, S. 950, 116th Cong. (2019).

[20] This month, EWG used publicly available data to document PFAS contamination at 610 sites in 43 states, including 117 military installations. *See* Bill Walker, *Mapping the PFAS Contamination Crisis: New Data Show 610 Sites in 43 States*, Environmental Working Group (May 6, 2019), https://www.ewg.org/news-and-analysis/2019/04/mapping-pfas-contamination-crisis-new-data-show-610-sites-43-states.

[21] 42 U.S.C. § 300j-4(a)(2)(B)(i).

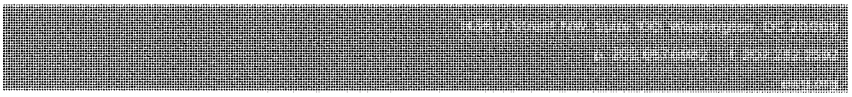
[22] Congress should exempt PFAS from the current statutory limit on the number of chemicals which ean be added to the UCMR, and should direct EPA to development a detection method for total PFAS.

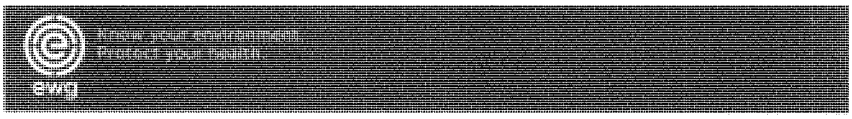
[23] *See, e.g.*, Centers for Disease Control, National Biomonitoring Program, https://www.cdc.gov/biomonitoring/index.html (last updated April 7, 2017) (CDC's biomonitoring program monitors blood for contaminants like PFAS); Food and Drug Administration, Total Diets Study, https://www.fda.gov/food/science-research-food/total-diet-study (last updated Feb. 23, 2018)(FDA monitors food for contaminants like PFAS); and U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, American Healthy Homes Survey, https://www.healthypeople.gov/2020/data-source/american-healthy-homes-survey (last updated May 17, 2019)(HUD monitors indoor dust for contaminants like PFAS).

[24] PFAS Registry Act of 2019, S. 1105, 116th Cong. (2019).

[25] Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* (2018) https://www.atsdr.cdc.gov/toxprofiles/tp200.pdf.

[26] A recent study of source and treated water detected 12 PFAS including PFBS, PFHxS, PFBA, PFHxA, PFNA, PFDeA, and PFDA as well as PFOA and PFOS. *See* J. Scott Boone et al., *PFAS in Source and Treated Drinking*





pose cancer or other chronic health risks should be added to the Toxic Release Inventory. At a minimum, Congress should require that all industrial discharges of PFAS subject to a Significant New Use Rule[27] be added to the TRI, as proposed in S. 1507, the PFAS Release Disclosure Act of 2019.[28] Congress should also require that all PFAS for which there are final toxicity values be added to the TRI, as proposed in S.1507.[29] Because PFAS pose health risks at low levels, Congress should direct EPA to use the same reporting threshold typically applied to chemicals of special concern.[30]

Accelerate PFAS Clean-Up Efforts

Congress should also dramatically accelerate efforts to clean up PFAS contamination. To do so, Congress should designate PFAS as hazardous substances under Sec. 102 of CERCLA, as proposed in S. 638, the PFAS Action Act of 2019.[31] By designating PFAS as hazardous substances, Congress will trigger certain reporting requirements and remedial actions. What's more, designating PFAS as hazardous substances will also ensure that the costs of PFAS remediation are shared by responsible parties, including the Department of Defense.[32] Congress should also ensure that PFAS wastes are properly managed.[33]

Water in the United States, 653 Science of the Total Environment 359 (2019), https://www.sciencedirect.com/science/article/pii/S004896971834141X.

[27] This would include all PFAS chemicals covered by 40 C.F.R. § 721.10535 (a significant new use rule covering long-chain perfluoroalkyl carboxylate chemical substances) and 40 C.F.R. § 721.9582 (a significant new use rule covering 271 perfluoroalkyl sulfonates). Once finalized, this would also cover any chemicals in EPA's 2015 proposed SNUR on PFAS. *See* Long-Chain Perfluoroalkyl Carboxylate and Perfluoroalkyl Sulfonate Chemical Substances; Significant New Use Rule, 80 Fed. Reg. 2885 (Jan. 21, 2015).

[28] PFAS Release Disclosure Act of 2019, S. 1507, 116th Cong. (2019).

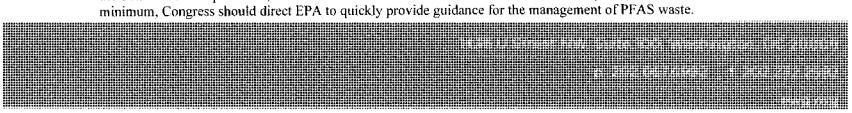
[29] Congress should also require that any substantial risk submission made pursuant to Sec. 8(e), 15 U.S.C § 2607(e), of the Toxic Substances Control Act to be automatically added to the TRI.

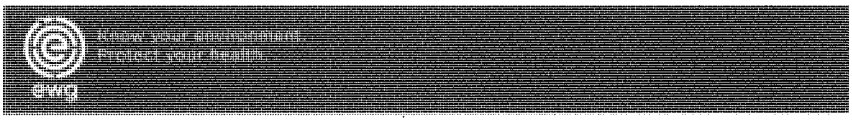
[30] *See* Lower Thresholds For Chemicals of Special Concern, 40 CFR § 372.28, https://www.law.cornell.edu/cfr/text/40/372.28.

[31] The PFAS Action Act of 2019, S. 638, 116th Cong. (2019). Designating PFAS under Sec. 307(a) or 311(b)(2)(A) of the Clean Water Act, Sec. 112 of the Clean Air Act, Section 7 of TSCA, or Sec. 3001 of RCRA, would also add a substance to list of "hazardous substances" subject to CERCLA. *See* 42 U.S.C. 9601(14).

[32] The Department Of Defense is a major source of PFAS pollution. *See* Melanie Benesh & Audrey Lothspeich, *Mapping PFAS Chemical Contamination at 106 U.S. Military Sites*, Environmental Working Group (March 6, 2019), https://www.ewg.org/research/pfas-chemicals-contaminate-us-military-sites

[33] In particular, Congress should designate PFAS as "hazardous substances" under Sec. 3001 (42 U.S.C. § 6921) of the Solid Waste Disposal Act, better known as the Resource Conservation and Recovery Act, or RCRA. At a minimum, Congress should direct EPA to quickly provide guidance for the management of PFAS waste.



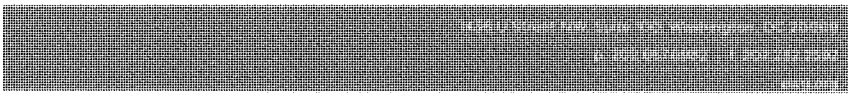


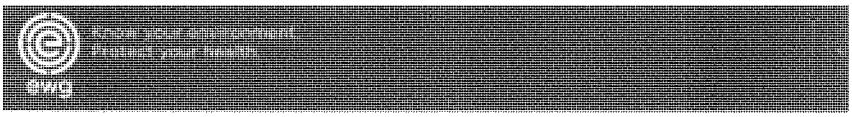
To better address contamination caused by military installations and other federal facilities, Congress should direct federal agencies to develop cooperative agreements with states to monitor and remediate contaminated sites, as proposed in S. 1372, the PFAS Accountability Act of 2019.[34] These agreements should require PFAS clean-up efforts to meet or exceed the most health protective standards, including state standards, as proposed in S. 1372. If a cooperative agreement is not finalized within a year of a state request, DOD and other federal agencies responsible for PFAS contamination should be required to alert Congress, as proposed in S. 1372.

Congress should also set a deadline for the development of a National Primary Water Drinking Regulation for PFAS, as proposed in S. 1473, the Protecting Drinking Water from PFAS Act of 2019.[35] Many states have established or proposed drinking water standards for PFAS which protect vulnerable populations, such as infants, and which address all of the health risks posed by PFAS, such as damage to the immune system. But, many states have not taken steps to reduce PFAS contamination in tap water, and EPA has consistently failed to address these threats.[36] Drinking water standards developed by EPA, as proposed in S. 1473, should be required to take vulnerable populations and *all* health effects into account and should build upon the progress being made by states.

To help water utilities meet these standards, Congress should help share the cost of effective PFAS treatment technologies.[37] Designating PFAS as hazardous substances will help ensure that

[34] The PFAS Accountability Act of 2019, S. 1372, 116th Cong. (2019).
[35] The Protecting Drinking Water from PFAS Act of 2019, S. 1473, 116th Cong. (2019).
[36] EPA's voluntary PFAS stewardship program was launched in 2006. *See* Environmental Protection Agency, Fact Sheet: 2010/2015 PFOA Stewardship Program, https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program (page last updated Aug. 9, 2018); EPA's first Long-Chain Perfluorinated Chemicals Action Plan was released in 2009. *See* Environmental Protection Agency, *Long-Chain Perfluorinated Chemicals (PFCs) Action Plan* (Dec. 30, 2009), https://www.epa.gov/sites/production/files/2016-01/documents/pfcs_action_plan1230_09.pdf. The most recent PFAS Action Plan pledges to propose a regulatory determination by the end of 2019, but does not commit to complete a National Primary Water Drinking Regulation. *See* Environmental Protection Agency, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan*, at 3 (Feb. 14, 2019), https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf.
[37] For example, The Providing Financial Assistance for Safe (PFAS) Drinking Water Act of 2019, HR. 2533, would provide $500 million in annual funding to implement PFAS treatment systems, and The Water Affordability,





polluters share clean-up costs. However, Congress should also establish a fee system to ensure that companies which have profited from PFAS pay their fair share.[38]

More broadly, Congress should reform our federal environmental and public health laws to better address the threats posed by contaminants like PFAS. S. 1251, the Safe Drinking Water Assistance Act of 2019,[39] provides a first step by creating a national research initiative to address the threats emerging contaminants pose to our drinking water supplies. As the GAO report referenced in S. 1251 noted, EPA bas failed to keep pace with these threats.[40] In particular, the GAO report referenced in S. 1251 found "EPA has made limited progress in prioritizing drinking water contaminants on the basis of greatest public health concern" since the enactment of the 1996 amendments to the Safe Drinking Water Act.[41]

EWG is grateful for the opportunity to testify, and we look forward to working with you to continue to address the PFAS contamination crisis. Last year, Congress allowed civilian airports to use fire-fighting foams that do not contain PFAS. The bipartisan bills that are the subject of today's hearing -- S. 638, S. 950, S. 1251, S. 1372, S. 1473, and S. 1507 -- will build on that progress by documenting the scope and sources of PFAS contamination and by accelerating efforts to clean up PFAS contamination.

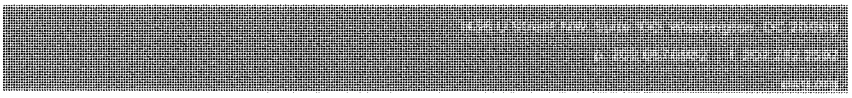
Transparency, Equity and Reliability (WATER) Act of 2019, H.R. 1417, would amend Drinking Water State Revolving Fund to provide grants to address PFAS contamination.

[38] For example, H.R. 2750, the PFAS User Fee Act of 2019, would create a fee system to help share the cost of water treatment. Available at https://www.govtrack.us/congress/bills/116/hr2570/text

[39] The Safe Drinking Water Assistance Act of 2019, S. 1251, 116th Cong. (2019)

[40] Government Accountability Office, *EPA Should Improve Implementation of Requirements on Whether to Regulate Additional Contaminants:*, GAO-11-254 (May 27, 2011), https://www.gao.gov/assets/320/318967.pdf.

[41] *Id.* at 17.



Responses to Questions for the Record
By Scott Faber
Senate Committee on Environment and Public Works
Hearing entitled, *"Examining legislation to address the risks associated with per- and polyfluoroalkyl substances (PFAS)"*

Thank you for the opportunity to testify. I hope you will find these answers helpful.

Chairman Barrasso:

1. Is there a proven method of destruction for PFAS?

    a. Would published guidance from EPA on how best to dispose of or destroy PFAS be helpful to the public?
    b. If so, does EPA currently have sufficient information on PFAS to publish such guidance at this point?

2. During the hearing, you explained that the Department of Defense (DOD) has "under the Superfund Amendments of 1986, a program, the Defense Environmental Restoration Program, that has helped finance some…remediation." You went on to state that DOD has "funding that is annually appropriated to help clean up contaminated sites, munitions, burn pits and so on." However, "[n]ot nearly enough money has been appropriated."

    In your opinion, what would be a sufficient level of annual appropriations for DOD's Environmental Restoration Program to address PFAS and other contamination?

Ranking Member Carper:

3. EPA has issued several Significant New Use Rules (SNURs) for PFAS using its Toxic Substances Control Act authority.

    One[1] of these SNURs was issued for perfluoroalkyl sulfonates (like PFOS), and was added to at least once. EPA said that it had promulgated the SNUR because "these chemical substances may be hazardous to human health and the environment," saying further that they added these chemicals because "EPA believed the action was warranted given the similarity of these chemicals to those currently included in 40 CFR 721.9582[2] and the strong likelihood of similar health and environmental concerns, as discussed in Unit III. of the March 10, 2006 document" and that "EPA has concerns regarding adverse human health and environmental effects of PFAS. It is highly persistent in the environment, it tends to bioaccumulate, and it is toxic. In its voluntary phase-out of perfluorooctane sulfonate (PFOS) and PFOS-related products, the 3M Company, which had been the sole U.S. manufacturer of the chemicals, committed to stop production of all

[1] https://www.govinfo.gov/content/pkg/FR-2007-10-09/pdf/E7-19828.pdf
[2] https://www.govinfo.gov/content/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-sec721-9582.pdf

perfluoroalkyl sulfonic acid products with alkyl chain lengths of C8 or greater. 3M completed its phase-out of PFOS production in 2002, which led to a significant reduction in the use of all PFAS-related substances.....As described in Unit III of the proposed SNUR, EPA has concerns regarding the reproductive and subchronic toxicity, persistence, and bioaccumulative potential of the chemical substances that are included in this SNUR. These concerns lead the Agency to believe that humans and the environment could suffer adverse effects from their use. Any use of these PFAS chemicals would continue to add to the reservoir of perfluoroalkyl sulfonic acids (PFASA) in the environment, resulting in additional human/ environmental exposure. There is evidence that PFAS-containing chemicals degrade to perfluoroalkyl sulfonic acids (PFASA), which exist in the anionic form in the environment, or to PFASA precursors."

The second[3] SNUR EPA issued was for long-chain perfluoroalkyl carboxylate substances, and was also amended at least once. This SNUR was for PFOA and PFOA-like substances. In the rule, EPA observed that "PFOA is persistent, widely present in humans and the environment, has long half-lives in humans, and can cause adverse effects in laboratory animals, including cancer and developmental and systemic toxicity (Refs. 11, 12, 13, 14, and 15). PFOA precursors, chemicals which degrade or may degrade to PFOA, are also present worldwide in humans and the environment and, in some cases, might be present at higher concentrations than PFOA and be more toxic (Refs. 16, 17, 18, 19, and 20). PFOA higher homologues are chemicals with carbon chain lengths longer than PFOA. Available evidence suggests that toxicity and bioaccumulation appear to be higher for chemical substances with longer carbon chain lengths compared to those with shorter chain lengths (Refs. 21, 22, 23, and 24)."

EPA has also issued two draft health assessments proposing safe thresholds of exposure for specific PFAS chemicals (GenX and PFBS) for public comment,[4] stating that "the available oral toxicity studies show that the liver is sensitive to GenX chemicals, and the kidney and thyroid are sensitive to PFBS." In its draft toxicity assessment[5] for GenX chemicals, EPA stated that it is working on five additional health assessments for PFAS that have not yet been released.

EPA has the authority to list chemical substances or categories of chemical substances on the EPA's Toxic Release Inventory, when, in the Administrator's judgement, there is sufficient evidence to establish any one of the following:

"(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.

[3] https://www.govinfo.gov/content/pkg/FR-2015-01-21/pdf/2015-00636.pdf
[4] https://www.epa.gov/sites/production/files/2018-11/documents/factsheet_pfbs-genx-toxicity_values_11.14.2018.pdf
[5] https://www.epa.gov/sites/production/files/2018-11/documents/genx_public_comment_draft_toxicity_assessment_nov2018-508.pdf

(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—
(i) cancer or teratogenic effects, or
(ii) serious or irreversible—
(I) reproductive dysfunctions,
(II) neurological disorders,
(III) heritable genetic mutations, or
(IV) other chronic health effects.
(C) The chemical is known to cause or can reasonably be anticipated to cause, because of—
(i) its toxicity,
(ii) its toxicity and persistence in the environment, or
(iii) its toxicity and tendency to bioaccumulate in the environment,
a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section."

a. In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-referenced SNURs also indicate that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.
b. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, EPA will have established that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.
c. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Administrator has the authority to designate as a hazardous substance any "elements, compounds, mixtures, solutions, and substances which, when released into the environment may present substantial danger to the public health or welfare or the environment." In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-referenced SNURs also indicate that these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.
d. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.

4. EPA has informed Congress that it intends to set a Maximum Contaminant Level for PFOA and PFOS[6] under the Safe Drinking Water Act (SDWA), and stated that EPA "is also gathering and evaluating information to determine if a SDW A regulation is appropriate for a broader class of PFAS."

[6] https://www.epw.senate.gov/public/_cache/files/f/c/fc854d2e-c57d-4e26-ace8-e067fbdbde06/907052B84EFCDC96899D1240F07BEFFA.2019-02-15-epa-response-to-sen-carper-re-pfas-003-.pdf

a. Do you agree that a National Primary Drinking Water Regulation for perfluorinated compounds that at minimum includes PFOA and PFOS should be promulgated by EPA? If not, please specifically explain why not.
b. Do you believe that, subject to the availability of appropriations, EPA should be required to include all PFAS chemicals for which there is an EPA-validated detection technology in its next Unregulated Contaminant Monitoring Rule (UCMR) in order to determine whether and where these other PFAS chemicals might be found in drinking water? If not, please specifically explain why not.
c. Since each UCMR by statute cannot include more than 30 contaminants on its list for monitoring, would you support excluding the PFAS chemicals described in a) from that cap in order to maximize occurrence data on PFAS without preventing EPA from requiring monitoring to be undertaken on other important potential drinking water contaminants? If not, please specifically explain why not.
d. Should EPA be provided with clear authority to regulate sub-classes of PFAS chemicals (for example, groups of PFAS chemicals with similar chemical structures and modes of action on the body) under the Safe Drinking Water Act? If not, please specifically explain why not.
e. Do you believe that EPA should be held to a statutory deadline for making regulatory determinations on whether to promulgate National Primary Drinking Water Regulations for PFAS chemicals about which the Agency has both toxicity information and occurrence data in drinking water? If not, please specifically explain why not.

Senator Capito:

5. On the question of CERCLA liability, how should Congress address the issue of stakeholders that either inadvertently processed materials contaminated with PFAS (e.g., paper recyclers processing waste food wrappers) or that were required by law or best industrial practices to utilize PFAS (e.g., airports that were required by the federal government to use aqueous film-forming foams containing PFAS)?

6. How can we link PFAS contamination at multi-use sites to particular industrial or government entities? For example, if a landfill has taken decades' worth of PFAS contaminated materials, from consumer and industrial sources, how should liability be considered – whether in statute or by the courts?

7. Are there adequate analysis technologies to identify particular PFAS chemistries to link contamination back to a particular industrial or government actor? If so, how many PFAS compounds have test methodologies adequate to identify a single compound or subclass of compounds out of the broader class of all PFAS?

8. Can an emphasis on hazard help inform a process for adding particular PFAS to the Safe Drinking Water Act and CERCLA that could be incorporated into statute?

Senator Sanders:

9. Do you believe the EPA's current response to nationwide PFAS contamination is sufficient? What specific steps could the EPA and Congress take to improve the federal response to PFAS contamination?

10. Do you believe that the State Revolving Loan Fund should be extended to cover drinking water infrastructure needs created by PFAS contamination? If so, how could communities benefit from such a policy change?

11. Are there currently unmet needs in addressing PFAS contamination in rural areas? If so, what are the impacts of those shortfalls? Do you believe that rural communities could benefit from additional funding for technical assistance to assist with PFAS contamination response?

Response:

1. There are several PFAS remediation and disposal technologies that have been implemented or are being demonstrated at the field-scale or bench-scale. A summary of these technologies has been developed by the Interstate Technology Regulatory Council.[7] EPA has sufficient information about these technologies to publish guidance, and EWG strongly supports Sec. 504 of S. 1507, which would require EPA to publish interim guidance on the destruction and disposal of PFAS.[8] EWG also supports Levin Amendment #352 to H.R. 2500, which will ensure that PFAS incineration is undertaken in a manner than does not release PFAS into the air.[9]
2. EWG strongly supports increased annual funding for the Defense Environmental Restoration Program. As you know, DERP receives about $3.6 billion in annual funding, and has projected that $27.3 billion is needed to complete environmental restoration projects.[10] However, this estimate does not include the expected costs of PFAS remediation, or the costs posed by other emerging contaminants. To meet this growing backlog of environmental restoration projects, EWG has urged Congress to double DERP spending.
3. EWG strongly supports the addition of PFAS subject to the SNURs to the Toxic Release Inventory. As you note, the substances covered by the SNURs clearly meet the standards Congress established the EPCRA because they known to be toxic, persistent, and tend to bio-accumulate. Furthermore, the draft toxicity assessments for Gen-X and PFBS[11] found that these PFAS chemicals have been linked to serious health problems and also meet the criteria established by Sec. 313(d). Section 102 of CERCLA allows EPA to designate as hazardous substances, "substances, which when released into the environment, may present substantial danger to the public health or welfare or the environment." As you

[7] *Available at* https://pfas-1.itrcweb.org/wp-content/uploads/2018/03/pfas_fact_sheet_remediation_3_15_18.pdf
[8] *Available at* https://www.congress.gov/116/bills/s1507/BILLS-116s1507rs.pdf
[9] *Available at* https://amendments-rules.house.gov/amendments/LEVIMI_052_xml625190951095l9.pdf
[10] *Available at* https://denix.osd.mil/derp/derp-home-documents/unassigned/fy2017-fast-facts/
[11] *Available at* https://www.epa.gov/sites/production/files/2018-11/documents/factsheet_pfbs-genx-toxicity_values_11.14.2018.pdf

note, the substances covered by the SNURs and subject to draft toxicity assessments have exhibited characteristics that may present substantial danger to public health or the environment and could be designated as hazardous substances.

4. EWG strongly supports provisions of S. 1507 that amend the Safe Drinking Water Act to require monitoring of all detectable PFAS under the next Unregulated Contaminant Monitoring Rule. In combination, Sec. 202 and Sec. 303 of S. 1507 will significantly increase our ability to detect the presence of PFAS in source and finished water, laying the groundwork for state and federal drinking water standards. EPA has used the agency's authority under SDWA, CERCLA, FIFRA, ECPRA and other statutes to regulate other categories, classes and subclasses of chemicals but has thus far failed to set standards for PFAS, subclasses of PFAS, or individual PFAS. Setting a deadline, as proposed in S. 1507, will help create a sense of urgency among regulators.
5. EPA strongly supports efforts to designate PFAS as a hazardous substance, as proposed in S. 638, the PFAS Action Act of 2019 and as proposed by Dingell-Kildee Amendment #537 to H.R. 2500. Furthermore, we support SA 417 to the S. 1570, which recognizes that civilian airports were required, by regulation, to use fluorinated foams. Furthermore, the manufacturers of fluorinated foams and PFAS chemicals have long been aware of the toxic, persistent, and bio-accumulative qualities of fluorinated foams but failed to disclose these risks.
6. EWG strongly supports efforts to designate PFAS as a hazardous substance, as proposed in S. 638 the PFAS Action Act of 2019 and as proposed by Dingell-Kildee Amendment #537 to H.R. 2500. As you know, CERCLA is designed to ensure that polluters contribute to the cost of remediation, including persons who own or operate a facility from which a hazardous substance was released, who arranged for disposal or treatment of a hazardous substance, or who own or operated a facility at which disposal occurred. However, CERCLA contains provisions limiting liability for certain parties, including farmers who have applied fertilizers, local governments who have involuntarily obtained contaminated properties (e.g. through bankruptcy or abandonment), parties who contributed very small amounts of waste, "innocent," and bona fide purchasers, and parties with limited ability to pay. In particular, Sec.107(o) of CERCLA exempts from liability some parties who generated or transported waste if they contributed "de micromis" amounts. What's more, Sec. 107(p) exempts certain parties who only contributed municipal solid waste to a listed site.
7. Yes. There are analytical techniques, such as liquid chromatography-mass spectrometry (LC-MS), that can link PFAS contamination back to a particular private or public actor.
8. Because PFAS are "forever" chemicals that tend to bio-accumulate in our blood and organs, PFAS chemicals which been linked to cancer, harm to reproductive system, or harm to the immune system, should be presumed to pose an unacceptable risk to human health. The bloom serum of one-fourth of Americans already exceeds "safe" levels established by scientists, so Congress must urgently address ongoing sources of PFAS contamination, including direct discharges of PFAS into air and water and consumer uses of PFAS as well as legacy contamination.
9. Although EPA's PFAS Action Plan is the agency's most comprehensive plan to date, the Action Plan does not include a single *requirement* to monitor PFAS, report PFAS discharges, address ongoing PFAS discharges and uses, or remediate legacy PFAS contamination. To address the PFAS contamination crisis, Congress should, at a

minimum: expand PFAS monitoring, as proposed in S. 1507; expand PFAS reporting, as proposed in S. 1507; subject PFAS air discharges to regulation under the Clean Air Act, as proposed by H.R. 2605; subject PFAS water discharges to regulations under the Clean Water Act, as proposed by Pappas amendment #665 to H.R. 2500; test sewage sludge for PFAS; end the importation of PFAS waste; phase out the use of PFAS in consumer products like food packaging, as proposed by Dingell Amendment #141 to H.R. 2500; end the approval of new consumer uses of PFAS; designate PFAS as a hazardous substance, as proposed in S. 638 and amendment #537 to H.R. 2500, develop guidance for the proposal disposal of PFAS waste, as proposed in S. 1507; ensure that PFAS incineration destroys PFAS, as proposed by Amendment #352 to H.R. 2500; and significantly increase funding for drinking water infrastructure through the clean water and safe drinking water revolving funds.

10. Yes. The cost of implementing a PFAS drinking water standard will place new financial burdens on communities, especially rural communities serving less than 10,000 residents. However, the costs of inaction – including health care costs – far outweigh the costs of needed drinking water infrastructure.
11. PFAS pollution has so far been disproportionally found in rural communities near military installations or near industrial sites, such as Saint-Gobain Performance Plastics. EWG has identified more than 700 sites that are contaminated with PFAS, including more than 200 military installations that are predominantly in rural areas. Since many rural communities lack the resources or expertise to remove PFAS from contaminated drinking water, Congress should increase both financial and technical assistance.

Senator BARRASSO. Thank you very much for your testimony, Mr. Faber. We're very grateful.

Mr. Mehan.

STATEMENT OF G. TRACY MEHAN III, EXECUTIVE DIRECTOR, AMERICAN WATER WORKS ASSOCIATION

Mr. MEHAN. Thank you. Good morning, Chairman Barrasso, Ranking Member Carper, and members of the Committee. My name is Tracy Mehan, I am Executive Director of Government Affairs for the American Water Works Association, or AWWA, on whose behalf I am speaking today. I appreciate this opportunity to offer AWWA's perspectives on the many pressing issues surrounding PFAS.

Let me first of all say that this is a congenial environment for me. This Committee had confirmed my nomination as Assistant Administrator for Water back in 2001, so this is a congenial environment.

I also want to thank the Committee, the entire Committee, for their support in reauthorizing the Drinking Water State Revolving Loan Fund, as well as doubling the authorized amount for that fund, as well as putting RIFIA, the new Federal credit program for water infrastructure, on a permanent footing. We are most grateful for that support for what is maybe the greatest single threat to the public health of the United States and the drinking water sector.

AWWA's 50,000 members represent the full spectrum of water utilities, small and large, rural and urban, municipal and investor owned. I speak not only from the perspective of AWWA, but as a former State and Federal regulator, an adjunct professor of environmental law and a cancer survivor. Our members are really the most customers facing of anyone dealing with this issue day and deal every day with their customers in hopefully an honest, truthful, and straightforward way as to what we know and what we don't know about the various risks facing our drinking water systems.

Drinking water utilities and State environmental agencies need to know where to focus monitoring resources to understand what risks may be in source waters. This is a key part of what we call source water protection. There are existing tools that EPA could be using to a greater degree to help address such concerns regarding PFAS. In particular, as mentioned by Lisa, the Toxic Substances Control Act, or TSCA, deploying these authorities in the service of safe drinking water is source water protection at the most strategic level.

Working with EPA's technical staff, which we heartily encourage, we agree that we need an all hands on deck approach, and TSCA is probably one of the biggest hands to use. We urge Congress to ensure that EPA takes advantage of such existing authorities under TSCA to manage risks posed by PFAS compounds. Using this authority, the agency needs to provide a report in one year and update it every 2 years, describing the location of current and past PFAS production, import, processing, and use in the United States for individual PFAS compounds, based on the data collected through TSCA. We have tried to get some of this information, and it is not that easy, although we believe it is there. Appropriate ac-

tions should also be planned or taken under TSCA to restrict production, use and import of PFAS and support improved risk communications with the public. Actions taken by other Federal agencies, in particularly the Departments of Defense and Human Health Services to address PFAS concerns should also be reported upon.

Finally, statutory and non-statutory barriers encountered in gathering and distributing information on PFAS in order to inform risk management decisions by EPA, States, and local risk managers, should be included.

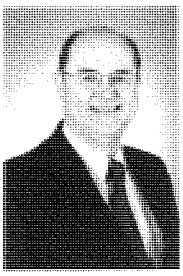
EPA officials promised to issue a proposed regulatory determination of PFAS and PFOA under the Safe Drinking Water Act processes this year. We urge Congress to support EPA's Office of Water, particularly in appropriations, as it works through the rule determination process.

With regard to Federal drinking water standards setting process, we understand that it is frustratingly slow. However, a scientific risk based and data driven process that discerns what substances are to be regulated and at what levels is indeed going to take a significant amount of time and resources. We caution against setting a precedent by bypassing these established processes via legislative action. The Nation tested that approach with the 1986 amendments to the Safe Drinking Water Act with untoward results. There is an appendix to my written testimony which sets out some of the concerns and problems that relate with that. I would be happy to discuss that.

That said, we are eager to follow the data on PFAS wherever it goes, and we will work with our members to comply with whatever regulations are forthcoming. Believe me, the biggest concern we face is the trillion dollar need to replace and expand our water infrastructure. Water rates are going up at maybe 3 percent higher than the CPI. We have additional costs now with lead service line replacements. So we need to make smart decisions so we do not mis-deploy resources going after less risky challenges than the ones we already know.

Thank you very much, Mr. Chairman.

[The prepared statement of Mr. Mehan follows:]



G. Tracy Mehan, III
Executive Director, Government Affairs
American Water Works Association

G. Tracy Mehan, III is Executive Director, Government Affairs, for the American Water Works Association (AWWA). He was an independent consultant and served as Interim President of the U.S. Water Alliance and national Source Water Protection Coordinator for the U.S. Endowment for Forestry and Communities. He is also an Adjunct Professor at the Antonin Scalia Law School at George Mason University and Carnegie Mellon University's Heinz College. He was Principal with The Cadmus Group, Inc., an environmental consulting firm, from 2004 to 2014. Mehan served as Assistant Administrator for Water at the U.S. Environmental Protection Agency from 2001-2003. He served as Environmental Stewardship Counselor to the 2004 G-8 Summit Planning Organization (2004). Mehan also served as director of the Michigan Office of the Great Lakes (1993-2001) and as Associate Deputy Administrator of EPA in 1992. He was director of the Missouri Department of Natural Resources from 1989 to 1992. Mehan is a graduate of Saint Louis University and its School of Law. Mehan served on the Water Science and Technology Board and now the Committee on the Mississippi River and the Clean Water Act for the National Research Council of the National Academies. He was also an independent expert judge for the City Water Conservation Achievement Award program (2006 & 2011) sponsored by The U.S. Conference of Mayors and its Urban Water Council.

Mehan is a member of the Environmental Law Institute (ELI) and a regular book reviewer for ELI's flagship publication, The Environmental Forum.

Mehan served on EPA's Environmental Financial Advisory Board (2014-2018) as well as the boards of the U.S. Water Alliance and the Great Lakes Observing System. He is also a member of the Advisory Board of the Center for Environmental Policy, School of Public Affairs, American University and a past member of the board of the Potomac Conservancy (2006-2014).

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Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)

Presented by
G. Tracy Mehan, III
Executive Director, Government Affairs
American Water Works Association

Before the Senate Committee on Environment and Public Works
May 22, 2019

Good morning, Chairman Barrasso, Ranking Member Carper, and members of the committee. My name is Tracy Mehan, and I am Executive Director for Government Affairs for the American Water Works Association, or AWWA, on whose behalf I am speaking today. I appreciate this opportunity to offer AWWA's perspectives on the many issues surrounding per- and polyfluoroalkyl substances, or PFAS.

AWWA's 50,000 members represent the full spectrum of water utilities – small and large, rural and urban, municipal and investor-owned. We are an international, non-profit, scientific and educational society dedicated to protecting public health through the provision of safe drinking water. While AWWA is primarily a drinking water association, about 60 percent of our utility members are dual utilities, that is they have a division of drinking water and a division of

wastewater and possibly stormwater as well. I speak not only from the perspective of AWWA, but as a former state and federal regulator and an adjunct professor of environmental law.

AWWA would like to bring to the committee's attention several issues regarding PFAS. We understand the committee's concerns that PFAS compounds may pose both human health and ecological risks that warrant greater attention and management. The number of bills introduced regarding PFAS and the variety of issues they address illustrate the breadth of concern over these compounds.

PFAS compounds are a group of more than 3,000 man-made chemicals manufactured in the United States and other countries since the 1940s. The U.S. Environmental Protection Agency (EPA) reports that more than 1,200 PFAS compounds have been used in commerce, and that about 600 are still in use today. They may be found in food packaging, non-stick products, stain- and water-repellent products, fire-fighting foams, polishes, cleaning agents and other commercial products. The most well-known and common of these compounds are perfluorooctanoic acid (PFOA) and perflurorooctane sulfontate (PFOS). Related compounds are also causing concern: perfluorononanoic acid (PFNA), perfluorohexanoic acid (PFHxA), perfluorohexanesulfonic acid (PFHxS), perfluorodecanoic acid (PFDA), perfluorobutanesulfonic acid (PFBS) and fluoropolymers made through the process known as GenX. Much of our current data is focused on legacy PFAS compounds that are no longer manufactured, such as PFAS and PFOA.

Currently 12 states have policies in place regarding PFAS compounds and drinking water, with three more developing policies. Also, 17 states have source water protection policies for PFAS, and at least one more state is developing such policies. One state, New Jersey, has a maximum contaminant level, and several have MCLs in development.

Use of Existing Authorities to Address PFAS

Drinking water utilities and state environmental agencies need to know where to focus monitoring resources to understand what risks may be in source waters. We need to know where PFAS compounds have been produced and in what volumes. There are existing tools that EPA could be using to a greater degree to help address such concerns regarding PFAS. In particular, there is the Toxic Substances Control Act (TSCA). TSCA has data-gathering authority that the agency could use to garner more information from the manufacturing sector about the number of PFAS compounds that have been developed, in what quantities they were produced and where they were produced. TSCA data indicates that manufacturers have already discontinued the use of a number of PFAS compounds, but state and local risk managers need more information than is currently available to manage legacy compounds and proactively manage PFAS that are currently in use. Deploying TSCA authorities in the service of safe drinking water is "source water protection" at the strategic level.

Utilizing its oversight authority over federal agencies, we urge Congress to work closely with EPA career staff to ensure that the agency takes advantage of existing authorities under TSCA and the Safe Drinking Water Act to manage risks posed by PFAS compounds. Using such authorities, the agency needs to:

- provide a report in one year and update it every two years describing
    - the location of current and past PFAS production, import, processing and use in the United States for individual PFAS compounds based on data collected through TSCA;

- appropriate actions taken or planned under TSCA to restrict production, use and import of PFAS and support improved risk communications with the public;
- actions taken by other federal agencies, and in particular the departments of Defense and Health and Human Services, to address PFAS concerns; and
- summarizes statutory and non-statutory barriers encountered in gathering and distributing information on PFAS in order to inform risk management decisions by EPA, states and local risk managers.

We understand the significance for designating some PFAS compounds as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). However, we must flag some unintended consequences of such actions that need to be evaluated.

Wastewater utilities receive and treat water from a range of sources from homeowners to industries. That water may contain PFAS compounds. Even though they are not the source of these compounds, wastewater or stormwater utilities could end up liable for cleaning up these substances. If biosolids from wastewater treatment plants have been applied to land as fertilizer, such liability increases. Removing PFAS from wastewater requires advanced technologies, such as granular activated carbon, ion exchange or reverse osmosis. Then, as with advance drinking water treatment techniques, there is the issue of how to dispose of the concentrated PFAS mix.

The Clean Water Act (CWA) comes into play as well. Information gleaned via TSCA to target assessments of PFAS in the environment will assist development of industrial pre-treatment actions under that act. CWA authority will also come into play in the development of analytical

methods for PFAS in industrial wastewaters and in development of appropriate and reliable treatment methods.

PFAS Action Plan

EPA released its PFAS Action Plan earlier this year. While we saw some positive steps promised in that plan, we believe authorities exist for federal entities to do even more. Agency officials have provided briefings on that plan, so I will not repeat it in detail. EPA officials promised progress under the Safe Drinking Water Act's (SDWA's) process for developing drinking water standards, beginning with making proposed regulatory determinations for PFOA and PFOS this year. We urge Congress to support EPA's Office of Water, particularly in appropriations, as it works through the rule determination process. It was monitoring under the SDWA's unregulated monitoring requirements that set the stage for the current PFAS policy debate. EPA will require a second round of monitoring for additional PFAS in the upcoming fifth round of the Unregulated Contaminant Monitoring Rule. In late April, EPA proposed interim clean-up guidelines for PFOA and PFOS under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA). EPA also has a process under way to determine if PFOA and PFOS can be listed as hazardous substances under CERCLA. Equally important, EPA committed itself to improving risk communication for PFAS compounds. Members of the public and policymakers such as yourselves are understandably concerned about the unknown risks associated with a group of contaminants that is both manmade and is seemingly an avoidable risk. Effective risk communication is significant to addressing these concerns.

With regard to the federal drinking water standard setting process, we understand that this process can be frustratingly slow. However, a scientific, risk-based and data-driven process that discerns what substances are to be regulated, and at what levels, is indeed going to take a

significant amount of time. We caution against setting a precedent of by-passing these established processes via legislative action. The nation tested that approach with the 1986 Amendments to the SDWA with untoward results (see attached appendix). That said, we are eager to follow the data on PFAS compounds wherever it may go in the investigative process so that we may know how to best protect public health. We will then prepare our members to comply with any new regulations.

Removing PFAS compounds from water typically requires treatment techniques such as filtration through granular activated carbon or ion exchange. While these advanced technologies can be effective, they are also expensive, and generate waste streams that require specialized disposal methods that are not readily available across the country.

AWWA members are looking for a cohesive risk management strategy that addresses legacy compounds and ensures that current and future PFAS compounds are not a threat to the country's water supplies. We are concerned that states are considering MCLs for PFAS compounds over a range of values that will have markedly different treatment implications, sometimes without adequate benefit-cost analysis. This makes intelligible, accurate, defensible risk communication impossible. Drinking water standards are part of a holistic risk management strategy.

In our 2012 study, Buried No Longer, AWWA determined that the United States needs to spend about $1 trillion over 25 years to maintain and expand our current level of water service. Therefore, over time, regulatory actions needs to be prudently implemented to avoid aggravating affordability issues for customers, particularly those with low incomes. AWWA's biennial rate survey found that during the period between 2016 and 2018, charges increased 7.2% for water and 7.5% for wastewater, outpacing inflation by 3 percentage points. This follows

a larger trend, whereby water rates have more than doubled the pace of inflation since 2014. Water systems across the United States are striving to provide the best water quality possible at a reasonable cost to their customers. Investing in a treatment requirement based on inadequate information can leave fewer resources to address other known risks, such as failing infrastructure or lead service line replacement.

Research

Research is key in addressing PFAS. The lack of health effects data on substances such as PFAS compounds has long held back regulatory determinations under the SDWA. Before a substance can be regulated, the SDWA requires that it "is known to occur or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern; and in the sole judgment of the Administrator, regulation of such contaminant presents a meaningful opportunity for health risk reduction for persons served by public water systems."

Last year the Agency for Toxic Substances and Disease Registry observed "The toxicity of perfluoroalkyl compounds, particularly PFOA and PFOS, has been extensively evaluated in humans and laboratory animals. However, comparison of the toxicity of perfluoroalkyls across species is problematic due to differences in elimination half-lives, lack of adequate mechanistic data, species differences in the mechanism of toxicity for some endpoints, and differences in measurement of exposure levels between epidemiology and experimental studies. Substantial differences in the rate of elimination of perfluoroalkyls exist across species. ... The mechanisms of toxicity of perfluoroalkyl compounds have not been fully elucidated." In this report, ATSDR was only able to propose reference doses for four out of fourteen of the more extensively studied PFAS compounds.

Research to provide information necessary to make informed risk management decisions is expensive and has been inadequately funded. Dr. Linda Birnbaum, director of the National Institute of Environmental Health Sciences and the National Toxicology Program, pointed to this fact last fall when she testified to the Senate Committee on Homeland Security and Government Affairs, saying "While we have studies that indicate adverse health effects due to PFOA and PFOS exposure, we do not have strong data on which to base conclusions for the great majority of thousands of PFAS and we have only limited findings that support the following adverse health effects.

"PFAS" is a grouping of chemicals with a large array of chemicals with different structures and thus different chemical properties that impact developing analytical methods, their fate in the environment, the effectiveness of different treatment technologies, as well as how they degrade (and into what). To effectively manage PFAS the environmental engineering community need information to guide design and operation of treatment technologies. In particular research is needed to support quantification in environmental media and sustainable strategies for removal of PFAS of concern from waters and wastewaters.

Further research is needed in these areas:

- Health effects data to identify which PFAS compounds pose a human health risk;
- Analytical methods to quantify levels of PFAS compounds in environmental samples (natural waters, wastewaters, soil, finished water);
- Technologies to economically destroy PFAS compounds in wastes from drinking water and wastewater treatment so that these long-lived chemicals are not re-introduced into groundwater or surface waters; and
- Technologies to cost-effectively remove problematic PFAS compounds from drinking water and wastewaters to levels that do not pose public health concerns.

We urge Congress to ensure that the EPA and other relevant agencies or research bodies have the tools and resources they need to answer the needs listed above.

Setting Achievable Expectations

It is important that the Committee request and examine technical and economic analysis from career staff at EPA before proceeding with any legislation to regulate PFAS compounds. For example, the Safe Drinking Water Act framework does not require a binary decision between setting standards for individual compounds one-by-one, and requiring treatment for all "PFAS" as a class. Taking steps to control PFAS exposure will shift public resources from other essential tasks. To do so warrants understanding the practical implications of legislative language. AWWA recommends the Committee allow EPA to develop regulations and guidance that target steps that provide a meaningful opportunity for health risk reduction.

AWWA and water systems across the United States are committed to providing high-quality drinking water and protecting consumers from demonstrable risks. To assure that PFAS risks are effectively and efficiently reduced, these compounds must be properly addressed within the scientific framework of the SDWA. Water systems also need Congress to work with EPA to ensure that the agency has the funding to properly execute its work under all of the available statutes to protect our nation's water resources.

Finally, I want to note that AWWA and the Centers for Disease Control and Prevention recognized "Drinking Water Week" early this month. The theme this year was, "Protect the Source." I hope that the discussions at this hearing and the discussions this hearing generates

will help us all do more to protect our sources of drinking water from substances posing a threat to human and environmental health.

G. Tracy Mehan, III

G. Tracy Mehan, III, became AWWA's Executive Director for Government Affairs in August 2015. Before that, he was a principal with The Cadmus Group, Inc., an environmental consulting firm. Mehan served as Assistant Administrator for Water at the U.S. Environmental Protection Agency from 2001 to 2003, directing both the Safe Drinking Water Act and Clean Water Act programs. He developed new policies and guidances on watershed-based permitting and water quality trading. He also promoted and expanded ambient water quality monitoring and innovative approaches to meeting the challenge of the infrastructure financing gap. Mehan served as director of the Michigan Office of the Great Lakes (1993-2001) and as Associate Deputy Administrator of EPA in 1992. He served as director of the Missouri Department of Natural Resources from 1989 to 1992, managing the state's environmental, parks, historic preservation, geology and other programs. He represented Missouri in all negotiations over the management of the Missouri River. Mehan is a graduate of Saint Louis University and its School of Law. Mehan is an adjunct professor in environmental law at George Mason University School of Law.

What is the American Water Works Association?

The American Water Works Association (AWWA) is an international, nonprofit, scientific and educational society dedicated to providing total water solutions to protect public health and assure the effective management of water. Founded in 1881, the association is the largest organization of water professionals in the world.

Our membership includes more than 3,900 utilities that supply roughly 80 percent of the nation's drinking water and treat almost half of the nation's wastewater. Our 50,000 members represent the full spectrum of the water community: public water and wastewater systems, environmental advocates, scientists, academicians, and others who hold a genuine interest in water, our most important resource. AWWA unites the diverse water community to advance public health, safety, the economy, and the environment.

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Appendix to prepared statement by G. Tracy Mehan, III.

"The statute should be amended to eliminate the requirement that National Primary Drinking Water Regulations be established for 25 new contaminants every three years. Instead, new regulated contaminants would be selected based on whether their health risk, occurrence, and comparative risk from other exposure pathways warrant regulation."

- Prepared statement from June Swallow, former Director of the Rhode Island Department of Health's Division of Drinking Water Quality, Senate Committee on Environment and Public Works, 1993

"The 1986 Amendments to the SDWA require EPA to issue national primary drinking water regulations for 83 specified contaminants and for 25 additional contaminants every three years. This rigid "25 every 3 years" statutory requirement outpaces the Agency's ability to critically assess whether there are public health threats posed by thousands of contaminants that may appear in drinking water before developing regulations. Under the present statutory scheme, future regulations may not be aimed at the highest priority public health risks, potentially increasing the already significant regulatory burden on EPA, the States and public water systems with only marginal benefits. In time of constrained resources, EPA needs the flexibility and time to select contaminants for regulation that pose real public health risks. As an alternative to the "25 every 3 years" mandate, the Administration recommends that EPA more thoroughly evaluate public health risks before regulations are developed."

- Prepared statement from Robert Perciasepe, EPA Assistant Administrator for Water, House Subcommittee on Environment, Energy, and Natural Resources, 1994

"The current requirement to regulate 25 new contaminants every 3 years needs to be replaced with a scientifically defensible, risk-based approach. The current regulatory treadmill dilutes limited resources on lower priority contaminants, and as a consequence may hinder more rapid progress on high priority

contaminants. A new selection process should maintain a mandatory duty to collect data, conduct research, and make publicly accountable decisions on whether or not regulations are needed. This approach would be less rigid than the "25 every 3 years" requirement from the 1986 SDWA amendments, but would not revert to the pre-1986 policy, which failed to ensure timely research and contaminant selection."

- Prepared statement from Robert Perciasepe, former Assistant Administrator for the EPA Office of Water, House Subcommittee on Health and Environment, 1996

American Water Works Association

Dedicated to the World's Most Important Resource

Senate Committee on Environment and Public Works
Hearing entitled, *"Examining legislation to address the risks associated with per- and polyfluoroalkyl substances (PFAS)"*

May 22, 2019

Questions for the Record for Mr. Mehan

Chairman Barrasso:

1. During the hearing, you stated that American Water Works Association (AWWA) is "concerned that states are considering [maximum contaminant levels] for PFAS compounds over a range of values that will have markedly different treatment implications, sometimes without adequate benefit-cost analysis." You went on to explain that "[t]his makes intelligible, accurate, defensible risk communication impossible."

   When one state sets the maximum contaminant level (MCL) at one level and other states sets MCLs at different levels, clear communication to the public about the safety of its drinking water becomes impossible. When regulatory agencies arrive at differing MCLs, it's apparent that their cost-benefit assessments are based on different data or values or are non-existent.

   Is EPA able to address this challenge to risk communication in the absence of a national primary drinking water regulation for one or more PFAS compounds? If so, how?

   When one state sets drinking water treatment requirements at one level and other states sets different levels, the public does not understand why one state's standard is different from another. Moreover, the first point-of-contact citizens have, the local water utility and local governing bodies, were not part of the state decision-making process and are not equipped with the tools to support clear risk communication. This situation becomes particularly difficult when state risk assessments rely on different assumptions and safety factors, even though they are developed contemporaneously. At present, AWWA is not aware of any PFAS drinking water levels that have been developed utilizing a robust benefit-cost analysis. Consequently, the public does not understand the distinction

between a conservative public health goal and considered steps appropriate for effective risk management.

2. During the hearing, you testified that Congress must consider "the question of misdirection of resources, what are the opportunity costs of [requiring EPA to issue a national primary drinking water regulation for PFAS] as opposed to dealing with…risks like lead, disinfection byproducts, etc."

   As Congress considers legislation directing EPA to issue a national primary drinking water regulation for one or more PFAS compounds, what steps can it take to ensure that it does not repeat the mistakes in the 1986 amendments to the Safe Drinking Water Act?

   Congress could provide funding for research needed to determine health effects and occurrence of PFAS compounds. This could help prevent the temptation to regulate via legislation on a contaminant-by-contaminant basis, which would be an imitation of the failed methodology of the 1986 Amendments to the Safe Drinking Water Act.

3. During the hearing, you indicated that some water organizations might support designating some PFAS compounds as "hazardous substances" under CERCLA "as long as there is an exemption for water and wastewater utilities."

   The National Association of Clean Water Agencies (NACWA) and the Water Environment Federation (WEF) have written: "Should the Committee and Congress move to designate all PFAS (as proposed in S. 638) or a select subset of PFAS chemicals as hazardous substance under CERCLA, NACWA and WEF strongly urge the inclusion of clear, unambiguous statutory language excluding municipal wastewater residuals from potential CERCLA liability." These two water organizations explained that "a CERCLA designation for PFAS could potentially open liability for public clean water utilities that have been beneficially land applying their biosolids for decades."

   Does AWWA take the same position as that of NACWA and WEF on S. 638? If not, what is AWWA's position on S. 638?

   Yes. Many of our member utilities are dual utilities, in that they provide drinking water and wastewater services to the same customers. Wastewater utilities are not the source of PFAS contamination, but could find themselves held liable without such exemptions. The costs of such findings would be borne by those local ratepayers.

4. When EPA establishes a national primary drinking water regulation for a drinking water contaminant, how does this affect a water utility?

   Establishing a national primary drinking water regulation triggers a series of actions for all public water systems (PWSs) to which EPA makes the regulation applicable. First, PWSs must assess if the contaminant is present at a level requiring additional treatment. Regardless of whether additional treatment is needed, the water system must also initiate

appropriate monitoring for the contaminant(s) based on the regulation's requirements and report those results to the primacy agency.

If the contaminant is present at a level that is not reliably below that required by the regulation, the water system will:

- Conduct monitoring and special studies to determine what mitigation steps are needed. Steps identified could be abandoning sources of supply, modifying current treatment processes or installing additional treatment.
- Actual facility improvement planning will require engineering evaluations, design, fiscal planning and permitting.
- If the necessary improvements can be accomplished within the water system's financial means, then the system will proceed to procurement and construction;
- Assuring adequate financing may require water rate increases or initiating other managerial steps, such as a merger with another water system.
- Throughout this process the water system will need to maintain an ongoing dialogue with its customers so that they understand the approach being pursued, why the investments are being made and the financial implications of those improvements on them as ratepayers.
- Meeting strict regulatory deadlines can force water systems to revisit the timing of other priority infrastructure investments. Given limited available resources, water systems may delay replacement of aging infrastructure, expansion of service to support economic development or making near-term expenditures necessary for long-term sustainability, such as investments in business systems.
- If the water system does not meet deadlines and requirements in the regulation, it must meet the rule's public notification requirements so that the public is appropriately informed of those failures.
- One aspect of meeting regulatory deadlines is obtaining adequate funding. Major infrastructure investment, such as that needed for new treatment technologies, may require more capital in the short term than can rates can provide. That is when water systems must choose between financing options such as municipal bonds, the state revolving loan fund, the Water Infrastructure Finance and Innovation Act program, public-private partnerships, public-public partnerships or assistance from the Department of Agriculture's Rural Utilities Service program. If a utility already has a substantial debt load, this can get complicated.

5. What technologies currently exist to treat PFAS contamination in drinking water and wastewater?

What treatment technology is appropriate depends on the PFAS compounds present, local water quality characteristics, existing infrastructure and financial constraints. EPA has prepared a summary of treatment technologies and their relative effectiveness treating PFOA and

PFOS.[1] At present the technologies with demonstrated ability to remove PFAS compounds are ion exchange, granular activated carbon (GAC), and reverse osmosis. Depending on the PFAS compounds targeted for treatment a combination of these treatments may be necessary. Also, as groundwater systems introduce advanced treatment for PFAS, other treatment may be necessary (e.g., additional or different treatment for corrosion control due to water quality changes due to PFAS treatment).

a. How much do these technologies cost and who would incur these costs?

Costs will vary according to the types and amounts of PFAS compounds that need to be removed, the size of the treatment facility and other water quality characteristics. Treatment processes result in waste products that the water system must dispose of. When the treatment process concentrates a contaminant in a media such as GAC or ion exchange resin such that it meets the definition of a hazardous waste, it must be disposed of as such, with the associated precautions and cost. Processes such as reverse osmosis create concentrated liquid waste streams known as brine that must be disposed of as well. Such brines as typically discharged through National Pollutant Discharge Elimination System permits or injected into wells managed through Underground Injection Control program permits. Again, such disposal has both permitting requirements and implementation costs, when they are in fact feasible.

As noted above, applicability and cost are very site specific. A report prepared by Black and Veatch in 2018 illustrates the range of costs one system considered as it evaluated GAC, anion exchange (IX), and membrane filtration. This analysis for Cape Fear Public Utility Authority provides a planning level comparison of each technology with respect to capital and annual costs. The table below taken directly from the report.

Cape Fear Public Utility Authority | ALTERNATIVES EVALUATION REPORT

Table 5-1 Cost Summary for 44 MGD Treatment Plant

	POST-FILTER GAC CONTACTORS	POST-FILTER IX VESSELS	POST-FILTER REVERSE OSMOSIS
Capital Cost (+50%/-30%)	$46M	$46M	$150M
Annual O&M Cost	$2.7M	$2.1M	$4.7M
34 Year Present Value	$196M	$176M	$504M

[1] EPA, Drinking Water Treatability Database, last accessed June 17 at https://iaspub.epa.gov/tdb/pages/contaminant/treatmentSummary.do;jsessionid=FCtorndnmzKv_czGBPaJNfGVfW90ILCEj8f7nv7GizABI28Q9w9p!-185947653

Another community, also on the Cape Fear River, Brunswick County, is investing $90 million for treating 40 million gallons of water per day using reverse osmosis. As stated above, the costs of additional treatment are borne by local ratepayers.

6. If Congress pursues legislation directing EPA to issue a national primary drinking water regulation for one or more PFAS compounds under the Safe Drinking Water Act, what should the legislation include to help water utilities comply with such a regulation?

Increased funding for the SRF and WIFIA programs, protection of the tax exempt status of municipal bonds if Congress brings up tax legislation again, more research and development resources to help bring down the cost of detection and treatment, realistic timelines for compliance, and more research resources to determine human health effects from these compounds.

Ranking Member Carper:

7. EPA has issued several Significant New Use Rules (SNURs) for PFAS using its Toxic Substances Control Act authority.

   One[2] of these SNURs was issued for perfluoroalkyl sulfonates (like PFOS), and was added to at least once. EPA said that it had promulgated the SNUR because "these chemical substances may be hazardous to human health and the environment," saying further that they added these chemicals because "EPA believed the action was warranted given the similarity of these chemicals to those currently included in 40 CFR 721.9582[3] and the strong likelihood of similar health and environmental concerns, as discussed in Unit III. of the March 10, 2006 document" and that "EPA has concerns regarding adverse human health and environmental effects of PFAS. It is highly persistent in the environment, it tends to bioaccumulate, and it is toxic. In its voluntary phase-out of perfluorooctane sulfonate (PFOS) and PFOS-related products, the 3M Company, which had been the sole U.S. manufacturer of the chemicals, committed to stop production of all perfluoroalkyl sulfonic acid products with alkyl chain lengths of C8 or greater. 3M completed its phase-out of PFOS production in 2002, which led to a significant reduction in the use of all PFAS-related substances.....As described in Unit III of the proposed SNUR, EPA has concerns regarding the reproductive and subchronic toxicity, persistence, and bioaccumulative potential of the chemical substances that are included in this SNUR. These concerns lead the Agency to believe that humans and the environment could suffer adverse effects from their use. Any use of these PFAS chemicals would continue to add to the reservoir of perfluoroalkyl sulfonic acids (PFASA) in the environment, resulting in additional human/ environmental exposure. There is evidence that PFAS-containing chemicals degrade to perfluoroalkyl sulfonic acids (PFASA), which exist in the anionic form in the environment, or to PFASA precursors."

   The second[4] SNUR EPA issued was for long-chain perfluoroalkyl carboxylate

[2] https://www.govinfo.gov/content/pkg/FR-2007-10-09/pdf/E7-19828.pdf
[3] https://www.govinfo.gov/content/pkg/CFR-2011-title40-vol31/pdf/CFR-2011-title40-vol31-sec721-9582.pdf
[4] https://www.govinfo.gov/content/pkg/FR-2015-01-21/pdf/2015-00636.pdf

substances, and was also amended at least once. This SNUR was for PFOA and PFOA-like substances. In the rule, EPA observed that "PFOA is persistent, widely present in humans and the environment, has long half-lives in humans, and can cause adverse effects in laboratory animals, including cancer and developmental and systemic toxicity (Refs. 11, 12, 13, 14, and 15). PFOA precursors, chemicals which degrade or may degrade to PFOA, are also present worldwide in humans and the environment and, in some cases, might be present at higher concentrations than PFOA and be more toxic (Refs. 16, 17, 18, 19, and 20). PFOA higher homologues are chemicals with carbon chain lengths longer than PFOA. Available evidence suggests that toxicity and bioaccumulation appear to be higher for chemical substances with longer carbon chain lengths compared to those with shorter chain lengths (Refs. 21, 22, 23, and 24)."

EPA has also issued two draft health assessments proposing safe thresholds of exposure for specific PFAS chemicals (GenX and PFBS) for public comment,[5] stating that "the available oral toxicity studies show that the liver is sensitive to GenX chemicals, and the kidney and thyroid are sensitive to PFBS." In its draft toxicity assessment[6] for GenX chemicals, EPA stated that it is working on five additional health assessments for PFAS that have not yet been released.

EPA has the authority to list chemical substances or categories of chemical substances on the EPA's Toxic Release Inventory, when, in the Administrator's judgement, there is sufficient evidence to establish any one of the following:

"(A) The chemical is known to cause or can reasonably be anticipated to cause significant adverse acute human health effects at concentration levels that are reasonably likely to exist beyond facility site boundaries as a result of continuous, or frequently recurring, releases.
(B) The chemical is known to cause or can reasonably be anticipated to cause in humans—
(i) cancer or teratogenic effects, or
(ii) serious or irreversible—
(I) reproductive dysfunctions,
(II) neurological disorders,
(III) heritable genetic mutations, or
(IV) other chronic health effects.
(C) The chemical is known to cause or can reasonably be anticipated to cause, because of—
(i) its toxicity,
(ii) its toxicity and persistence in the environment, or
(iii) its toxicity and tendency to bioaccumulate in the environment,
a significant adverse effect on the environment of sufficient seriousness, in the judgment of the Administrator, to warrant reporting under this section."

a. In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-

[5] https://www.epa.gov/sites/production/files/2018-11/documents/factsheet_pfbs-genx-toxicity_values_11.14.2018.pdf
[6] https://www.epa.gov/sites/production/files/2018-11/documents/genx_public_comment_draft_toxicity_assessment_nov2018-508.pdf

referenced SNURs also indicate that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.

AWWA views PFAS as a multi-media risk management challenge, and more over, a challenge that cannot be solely addressed through the Safe Drinking Water Act. It is not possible to assess environmental exposure to PFAS without using the full suite of statutory authorities available to EPA, including EPCRA. If EPA's Administrator judges PFAS compounds likely to be a risk appropriate to manage under the SDWA, then EPA should have an ample science policy basis for requiring collection of data through EPCRA in order to inform risk management.

b. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, EPA will have established that there is sufficient evidence to warrant TRI reporting? If not, please specifically explain why not.

See response to question 7.a.

c. Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Administrator has the authority to designate as a hazardous substance any "elements, compounds, mixtures, solutions, and substances which, when released into the environment may present substantial danger to the public health or welfare or the environment." In your opinion, do you believe that the range of concerns EPA determined existed for the PFAS chemicals that are subject to the provisions of the above-referenced SNURs also indicate that these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.

See response to questions 3 and 9.

d. In your opinion, do you believe that once EPA finalizes the health assessments for GenX and PFBS, these substances could be appropriately designated to be hazardous substances under CERCLA? If not, please specifically explain why not.

See response to questions 3 and 9.

8. EPA has informed Congress that it intends to set a Maximum Contaminant Level for PFOA and PFOS[7] under the Safe Drinking Water Act (SDWA), and stated that EPA "is also gathering and evaluating information to determine if a SDWA regulation is appropriate for a broader class of PFAS."

[7] https://www.epw.senate.gov/public/_cache/files/f/c/fc854d2e-c57d-4e26-ace8-e067fbdbde06/907052B84EFCDC96899D1240F07BEFFA.2019-02-15-epa-response-to-sen-carper-re-pfas-003-.pdf

a. Do you agree that a National Primary Drinking Water Regulation for perfluorinated compounds that at minimum includes PFOA and PFOS should be promulgated by EPA? If not, please specifically explain why not.

Under the SDWA, EPA must determine that there is a meaningful opportunity for a national primary drinking water regulation to protect public health. Moreover, the basis for the resulting regulation must be demonstrably sound through a transparent pubic record that is based in the best available science and an analysis that takes both costs and benefits into account.

AWWA does not prejudge where EPA's analysis of PFOA, PFOS or other PFAS compounds will lead. The drinking water community will take the steps expected, but because every dollar invested in public health protection to meet one objective is not available to meet other pressing objectives, we ask that Congress and EPA be certain that the regulations that are set be developed through a scientifically defensible process as described by the SDWA.

b. Do you believe that, subject to the availability of appropriations, EPA should be required to include all PFAS chemicals for which there is an EPA-validated detection technology in its next Unregulated Contaminant Monitoring Rule (UCMR) in order to determine whether and where these other PFAS chemicals might be found in drinking water? If not, please specifically explain why not.

The UCMR is an important and appropriate mechanism through which EPA can acquire a representative national distribution of PFAS compound occurrence. In its PFAS Action Plan, EPA indicated its intention to collect additional occurrence data on PFAS compounds. On July 16, EPA is to hold a stakeholder meeting and webinar on the analytical methods anticipated to be used in UCMR5, including a new method for PFAS compounds.[8,9] The new drinking water method will reliably quantify 26 PFAS compounds. There is partial overlap in analytes between the new method and the existing EPA analytical method, EPA Method 537.1. While EPA Method 537 has been improved since UCMR3, it is not clear without more information from EPA about the new analytical method as to whether analyzing PFAS under both methods is an appropriate use of resources.

c. Since each UCMR by statute cannot include more than 30 contaminants on its list for monitoring, would you support excluding the PFAS chemicals described in a) from that cap in order to maximize occurrence data on PFAS without preventing EPA from requiring monitoring to be undertaken on other important potential drinking water contaminants? If not, please specifically explain why not.

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[8] 84 FR 25026

[9] Presentation to EPA's Science Advisory Board, Andrew Gillespie et al., EPA's PFAS Action Plan, Downloaded June 17, 2019 at https://yosemite.epa.gov/sab/sabproduct.nsf/641909E2687CF845852583FD00584188/$File/McLain_Gillespie_+PFASBackground_ActionPlan_Research_SAB.pdf

There is substantial state and federal interest in the occurrence of PFAS compounds. If PFAS is sufficiently important to warrant the special focus given it by EPA, Congress, and individual states, perhaps it is sufficient for UCMR5 to focus on PFAS. Without the information EPA is expected to provide at its upcoming UCMR5 stakeholder meeting, judging whether other anticipated contaminant monitoring is warranted remains to be seen.

d. Should EPA be provided with clear authority to regulate sub-classes of PFAS chemicals (for example, groups of PFAS chemicals with similar chemical structures and modes of action on the body) under the Safe Drinking Water Act? If not, please specifically explain why not.

EPA has sufficient authority to regulate individual contaminants or groups of contaminants under the existing statute. The criteria for making that determination already captured within the current SDWA are sound and sufficient.

e. Do you believe that EPA should be held to a statutory deadline for making regulatory determinations on whether to promulgate National Primary Drinking Water Regulations for PFAS chemicals about which the Agency has both toxicity information and occurrence data in drinking water? If not, please specifically explain why not.

Setting timelines for action is an appropriate and frequent role in federal policy for Congress. This is a sound role for Congress with respect to drinking water regulatory policy. If Congress intends to set such a deadline for PFAS chemicals, then Congress must also appropriate adequate funding to support EPA in conducting the research and regulatory development processes needed to develop a sound regulation. While it is appropriate for Congress to set deadlines for agency decision-making processes, it is inappropriate for Congress to pre-judge the science policy determination or required a decision on a timeline that precludes making an appropriately informed decision.

9. The liability provisions of CERCLA provide for strict, joint and several liability. These provisions allow a liable party to argue in court that a different party should pay for remediation costs if the different party was responsible for or contributed to the contamination that required remediation. So, for example, if EPA found that a drinking water or wastewater utility was liable under CERCLA for PFAS contamination, the utility could argue that the industrial source that made or used the PFAS should actually pay for the remediation costs. During the hearing, you stated that a "hazardous waste designation under CERCLA would be appropriate as long as there is an exemption for water and wastewater utilities," which appears to run counter to the premise of the liability provisions of CERCLA.

I understand that water and wastewater utilities treating PFAS-contaminated water over past decades would not necessarily have been aware of the risks or presence of the

materials, but the same can be stated for almost every other user or handler of PFAS.

Carving out an exemption for wastewater and water utilities from CERCLA liability for PFAS compounds would not be novel. CERCLA has allowed for exemptions for innocent purchasers, bona fide prospective purchasers, de micromis contributors (Percival et al. 2013). It also has protections against lender liability and secured creditors who do not participate in management of a facility.

a. Are water and wastewater utilities exempt from CERCLA liability for the costs of remediating contamination from any other of the hundreds of CERCLA-designated hazardous substances? If so, which substance or substances?

We have not researched this question and do not know the answer.

b. The first CERCLA hazardous substance list included almost 700 substances, many of which were originally named by Congress in statute. Have any of these substances ever been found in drinking or waste water?

We have not researched this question and do not know the answer.

c. Please provide a list of each instance in which EPA has sought to hold a wastewater or drinking water utility liable for contamination under CERCLA, along with a brief description of the circumstances associated with each instance (i.e. the name and location of the utility, the contaminant, the date on which EPA's action was resolved, and whether EPA determined that the utility was knowledgeable or negligent when it contributed to or caused the contamination).

We have not researched this question and do not know the answer.

d. Has AWWA requested (from Congress or EPA) an exemption from CERCLA liability in the past? If so, please provide a list of each such instance, along with a description of the circumstances (reason for the request, date, and outcome).

To the best of our knowledge, no.

Senator Capito:

10. What sort of funding or technical assistance program would be of the greatest assistance to your members in addressing the challenges posed by PFAS contamination, particularly if there is a federal MCL?

Funding for research to support sound regulatory decision-making, increased funding for the SRF and WIFIA programs, and appropriate funding for state regulatory implementation and assistance programs.

However, we would also caution against putting funds in silos for specific contaminants. Communities that do not have PFAS problems, but have problems with aging infrastructure or other contaminants, could find themselves blocked out of the SRF or WIFIA if such funds are siloed. More research and development resources to help bring down the cost of detection and treatment would help as well.

11. Are there existing programs well-suited to this task? If not, what type of program would be of the greatest assistance?

The SRF, WIFIA and possibly the Rural Utilities Assistance program at USDA.

12. Are there regulatory mechanisms that would be appropriate as an "on-ramp" towards an MCL, to ensure that the EPA acts in a timely fashion while also addressing your concerns about designating the entire class?

There are no regulatory mechanisms to accelerate consideration of regulating PFAS compounds as one class.

13. What is the state of testing technologies for "whole fluorine" monitoring of drinking water?

AWWA's understanding is that at present the "whole fluorine" analytical method is not appropriate for monitoring PFAS as it also captures compounds that contain fluorine but are not PFAS. There is a method for oxidizable PFAS compounds. This method, while more appropriate than the whole fluorine analytical method, appears to be best suited to site-specific evaluations for site remediation or treatment evaluation rather than use in a regulatory construct.

Also, at present the analytical methodology has not been standardized and subjected to screening for robustness typical of commercially available, regulatory methods. Consequently, available laboratory capacity is limited.

14. What challenges are raised for your members by having the states develop their own MCLs and regulatory processes for PFAS in a piecemeal fashion?

When one state sets drinking water treatment requirements at one level and other states sets different levels, the public does not understand why one state's standard is different from another. Moreover, the first point-of-contact drinking water customers have, the local water utility and local

governing bodies, were not part of the state decision-making process and are not equipped with the tools to support clear risk communication. This situation becomes particularly difficult when state risk assessments rely on different assumptions and safety factors, even though they are developed contemporaneously. At present, AWWA is not aware of any PFAS drinking water levels that have been developed utilizing a robust benefit-cost analysis. Consequently, the public does not understand the distinction between a conservative public health goal and considered steps appropriate for effective risk management.

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Senator BARRASSO. Well, thank you very much for your testimony.

Thanks to the entire Committee.

We are going to now proceed with some questions.

I would like to start, Dr. White, visiting with you about, as EPA has said, it has initiated the regulatory development process for listing two specific PFAS substances, PFAS and PFOA, as hazardous substances under the Superfund law.

Does the American Chemistry Council support EPA's ongoing process of what they are talking about doing in this matter?

Ms. WHITE. Thank you, again, Senator Barrasso, for your question. ACC does support EPA's activities to review and determine whether or not PFAS and PFOA should be designated as hazardous substances under the CERCLA Act. Again, as a scientist, it has to be a science based process, that outlines and follows the science and the data that we would need to determine whether or not they actually would comply with that.

So as long as it is a science based process, ACC absolutely supports EPA's review and would like to see that expedited, so we can make a determination.

Senator BARRASSO. So if enacted, several of the bills, again for you, Dr. White, several of the bills that we are considering today would regulate all PFAS substances in the same manner. Would you help us understand some of the principal differences between chemicals within this class?

Ms. WHITE. Absolutely. As I mentioned from the very beginning of my testimony, all PFAS are different. They don't have the same hazard profile or environmental profile. For example, fluoropolymers are very large molecules that are usually not bioavailable and not water soluble. So again, you would not find them in drinking water, for example, and you would not see them having increased toxicity.

So you can't treat all of these PFAS chemistries the same. That is why you can't have a one size fits all approach. You really have to look at the scientific data that is relevant for each one of those chemistries, determine whether or not there is a potential human health risk, and then take action if there is.

Senator BARRASSO. Thank you.

Ms. Daniels, if I could turn to you. In some communities, PFAS is just one of the many known drinking water contaminants. Help us understand how the risks associated with PFAS compare to the risks associated with other drinking water contaminants. And you know what they are, we can go through them, lead, disinfection byproducts, legionella, a number of different things out there.

Ms. DANIELS. Sure, thank you for your question. Absolutely, there are other high priority contaminants out there that water systems and States are dealing with. In a lot of those cases, the risk is known. We know a lot about those chemicals. Legionella and other pathogens, microbial pathogens, have always been a big part of protection efforts, because you have acute health effects associated with those chemicals.

Legionella has been a challenge for us, and one of the concerns is if you are tracking water borne disease outbreaks through the CDC reporting, legionella has actually increased 550 percent since

2000 in terms of the number of outbreaks. So it is something we are very concerned about.

It is one of the reasons, in our testimony, that we talk about the fact that working on PFAS is taking work away from our core programs, which concerns us a little bit. Lead continues to be a major issue for States. I think we are doing what we can to really focus on lead in schools and lead in day care facilities as we await EPA to come out with their long-term revisions to the Lead and Copper Rule.

So having said that, PFAS is important to States; it is important to water systems. The challenge with PFAS, it is everywhere. It is everywhere. It is everywhere. I don't know that I have quite seen a contaminant like that, where you have to be so concerned when you are taking a sample, about cross-contamination. If you have deodorant on, if you have put lotions on that day, you have the potential to cross-contaminate that sample.

So when I think about PFAS, there absolutely has to be focus on an incremental reduction of getting those chemicals out of commerce because we can't just solve this as a drinking water issue.

Senator BARRASSO. Thank you very much.

Mr. Mehan, if I could just visit with you. In your testimony, you discuss the process to establish a national drinking water standard. You state caution against setting a precedent of bypassing these established precedents via legislative action. You say the Nation tested that approach in the 1986 amendments to the Safe Drinking Water Act with untoward results.

Could you explain what happened following those amendments in 1986 for some of us who weren't there at the time?

Mr. MEHAN. Right. At the time, I was running the Missouri Department of Natural Resources which had delegated primacy for the drinking water program. Under the 1986 amendments, essentially, EPA was mandated to put out 25 new MCLs every 3 years, I believe it was. So we were at the receiving end of this process. Staff couldn't quite explain to me what the risks were that were being addressed, but nonetheless, we had to go to our legislature, beg, borrow, and persuade to get a fee in place. Of course, the utilities didn't like that; the customers didn't like it. Nobody liked it, but we had to do it. Of course, then, there was just the rulemaking process and the cost.

So it was kind of a mess. There is also the question of misdirection of resources, what are the opportunity costs of this approach as opposed to dealing with real risks like lead, disinfection byproducts, et cetera, are the basic infrastructure of the utilities themselves.

In the appendix I have, I have a quote from June Swallow of the Rhode Island Department of Health, Lisa's predecessor at ASDWA, who basically excoriates the 1986 amendments and said instead, new regulated contaminants would be selected based on whether their health risk occurrence and comparative risk from other exposure pathways warrant regulation. There is also quotes from Bob Perciasepe, who you all know, who was running the Maryland agency at the same time I was running the Missouri agency. While he was at EPA, pretty much expanded on that criticism, in terms really of relative or comparative risk type of analysis.

So that was my lived experience with it, and I think it was shared by others who were in the trenches at that time.

Senator BARRASSO. Thank you very much.

Senator Carper.

Senator CARPER. Thanks, Mr. Chairman. I just want to commend, not just our panelists, but I want to commend our staffs. Sometimes we have before us witnesses that are majority witnesses, minority witnesses. You are all consensus picks, and I think early wisely chosen. So thank you for taking the time and preparing for this and for responding to our questions.

I think, Mr. Mehan, you indicated you had been in this room before. I suspect others have, too. But for those who are here on a return visit, welcome home.

Mr. MEHAN. Thank you.

Senator CARPER. It is good to see you all.

I am not a big one for yes or no questions, but I am going to do a few of those today. And I am going to do it by asking you to raise your hands if you disagree with a particular statement. I will go slowly and ask you to work with me on this if you will. We will see how it goes.

Please raise your hand if you disagree, if you disagree that some PFAS chemicals have been shown to be harmful to human health. Please raise your hand if you disagree that some PFAS chemicals have been shown to be harmful to human health.

I see no hands. Thank you.

Second question. Please raise your hand if you disagree, if you disagree, that there should be a Federal drinking water standard to regulate the harmful PFAS chemicals that are also found in drinking water. I will say it again. Please raise your hand if you disagree that there should be a Federal drinking water standard to regulate the harmful PFAS chemicals that are also found in drinking water. Please raise your hand if you disagree.

We have one who disagrees. Dr. White, thank you.

Mr. MEHAN. I would demure to the question, Senator, in that we do not support nor oppose. We commit to the process of making a regulatory determination of whether an MCL is needed.

Senator CARPER. OK.

Mr. MEHAN. Primarily for looking at the two prime suspects.

Ms. WHITE. I would also agree with what Tracy said, that you really have to make sure that you are following the regulatory process and using the science as the basis for making that determination.

Senator CARPER. OK, thanks.

You have an opportunity to raise your hand if you wish. Please raise your hand if you disagree that the public should be made aware of releases of harmful PFAS chemicals into the environment. Please raise your hand if you disagree that the public should be made aware of releases of harmful PFAS chemicals into the environment.

I see no hands. On the second question, we had two who spoke. I didn't see too many hands. But I had a couple people who spoke, and that was fine.

A fourth question would be, please raise your hand if you disagree that EPA should have the authority under the Superfund law

to require responsible parties to pay for the cleanup of harmful PFAS chemicals, or to clean up itself in cases where no responsible party can be found. I will say that one again. Again, please raise your hand if you disagree that EPA should have the authority under the Superfund law——

Mr. MEHAN. Again, Senator, it is not a question of being for or against. We understand the utility of a hazardous waste designation.

However, you have received a letter from actually several of our sister associations, AMWA, NACWA, and WIF, and one of the issues is the impact on biosolids application, on pre-treatment, on the wastewater side of the house. As I recall, the exact position of NACWA and WIF was that a hazardous waste designation under CERCLA would be appropriate as long as there is an exemption for water and wastewater utilities.

Senator CARPER. Fair enough.

Mr. MEHAN. Thank you.

Senator CARPER. I saw no other hands. I would like to go on.

Very briefly, Dr. White.

Ms. WHITE. I feel I should jump in here, just following onto what Tracy said. You really do have to follow what the CERCLA requirements are. So as long as those are followed, then yes. But it has to be based off the science, as outlined in CERCLA.

Senator CARPER. Fine. And finally, I tell you what. I am not going to ask this next raise your hand question, but I am going to go to something further. I know that there is more to providing input on legislation than just raising your hands. I appreciate that. Thank you for doing that for us. But to that end, I just want to ask each of you, just very succinctly, tell us what your top priority for PFAS legislation is. Just very succinctly, what would be your top priority for PFAS legislation?

Dr. White.

Ms. WHITE. My top priority is that it is science based, and based off the most relevant and best available science for those individual chemistries to make decisions.

Senator CARPER. You are on message, which is a good thing.

Ms. Daniels.

Ms. DANIELS. I would like to see additional legislation where it is needed to really enhance what can be done under TSCA. EPA talks about TSCA being the gatekeeper. Right now, I think the gate is wide open, and I am not even sure where the key is. So I think if we can take a look at the authorities under TSCA and see if anything else can be done to get some of that up front work first done, before these chemicals are already out in the environment and potentially in drinking water.

Senator CARPER. All right, thank you.

Mr. Scott Faber.

Mr. FABER. We think that we really need to kickstart the cleanup process, especially where communities are wrestling with very seriously contaminated drinking water supplies. And we also need to make sure that Federal facilities, especially DOD, take responsibility for their legacy pollution, so that the PFAS Action Act and the PFAS Accountability Act, we just want to assure that DOD does live up to its responsibilities would be our top priorities.

Senator CARPER. Just very briefly and succinctly, Mr. Mehan, the same question. Your top priority for PFAS legislation.

Mr. MEHAN. Reflecting both my written and oral comments, we need to get TSCA in the game more vigorously, and also respect the processes in the Safe Drinking Water Act.

Senator CARPER. All right, great. Thank you all very, very much.

I am going to slip out here and go solve the infrastructure problems of our Nation while the rest of you deal with an equally important issue of the PFAS and PFOA.

Thank you.

Senator BARRASSO. Thank you, Senator Carper.

Senator Capito.

Senator CAPITO. Thank you, Mr. Chairman, thank all of you for being here today. Thank you for today's hearing to examine the challenges associated with PFAS contamination across the country.

Unfortunately, these issues are all too familiar to West Virginia. We have had our communities at either end of our States that have faced the challenges Mr. Faber just talked about, responsibility to Federal facilities. So given the volume of testimony provided to the Committee for the hearing record, this issue is clearly one of national interest and significance.

With my constituents in mind, I have engaged in several pieces of legislation meant to address this program, working in collaborative and bipartisan fashion, both with Ranking Member Carper and also with Senator Gillibrand. Indeed, we rotated sponsoring, co-sponsoring, each other's legislation.

But the bill that I have led, which is the S. 1507, PFAS Release Disclosure Act, would set up a process for EPA to add various PFAS to the toxic release, the TRI, Toxics Release Inventory, subject to the completion of review. I want to get to that issue, because I think it requires determinations to be grounded in science. You have talked about science, and backed by regulatory review processes that involve notice and comment. The bill does not include the entire class of the known 6,000 PFAS compounds.

So getting to my question, Dr. White, I just laid out the thinking of the sponsors, and of our disclosure act and how we designed a regulatory on ramp for inclusion of PFAS into the Toxics Release Inventory. Is it fair to ACC's members are familiar with the requirements of the TRI and associated filings?

Ms. WHITE. Yes. ACC members are familiar with the TRI findings and how things should be listed. As you have highlighted in your bill, we would be supportive of reviewing the TRI requirements. So there are specific criteria that get chemicals listed on the TRI that determine whether or not there was actually an adverse health effect associated with those chemistries before they are listed.

So as a scientist, you would have to support that science review of the specific TRI criteria to determine whether or not the specific PFAS that you have identified here in the bill actually warrant listing under TRI.

Senator CAPITO. Obviously, by my support of the three bills, I feel just—of my awareness of what has happened in my particular State, I would say obviously that is why I am sponsoring this legislation, because I feel it does need to be included in the TRI.

But let me talk about some of the misinformation out there on this bill. It is onerous, and it would apply to actors like Mom and Pop gas stations, and it would feed all kinds of civil lawsuits and short circuit the EPA regulatory process.

Mr. Faber, do you feel that S. 1507 prevents these sorts of outcomes with its structure of regulatory approach? Do you have an opinion on that?

Mr. FABER. Only industrial dischargers in certain categories would be subject to your bill, Senator.

Senator CAPITO. Yes. Thank you.

Ms. Daniels or Mr. Mehan, do you have anything to add on that point? The accountability measures inherent on the TRI will help limit or prevent emissions, hopefully relieving the remediation burdens on communities and water systems. So do you have anything to add on that point, since your stakeholders will have to deal with the contamination once it is in the water?

Ms. DANIELS. Yes, thank you. I think it is absolutely necessary that we get more information out to both the public and the States in terms of where these chemicals are. I know as a State, we filed multiple FOIA requests in preparation for our sampling plan, because we wanted to know where the highest risk was. Nobody could tell us where these chemicals were being used. So right now, there is a lack of information.

Mr. MEHAN. Senator, AWWA hasn't normally taken positions on TRI issues. But speaking personally, TRI is the premier information based environmental program. I think it is a useful, hygienic way to encourage people to pursue pollution prevention, toxic use reduction through a relatively light handed approach.

The only critique that I think has some merit about TRI is that all those listed are really risk based. I think, to the extent again, if you are talking PFAS as a category, we would caution against that approach. But to the extent you are picking a subset of high risk compounds, that might be worth a conversation.

Senator CAPITO. Our staffs, both Republican and Democrat, have worked with ACC's members and AWG to try to arrive at a solution here on S. 1507. So I would ask both you, Dr. White, Mr. Faber, if you would continue to work with us in a collaborative way so that we can find a sweet spot here in something that is very troubling.

Ms. WHITE. Thank you.

Mr. FABER. Thank you, Senator.

Senator CAPITO. Thank you. I will just say this in my final 10 seconds. We can sit up here and talk about CERCLA and TRI and PFAS and PFOA, and honestly, if my constituents are home or listening, they have no idea what I am talking about. What we are simply talking about is making sure that our drinking water is as safe as it can possibly be for us now and for future generations. Because a lot of these substances stay in your water forever or for what forever would be. Very long pieces of time.

So I think it is in all of our best interests to talk as simply as we can about the goals that we have in terms of cleaning up our drinking water, remediating the problems, facing the problems, and being honest about it and transparent, helping small water sys-

tems when and how they need it to meet these difficult challenges. Because we know that is going to be an issue.

So I am pledging to you to work with my partners here to find a way to find these answers, to make sure that our next generation does not wake up someday and find out that they have had a negative impact to something that we were talking about, CERCLA and TSCA and all these other things, and not quite getting to the real answers. That is my hope with being so active on these bills.

I thank you all for listening.

Thank you.

Senator BARRASSO. Thank you very much, Senator Capito.

According to my records of arrival first, I think Senator Markey was here earlier and has come back.

Senator MARKEY. Much appreciated. Thank you, Mr. Chairman.

PFAS used in firefighting foams poses a particular danger to both civilian and military firefighters. The use of these foams during training and emergency response is a major source of PFAS contamination of groundwater on military bases and near civilian training facilities.

In my home State of Massachusetts, high levels of PFAS have been found near Fort Devens, Barnes Air National Guard Base, Joint Base Cape Cod, and the Barnstable County Firefighter Training Academy. Our firefighters and military personnel willfully put themselves in harm's way to keep their neighbors and country safe. We should be all we can to keep them safe in return.

Mr. Faber, civilian airports can now use non-PFAS foams to fight fires, but our military members and many firefighters, civilian, remain at risk. What other steps should be taken to limit the use of PFAS containing firefighting foams as well as better understand their risks?

Mr. FABER. Thank you, Senator. Firefighters do face unique risks from PFAS because PFAS is in the foams, as well as in the turnout gear that they wear to fight fires. While we do not know all the ways that firefighters are likely to get certain cancers, more than the rest of the population, we do suspect that PFAS is one of them.

One of the things that Congress should do is do more to test the blood of firefighters for PFAS and legislation has been proposed, the Protecting Military Firefighters from PFAS Act. That would also build on a study that was include in the NDAA last year, but did not include firefighters, and should have. So there are opportunities to better understand how PFAS are impacting firefighters.

More broadly, we need to really accelerate efforts to reduce the use of fluorinated foams wherever possible, beginning with ending the use of fluorinated foams in training exercises, whether that is in civilian airports, training academies, and other situations.

Senator MARKEY. Great. In response to my questioning during the Committee's previous PFAS hearing, Deputy Assistant Secretary Sullivan said that the Department of Defense would "meet any properly promulgated standard that is issued by the State, and roll it into our cleanup program."

Mr. Faber, of the five States that have issued or proposed stricter regulations on PFAS contamination in water, would you consider these "properly promulgated"?

Mr. FABER. Yes, Senator. There is guidance on when a regulation, in this case, has been properly promulgated. It has to be legally enforceable; it has to be generally applied. Many States have already promulgated rules to restrict or reduce the presence of PFAS. Many other States are doing so. In certain situations, the Department of Defense should be deferring to those State standards when cleaning up these contaminated sites.

Senator MARKEY. And the PFAS Accountability would require cooperation between DOD and States on cleanup efforts.

As part of their jobs, non-military firefighters are exposed to PFAS in multiple ways, including in their suits. This is an occupational hazard, and I believe we should be tracking this civilian worker exposure and addressing it, similar to what the military is doing for their firefighters.

Mr. Faber, do you agree that we should be studying occupational PFAS related hazards that might be affecting our community firefighters?

Mr. FABER. Absolutely. We should expand the NIOSH study that is currently underway to add firefighters to better understand the impacts that PFAS foams and turnout gear are having on firefighters.

Senator MARKEY. Disgracefully, they have been exempted from previous studies and are not getting the same blood tests that military firefighters are getting. That must change.

Mr. Faber, would designating harmful PFAS as hazardous chemicals under the Superfund law help communities near military bases that are struggling with contamination?

Mr. FABER. Yes, Senator. Designating PFAS as a hazardous substance under CERCLA would really kickstart the remediation process, so that communities that are located near air bases, other Federal facilities, would be ensured that there would be an effort underway, either between DOD or in the case of NASA, or other Federal facilities, an effort between EPA and the Federal facility to clean up the mess and make sure that responsible parties pay their fair share.

Senator MARKEY. So States are being forced to step up to protect the health of their residents, as the EPA continues to slow walk a national plan of action. The least the Department of Defense could do is meet or exceed States standards. Instead, the Defense Department is denying and dodging, at the expense of our military members' and their families' health. Meanwhile, we still don't have the full answers for our firefighters in every community in the United States in terms of the protections they will be given.

Thank you, Mr. Chairman, and thank you, Mr. Faber.

Senator BARRASSO. Thank you, Senator Markey.

Senator Whitehouse.

Senator WHITEHOUSE. Thank you, Chairman.

Thank you to the panel for being here.

I want to add a thank you to somebody who is not here, which is my home State paper, the Providence Journal, which has done an amazing job of covering the threats of climate change along our coasts. They have done repeated front page, above the fold articles about the risks Rhode Island's coastline is facing and how we are having to prepare.

In that spirit, they have also done a terrific job on PFAS contamination in one of our municipalities, in Burrillville, which is facing water contamination. I would like to ask permission to put their article on Burrillville's contamination into the record.

Senator BARRASSO. Without objection, so ordered.

[The referenced information follows:]

PROVIDENCE Journal

A lurking danger for R.I.'s drinking water

By Alex Kuffner
Journal Staff Writer
Posted May 17, 2019 at 5:03 PM
Updated May 18, 2019 at 5:38 PM

Toxic chemicals that poisoned Burrillville wells could be part of a burgeoning public-health crisis, and environmental activists are urging more aggressive action.

BURRILLVILLE — Armand Collins can't help but think that the cancer that caused his wife Lucia's death last month may have been linked to the contamination of their water supply.

She was 67 when she succumbed to breast cancer on April 8.

"She was never sick. She didn't do any of the bad stuff like me," Collins said as he smoked a cigarette on the back steps of his duplex on Mill Street. "It just makes me wonder."

In September 2017, the Rhode Island Department of Health discovered that the well that serves Collins' home and some 34 others in Oakland village was contaminated with a class of widely used chemicals that many experts believe is contributing to a global public-health crisis. Follow-up tests in the neighborhood a few weeks later found the same substances in six private wells.

The human-made compounds that fall into the family of per- and polyfluoroalkyl substances, or PFASs, are added to foams used to fight fires and applied to cookware and packaging to keep food from sticking and to carpets and furniture to prevent staining.

High exposure to the compounds has been shown to cause developmental disorders in children, raise the risk of cancer, interfere with hormonal production and increase cholesterol levels, according to the U.S. Environmental Protection Agency.

The testing done in 2017 was the first time authorities looked for PFASs in the Oakland aquifer. The Rhode Island Department of Environmental Management traced the contamination back to firefighting foam that leached into the ground from the Oakland-Mapleville Fire District, but it's unknown when the water became tainted.

After the test results were released, the DEM organized deliveries of bottled water to the former mill village located between the Clear and Branch rivers, and a new water line from the Harrisville Fire District is set to be completed this summer at a cost of nearly $3 million.

But while the long-awaited project will solve the neighborhood's problem, broader questions remain largely unanswered about PFASs. What concentration in drinking water is safe for human consumption? How many other drinking water systems may be contaminated? Is the federal government doing enough to protect public health? What about Rhode Island authorities and their counterparts in other states?

The contamination in Burrillville was caused by a kind of foam that may be found in fire departments, airports and other facilities throughout Rhode Island. Even a small amount of it could have rendered the wells in Oakland unsafe to use.

"It gives you a sense of the scale of the problem across the state and the nation," said Rainer Lohmann, a University of Rhode Island professor and co-leader of a federally funded research center on PFASs.

Invented in the 1930s, fluorinated chemicals were heralded for their ability to repel oil, water and grease.

Within two decades, DuPont had started using one of them, known as PFOA, to make Teflon, while 3M was using another, PFOS, in Scotchgard. Soon, the compounds were shown to be effective in smothering petroleum fires, enabling foams to spread more easily and form tighter caps over flammable liquids.

Today, there may be as many as 3,000 substances in the family that are used in everything from microwave popcorn bags to rain jackets to some dental flosses.

"To make a long story short, it's everywhere," said DEM assistant director Terrence Gray.

The chemicals have proved to be problematic because they are water-soluble, don't break down in the environment and can accumulate in human bodies over time. They can be breathed in through dust and, to a limited extent, absorbed through the skin, but the main risk comes through food and drink consumption.

The Environmental Working Group, a Washington, D.C.-based advocacy group, has estimated that up to 110 million Americans have been exposed to the compounds in their drinking water.

The highest-profile cases surrounding PFASs have arisen in Minnesota and West Virginia, in the vicinity of factories that manufactured the chemicals and have contaminated water supplies in neighboring communities. (Both PFOA and PFOS were

phased out as a result.)

Military bases, where large quantities of firefighting foams are used, have also polluted groundwater aquifers. The U.S. Department of Defense has documented contamination, or identified its potential, around 401 installations around the nation. The list includes Joint Base Cape Cod in Bourne, Massachusetts.

The compounds are so potent that even a single incident in which firefighting foam is used can pollute groundwater. Last October, after a tanker truck tipped over in Providence, spilling some 10,000 gallons of gasoline, so much foam was used to contain the liquid that the white mounds looked like snowbanks rising up to the windows of cars.

Cleanup crews washed the foam into storm drains that eventually empty into the Providence River, and the chemicals dissipated in the flushing of Narragansett Bay in a matter of weeks, according to tests carried out by Lohmann's lab.

But the story could have been different if the spill had taken place near drinking-water wells.

"If that incident occurred in some place like Glocester, we would have had significant contamination," said Nick Noons, principal sanitary engineer with the DEM. "We would have had a big problem on our hands."

The chemicals are unregulated by the federal government, despite repeated calls from environmental and public-health groups. The EPA, which enforces the federal Clean Drinking Water Act, has yet to put in place a legally enforceable "maximum contaminant level" for PFASs, only going so far as tightening recommendations for safe concentrations of the chemicals.

The revision came in May 2016, when the agency lowered a "health advisory" level to 70 parts per trillion (ppt) in total for PFOS and PFOA, the two compounds that have been the main subjects of the growing body of research into the dangers of the family of chemicals.

That level of concentration is roughly equivalent to 70 grains of sand in an Olympic-size swimming pool, says Noons.

It wasn't until six years ago that the first tests for the substances in drinking water supplies in Rhode Island were carried out.

As required by the EPA, all large water systems — those serving more than 10,000 people — and a sample of smaller systems, 15 in all, carried out tests for PFOA, PFOS and four other compounds between 2013 and 2015.

Only two systems, Cumberland and Westerly, showed the presence of the chemicals. Both were below the EPA advisory level at the time, and in subsequent testing, the levels have dropped. The levels at several wells in Westerly, which ranged as high as about 40 ppt, have most recently hovered around 10 ppt, and the levels at a well in Cumberland, which were as high as 80 ppt and are believed to have been caused by plumbing tape on a pipe, were down to about 20 ppt, according to the health department.

In summer 2017, the department initiated its own round of testing statewide, prompted in part by the emergence of widespread contamination in Vermont and New Hampshire near factories that used the compounds. Working with researchers at Brown University and the DEM, the agency focused on 40 small public water systems — those serving fewer than 10,000 people — as well as schools and childcare facilities, all located within a mile of potential sources of contamination, such as firefighting training facilities, manufacturing plants and landfills.

The tests looked for nine PFAS compounds and detected them in eight places scattered around the state, but only one, the Oakland Association — the water system serving Oakland village — had numbers that exceeded the EPA advisory level. In three tests conducted between Sept. 14 and 29, the combined levels for PFOS and PFOA came back at 88, 69 and 114 ppt. But other PFAS compounds were also detected. When they are included, the total contamination ranged as high as 205 ppt.

With the six additional wells factored in, an estimated 175 people have been affected by the contamination. While they can shower with well water, they cannot use it for drinking, brushing their teeth or food preparation. Boiling water isn't a solution, as it only concentrates the chemicals. So the DEM has been delivering water every two weeks to homes in the neighborhood.

Based on soil and water samples, the agency has also concluded that the Oakland-Mapleville Fire District is responsible for the contamination. The six private wells that were contaminated include the one at the district's firehouse at 46 Oakland School St. The five others, as well as the Oakland Association's, abut the department's property or are located nearby. The highest contamination levels were found in samples taken next to the station.

The chemicals leached into the groundwater from a stormwater infiltration field next to the firehouse, just north of the Oakland Association's pump house. It's unclear, however, if the substances leaked from containers of foam concentrate that were stored in the station's garage or were washed from hoses or drained out of equipment after off-site training, said Noons.

The contamination happened after 2002, when the fire station was built, but there's no way to narrow down the timing any further, according to Noons. Messages left with the department's fire chief were not returned.

Richard Nolan, the operator of the Oakland Association and tax collector for the fire district, said he's not so concerned about the contamination, pointing out that if the water was tested before the EPA lowered its health advisory level in 2016, then it would have been deemed safe to drink.

But the uncertainty is unsettling to Collins, a retired bus driver with the Rhode Island Public Transit Authority. He has stuck to bottled water for drinking since the test results came back and stopped growing vegetables in his raised beds because he couldn't water them. But he worries that he, his late wife, and their daughter, who lives in the neighboring unit, were using the water before the contamination was discovered.

"How long were we drinking it?" he said.

The water at Rhonda Nightingale's house on nearby Remington Avenue tested negative for the chemicals but, worried about the possibility of the contamination spreading, she and her boyfriend chose to hook up to the new line coming in from Harrisville. It will offer some peace of mind, but it will also mean that they will have to start paying water bills.

"We shouldn't have to," she said. "It's not our fault. We didn't do this."

In one way, the Burrillville case is an example of how state officials are still learning about the chemicals. The Oakland Association's well was selected for testing because of its proximity to a landfill and several former factories. State officials didn't expect the contamination to come from the fire station.

So in another round of tests that is now underway, the health department is looking at water supplies near fire stations all around Rhode Island that may also be storing firefighting foam. They are also sampling wells near schools, because floor waxes sometimes used in school buildings contain PFASs. There is a possibility that low levels of the chemicals found in school wells in Charlestown and Scituate during the 2017 tests were caused by floor waxes that passed through septic systems into groundwater.

The major water systems in the state are also being retested. When the tests are completed in June, it will mean that 49 percent of community water systems and all schools with wells in the state will have been sampled for PFASs. Homeowners with wells, restaurants and others are also being advised to do their own tests if they are near places where the chemicals are found.

"I feel we are being quite proactive," said June Swallow, chief of the health department's Office of Drinking Water Quality. "We are seeking out areas of concern and carrying out testing. We are also notifying private-well owners and suggesting a path forward for them as well."

But some environmental groups believe that the federal advisory level of 70 ppt is too high, that the EPA's current leadership is too close to industry and is acting without urgency, and that, by extension, Rhode Island authorities aren't doing enough.

The Conservation Law Foundation and the Toxics Action Center in February petitioned the health department to adopt a state drinking-water standard for five of the most common PFAS substances. They recommended a total threshold for the five substances of 20 ppt — meaning that concentrations of all five together must be lower than that level. It is the standard adopted just last week by Vermont, which is considered a leader in working on state PFAS regulations.

Other states are also taking matters into their own hands. Massachusetts and New Hampshire are working on setting maximum contaminant levels for the compounds. New Jersey has moved to set standards of 14 ppt for PFOA and 13 for PFOS, which would be among the most stringent regulations in the nation.

The Rhode Island health department denied the request from the Conservation Law Foundation and the Toxics Action Center, writing that it "shares the Petitioners' concerns about the potential impacts of PFAS in public water supplies" but "lacks sufficient quantitative and qualitative data upon which to base appropriate regulations."

In response, state Rep. June Speakman, a Warren Democrat, introduced a bill this month that would require the department to set maximum contaminant levels for the chemicals and would also put in place an interim standard for contamination of 20 ppt. It was heard in committee on Thursday and held for further study. (A separate bill is also under consideration in the legislature to prohibit the substances in food packaging.)

"This is a public-health emergency, and we need states to take action now," said Amy Moses, director of the Conservation Law Foundation in Rhode Island.

Swallow says that the state is working hard to look for PFAS contamination. She emphasizes that four out of every five samples from Rhode Island drinking water supplies have detecred none of the chemicals and, when the compounds have been found, the levels are nowhere near those reported in Vermont, New Hampshire and other states.

That doesn't mean that Rhode Island won't reconsider its stance once the current round of testing is completed, she added. But she believes that the state is in a position to take what she described as a more deliberative approach.

"Given the occurrence data that we have so far, we feel like we have the time to be science-driven," she said.

The highest concentrations of PFASs found in Rhode Island so far are in the groundwater around Naval Station Newport, where there used to be dedicated firefighting facilities.

The levels there are around 20,000 ppt. But the contamination is not considered a threat because Aquidneck Island is supplied with drinking water from reservoirs that aren't near the base.

Levels are also high in Buckeye Brook in Warwick, which flows past T.F. Green Airport before emptying into Narragansett Bay.

Lohmann and his colleagues at URI's Sources, Transport, Exposure & Effects of PFASs, or STEEP, center have found higher-than-expected levels of the chemicals in upper Narragansett Bay, too. The levels are well below what the EPA considers unsafe, but they are well above those in the Hudson River and other regional water bodies. The researchers believe the contaminants could be tied to the metal-plating or textile industries. Lohmann said the causes of the levels are of interest to scientists, but the concentrations shouldn't concern swimmers, fishermen or other users of the Bay.

The center, a partnership with Harvard University and the Silent Spring Institute, was created two years ago after advances in liquid chromatography and mass spectrometry improved scientists' ability to measure the levels of PFASs in the environment. Its work is primarily focused on developing low-cost detection tools that could be used to collect ground, air and water samples, said Lohmann, an environmental chemist.

He believes the only effective way to control the release of PFASs in the environment is to cut down on their use and production. There are good uses for the chemicals — such as on coatings on heart valves — but there are safer alternatives in most instances, he argues.

"If it's not essential, there's no excuse to keep using it," said Lohmann, whose past research focused on pollutants that include PCBs and dioxins.

Like those chemicals, which were banned as a class in the 1970s, many experts say that PFASs must be regulated as an entire family. Stopping the use of one variation doesn't do much if another pops up in its place, they say. Moses compares it to a game of "Whac-a-Mole."

Gray, of the DEM, a chemical engineer, agrees.

"Until these things are regulated as a class, it's going to be almost impossible to keep up in a regulatory context," he said. "That's not just a Rhode Island problem. That's a problem for everyone."

On Friday morning, local, state and federal officials gathered in a dusty parking lot in Oakland to celebrate construction of the new water line from Harrisville.

Work had started weeks ago, but this was the official groundbreaking ceremony, attended by, among others, Jeffrey R. Diehl, CEO of the Rhode Island Infrastructure Bank, which is financing the project, and Jane Downing, the acting deputy director of the EPA's water division in New England.

The $2.85 million needed to complete the new line is coming entirely from federal dollars funneled to the Infrastructure Bank through the EPA.

In an interview, Downing, the EPA official, defended the agency's response to the PFAS problem. Regulators are moving to take action as they understand more about the chemicals, she said.

"We have to just consider the science and understand that science will evolve and we'll have more and more compounds to look for and at lower and lower levels," she said.

During the ceremony, Nolan, of the Oakland Association, thanked all the parties involved for finding a new source of water for the village. But state Rep. David Place, a Burrillville Republican, expressed frustration at the amount of time it took.

"Two years," he said. "There are going to be people that for two years have not been able to drink the water from their faucets by the time this is over and done with."

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Senator WHITEHOUSE. Thank you.

Mr. Chairman, we have, I think, done some very good work in this Committee in bipartisan fashion. We have done good work on TSCA, which ended up passing in very significant bipartisan fashion. Regrettably, we saw the Trump EPA make a hash of that bipartisan effort. Then in bipartisan fashion, we corrected it. I actually introduced a Trump nominee for the Toxic Chemicals Section at EPA to put us back on bipartisan course.

I think it is a real concern when a divided Senate comes together in bipartisan fashion on an issue like this and then finds that the agency has gone off on a partisan tear. We are supposed to be the political ones, not the agency. We saw it recently with the NRC. This Committee, myself, Senator Crapo, the Chairman, and others have done terrific work passing bipartisan nuclear innovation bills.

What happens? The NRC, on a partisan basis, goes out, outside of the record of the rules proceeding that they are operating under, and unilaterally, the Republican appointees only decide something that nobody asked for in the public record, which is that nuclear facilities shouldn't be required to prepare for flood risk. I don't know how you could have a dumber decision. And the fact that they would do that on a partisan basis, with such a good record of bipartisanship here on the Committee, is very frustrating.

I think where this Committee has stood together on a bipartisan basis, agencies need to take the message and work as if they were bipartisan, too, and not inject a lot of nonsense, polluter driven partisanship into the agency's decision. For Pete's sake, if we can get over it, you ought to be able to get over it out there in the agencies.

So this is a real frustration to me. Ms. White, the American Chemistry Council worked well with us on TSCA. I think that helped the signals about the early enforcement and was part of the solution that I brought Alex Dunn in, who I think is a good Administrator. I hope that you are leaning in as a council to try to solve this problem in that same bipartisan spirit on which we all worked together on the underlying TSCA bill and on correcting the initial enforcement.

Ms. WHITE. Thank you, again, Senator Whitehouse. As you mentioned, and to me, as a toxicologist and a scientist, ACC is absolutely willing to be a constructive partner in this process, and making sure that science kind of underlies this process as we evaluate how to mitigate and manage any associated risks with PFAS chemistries.

Senator WHITEHOUSE. Good. Because bipartisanship is a terrible thing to waste.

Ms. WHITE. I agree.

Senator WHITEHOUSE. It takes all the fun out of working in a bipartisan fashion if what happens is, we get kneecapped by partisanship in an administrative agency, after we have avoided partisanship here in the most partisan of branches of Government.

Ms. Daniels, we are likely to be taking up an infrastructure bill of some kind. Who knows? The President topped Speaker Pelosi's trillion dollars and said $2 trillion. So who knows what is it going to be?

His budget person, Mr. Mulvaney, promptly came out and undercut the President, so we don't really quite know how that is all going to turn out. But there is a real likelihood, I think, of there being an infrastructure bill. Our side certainly wants one, and I think there has been considerable support on this Committee on a bipartisan basis for our share of a strong bipartisan bill. I thank the Chairman for that.

What would you like to see in an infrastructure bill that would help your constituency deal with this contamination problem?

Ms. DANIELS. Thank you for the question. Yes, we certainly are supportive of an infrastructure bill for all of the other things that water suppliers need. Pittsburgh, a town in Pennsylvania, is certainly one of those examples of what happens when you have deferred maintenance. That is a concern for us.

Specifically for PFAS, I do think we need to look at alternate funding sources. Because I do believe the incredible costs, so just to put GAC on one well, for example, could be anywhere from $500,000 up to $1 million. When you are talking about other advanced technologies for the shorter chain chemicals, like GenX, you are talking tens of millions of dollars.

We are going to have to think long and hard about alternate funding sources for these systems. Because there are already a lot of great needs within the SRF program itself to deal with lead and some of the other problems that we have been talking about here.

Senator WHITEHOUSE. Mr. Chairman, I would just please urge that you all get back to us over whatever period of time is appropriate, even outside the scope of this hearing, to share with the Chairman and the members of this Committee what some of your ideas might be for an infrastructure bill, so that we have a chance to look at them and digest them, and if things start to move in a serious way, that they get every fair consideration which they deserve. OK? Thanks.

Thanks, Mr. Chairman.

Senator BARRASSO. Thank you, Senator Whitehouse.

Before turning to Senator Van Hollen, I would point out that the six bills posted for the hearing today were all bipartisan bills.

Senator WHITEHOUSE. Great. Thank you.

Senator BARRASSO. Senator Van Hollen.

Senator VAN HOLLEN. Thank you, Mr. Chairman.

I thank all of you for your testimony here today.

Mr. Chairman, thank you for calling a hearing on the subject. I think all of us are concerned about PFAS contamination in our States.

In Maryland, we have five identified PFAS sites, Andrews Air Base, Fort Meade, Tipton Airfield, former David Taylor Research Center, now called Bayhead Road, Aberdeen Proving Ground and something called Chesapeake Bay Detachment. So we have five sites. We do have a good, cooperative group working between the Defense Department, EPA, and the State, Maryland Department of the Environment. That is the good news.

But the Maryland Department of the Environment did indicate that they could use additional help and support. So when we contacted them about Senator Carper's bill, they were supportive. And

I am a co-sponsor of that bill to designate PFAS as a CERCLA hazardous substance.

That of course makes Federal agencies, in the case where it is Federal agencies having PFAS, liable for the cleanup. I think that is important, because that now puts it not just as a voluntary effort, but a legal effort. Now, of course, the funding issue is real.

To all of you, when the Federal Government becomes liable for cleanup, I assume that means they have to find the money within their budgets. Is that the case?

Mr. FABER. That is right, Senator. In the case of Wallops, for example, if NASA were to be found responsible for the PFAS pollution that were on base or off base, they would have to find the resources to help finance the cleanup. They could also see contribution from some of the other responsible parties, in this case, foam manufacturers or chemical companies. But ultimately it would be NASA dollars, not Superfund dollars, that would pay for the cleanup.

Senator VAN HOLLEN. You anticipated my question, because Wallops is another facility where we have a PFAS issue. I listed five that are in the State of Maryland. PFAS is, of course, in Virginia, but very close to Maryland. We have workers from both States there trying to make sure that that is a safe facility.

So under that scenario, NASA would be primarily responsible for the cleanup.

Mr. FABER. For Fort Meade, for the parts of Fort Meade that are still under DOD control, it would be DOD's responsibility.

Senator VAN HOLLEN. Now, in your experience, are those funds that come out of the—are there legal liability funds that are appropriate, or have they been separately appropriated in the past?

Mr. FABER. In the case of DOD, DOD does have, under the Superfund Amendments of 1986, a program, the Defense Environmental Restoration Program, that has helped finance some of that remediation. So they have funding that is annually appropriated to help clean up contaminated sites, munitions, burn pits and so on. Not nearly enough money has been appropriated. And as we have heard earlier, DOD has been reluctant to take on responsibility for PFAS contamination that started on, especially airbases, and now contaminating nearby communities, near Dover or F.E. Warren or other airbases in Maryland.

One challenge is, when States are in control of the cleanup under CERCLA, there is no provision in CERCLA that requires DOD and States to enter into cooperative agreements than then force DOD to meet certain deadlines and fulfill their responsibilities. S. 1372, the PFAS Accountability Act, would ensure that in those circumstances, that DOD has to meet a properly promulgated State standard, as long as it meets certain criteria.

So one missing piece in the world of CERCLA is this requirement that DOD or NASA or other Federal facilities do have to meet these State standards when States are the lead agency in charge. That does happen under CERCLA.

Senator VAN HOLLEN. I am glad you raised that. In Maryland, for example, under the Maryland Controlled Hazardous Substance Act, Maryland has become the lead agency for CERCLA designated hazardous waste. So you are saying that the other legislation

would be required to make sure that the State of Maryland is not on the hook to pay the bill?

Mr. FABER. If the State—and in the case of Wallops, NASA—were not able to reach a cooperative agreement, then there would be a duty on NASA to alert you, Congress, so that you could get involved and ensure that DOD or NASA or whatever Federal agency created the pollution problem was living up to their responsibilities.

Senator VAN HOLLEN. Thank you.

I just also, Mr. Chairman, want to associate myself with Senator Markey's comments regarding addressing the occupational hazards to firefighters and others. Thank you.

Thank you all.

Senator BARRASSO. Thank you, Senator Van Hollen.

Before we adjourn, I would like to note that we have received a number of written statements from parties who would be impacted by the legislation before us. These include communities polluted with PFAS substances, as well as airports, rural drinking water providers, paper producers, metal finishers, refineries and others. I ask unanimous consent to enter these written statements into the record.

Without objection, it is done.

[The referenced information follows:]

Statement for the Hearing Record: Senator Jeanne Shaheen (D-NH)
Senate Committee on Environment and Public Works
Hearing on Legislation to Address the Risks Associated with PFAS
116th Congress
May 22, 2019

Chairman Barrasso, Ranking Member Carper and Members of the Senate Committee on Environment and Public Works:

Thank you for holding this hearing today to review legislation critical to addressing the health and environmental risks associated with per- and polyfluoroalkyl substances (PFAS). I am pleased that the Committee has decided to focus on the Safe Drinking Water Assistance Act (S.1251), legislation I introduced with Senator Portman, during today's hearing. In addition to my statement, I would also ask that the Subcommittee include in the hearing record a letter I have received in support of S.1251.

The Committee will be hearing testimony today on a number of important pieces of legislation in addition to the Safe Drinking Water Assistance Act. I am very pleased to cosponsor the PFAS Accountability Act, Senator Stabenow's bill to establish clear deadlines and reporting requirements for cleaning up PFAS contamination at federal facilities across the country, and also the PFAS Action Act, legislation led by Senators Carper and Capito that would list PFAS chemicals as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act.

As members of this Committee know, access to safe and clean drinking water is a fundamental human need, and is directly tied to the public health, wellbeing and economic vitality of our nation. While America's drinking water is the safest in the world, unregulated emerging contaminants, such as PFAS, are increasingly being detected in drinking water systems across the country.

According to a 2019 study by the Environmental Working Group and Northeastern University, PFAS chemicals have contaminated more than 600 water sources in at least 43 states due their legacy uses in aqueous film forming foam, non-stick coating for cookware and other commercial and industrial applications. Each day, alarming concentrations of these chemicals are being detected at military and industrial sites, landfills and airports across the country. In New Hampshire, PFAS materials have emerged as a major contaminant concern to the drinking water sources in several communities, and were responsible for the closing of a major water supply well located at the former Pease Air Force Base in Portsmouth. While the risks associated with PFAS exposure are still being uncovered, studies have linked these unregulated emerging contaminants to a number of adverse health effects, causing great public concern.

Under the Safe Drinking Water Act (SDWA), the Environmental Protection Agency (EPA) is required to routinely identify and analyze emerging contaminants and provide guidance to states, local officials and the public about the potential public health risks and acceptable contamination levels for these materials. Unfortunately, actions by state and public water systems to monitor and treat these contaminants are often delayed due to the rigorous and lengthy nature of the EPA's multi-step review process. A lack of scientific research that adequately addresses potential health effects of emerging contaminants has also hindered EPA and state efforts to regulate the presence of these materials. Moreover, as emerging contaminants are identified in communities, many state and local agencies need

additional assistance and support for testing contaminants and communicating the potential risks with the public.

The safety of our drinking water in essential and non-negotiable. There is a critical need to address exposure to PFAS and other emerging contaminants and attend to any potential adverse health effects or additional impacts on our communities. My legislation would strengthen and coordinate Federal and state efforts to improve the efficiency of SDWA and the safety of our nation's drinking water system.

The Safe Drinking Water Assistance Act would establish a Federal taskforce on emerging contaminants to improve interagency coordination on research as well as the development of environmental and health advisories and standards pertaining to these materials. My legislation would also create a National Emerging Contaminant Research Initiative to improve the identification, analysis and treatment methods for emerging contaminants. Finally, the bill would address concerns we have heard from New Hampshire communities that have detected emerging contaminants in their water supplies by establishing a state assistance program to provide much-needed guidance and support to help ensure that the nation's drinking water will always be safe.

The Safe Drinking Water Assistance Act has received strong support from several water sector organizations, including the Association of Metropolitan Water Agencies, the Water Quality Association, the Water Research Foundation and the National Association of Water Companies.

PFAS contamination is a public health challenge of the first order, and I appreciate that the Chairman and Ranking Member will be moving legislation to address this challenge. Again, thank you for the opportunity to submit testimony in support of the Safe Drinking Water Assistance Act. I look forward to working with the Committee to advance this proposal.

Statement of 3M Company

To The

Senate Environment & Public Works Committee

Legislative Hearing on PFAS

May 22, 2019

Introduction

Per- and Polyfluoroalkyl substances (PFAS) represent a broad class of organic molecules containing fluorine. A defining feature of each PFAS compound is that some or all of the carbon atoms in the compound are bonded to fluorine atoms instead of hydrogen. PFAS offer a specific combination of unique properties, including water resistance, oil resistance, and temperature resistance. These properties make them valuable in important applications across many industries such as: low greenhouse gas potential refrigerants, medical devices, low emissions vehicles, fire supression, electronics manufacturing, fuel cell membranes, industrial heat transfer and recovery, flame retardants, corrosion protection, and emissions reduction in chemical and power plants.

3M was an early producer of PFAS in the United States, and continues to manufacture some of these materials today. 3M helped lead the way in understanding the health science of these compounds, developing analytical capabilities, and advancing the understanding of remediation technologies. In 2000, 3M announced it would voluntarily stop manufacturing any perfluorooctyl-based PFAS, such as PFOA and PFOS, in collaboration with environmental and health authorities.

3M has monitored the health of our occupationally-exposed employees, who, in their day-to-day jobs, had PFOA and PFOS exposure levels much higher than those measured in the general population. Our analyses of these occupational data have not shown adverse health effects attributable to these PFOA and PFOS exposures.

Today, 3M manufactures PFAS compounds incorporating 3- and 4-carbon perfluorinated molecules, as well as fluoropolymers. We deploy these chemistries in a variety of ways for an array of customers and industries worldwide. For example, 3M's current chemistries enable products like asthma inhalers and products that directly reduce greenhouse gas emissions.

3M no longer manufactures food packaging materials containing PFAS or aqueous film-forming foam (AFFF). AFFF was developed in the 1960s by the United States Navy, with support from 3M. The Navy patented the technology and required its

vessels carry AFFF to protect the lives of U.S. sailors, airmen, and flight officers after 134 sailors tragically died in a fire aboard the USS Forrestal in 1967 in one of the worst naval disasters in American history. To this day, the military specification governing AFFF requires the use of PFAS-based surfactants given their unique and life-saving properties.

The Science on PFAS Continues to Evolve

While toxicology studies in animals (primarily in mice, rats, and monkeys) have found certain adverse effects for some PFAS chemistries, those effects followed exposure levels that were typically orders of magnitude higher than levels found in the environment today, including in areas where drinking water contains elevated levels. Epidemiology studies on humans have generally found either null (negative), inconsistent, or conflicting results that are not sufficient to establish causation.

In fact, while noting certain possible associations, public health agencies and independent science review panels have acknowledged that causation has not been shown:

- "The available human studies have identified some potential targets of toxicity; however, cause and effect relationships have not been established for any of the effects, and the effects have not been consistently found in all studies." *ATSDR 2018; pages 635-636.*

- The Panel concluded there is mostly limited or no evidence for any link with human disease from these observed differences. Importantly, there is no current evidence that supports a large impact on a person's health as a result of high levels of perfluoroalkyl exposure. *Australian Expert Health Panel on PFAS, May 2018*

- "[C]ausality between a PFAS-chemical and a specific health outcome in humans has not been established in the current scientific literature." *Michigan Science Advisory Panel. Scientific Evidence and Recommendations for Managing PFAS Contamination in Michigan, at 9. December 2018.*

Some individuals have contended that certain PFAS compounds, and PFOA in particular, cause cancer in humans. The body of scientific literature does not support this contention. At most, agencies that have evaluated the weight of scientific evidence have concluded that there is only "possible" or "suggestive" evidence. For example, the International Association for Research on Cancer (IARC), an arm of the World Health Organization, classifies PFOA as a possible human carcinogen. This classification is far from a determination of causation and includes 311 chemicals and

physical agents, including radiofrequency electromagnetic fields, such as those emitted by wireless communication devices (*e.g.*, cell phones) and, until it was downgraded from this classification in 2016, coffee. EPA found the evidence "suggestive" for both PFOA and PFOS (a similar categorization to IARC's "possibly carcinogenic" for PFOA), but decided the body of evidence for the carcinogenic potential to humans was too limited to support a quantitative cancer assessment. The Australian Expert Health Panel previously noted "there is no current evidence that suggests an increase in overall cancer risk."

As public health and environmental science authorities undertake regulatory reviews of PFAS, the scientific understanding of these chemicals will continue to develop in order to better understand the potential risks associated with exposure to PFAS in humans.

Exposure Levels to C8 PFAS Compounds Continue to Decline

There is a consistently declining trend of PFOA and PFOS in the U.S. general population as reported by the Center for Disease Control's National Health and Nutrition Examination Survey. The mean blood levels of PFOS and PFOA in the general U.S. population in the 2015-2016 period declined by approximately 85% and 70% respectively, since the time when 3M announced its voluntary phase-out of PFOS production in partnership with the U.S. Environmental Protection Agency (EPA).[1] ATSDR recently observed, "[S]erum levels of PFOA and PFOS in the general population of the United States have decreased dramatically in recent years as U.S. production of these substances ceased."[2] We encourage CDC to continue this work and to update and publish mean blood level data for PFOA and PFOS.

In addition, 3M proactively started a perfluoroalkyl biomonitoring program with the American Red Cross, examining adult blood donors in the same six regional areas since 2000-2001. The most recent publication, which examined samples collected in 2015, reported declining trends consistent with NHANES for these six regions.[3]

Federal Action Based on Sound Science Is Warranted

Congress has charged EPA with principal responsibility for administering and implementing national standards to protect the environment and public health, including promulgation of regulatory and guidance standards utilizing the agency's specialized expertise and knowledge. EPA's lifetime drinking water health advisory levels are numerically lower than drinking water standards in Australia, Canada, or Germany. The existence of a patchwork of state regulatory standards will create

[1] Center for Disease Control (CDC) National Health and Nutrition Examination Survey (NHANES), January 2019.
[2] ATSDR 2018.
[3] Olsen et al., 2017

inconsistent and potentially conflicting environmental policy and result in unnecessary costs and burden to local governments, utilities, U.S. businesses, and families.

Selected Water Guidance or Regulatory Values (ng/L, ppt)

Jurisdiction	PFOS	PFOA
US EPA	70	70
Michigan	70	70
Minnesota	15	35
New Jersey	13	14
Germany	100	100
Texas	600	300
Australia	70	560
Canada	600	200

3M's View of The Best Available Science

3M has long espoused the use of "best available science" in rule-making. In our view, the principles that should apply when looking at regulatory action regarding PFAS include:

- Using a "weight of evidence" approach when looking across similar studies, putting more weight on studies of higher scientific value.
- Whenever possible, relying on studies of higher order animals over lower order animals. For example, using results of primate studies over those of rodents, due to the closer similarity to human physiology.
- Assigning appropriate uncertainty factors based on a transparent decision-making algorithm. The uncertainty factor allocation should avoid employing factors already accounted for in assumptions for other parameters. For example, it is known that rodents are more sensitive to PFAS than humans, yet, many proposed reference doses based on effects in rodents have been derived with the highest interspecies uncertainty factors possible.
- It is important to critically evaluate the relative PFAS source contribution from drinking water. In developing drinking water guidance and regulatory values, many agencies have adopted the regulatory default value for source contribution, which assumes that 80% of PFAS intake comes from sources other than drinking water (e.g., food). However, a number of studies support much higher contributions from drinking water, making this default assumption unsubstantiated. Agencies should properly incorporate this data into their guidance/regulatory level derivations.

These principles, when applied, would yield health limits for exposure to PFAS while minimizing the risk of unnecessary testing and treatment of water supplies and avoiding unnecessary confusion due to varying state standards and guidance.

Conclusion

We share the Committee's concern for the potential impact of PFAS on drinking water across the country, but we strongly believe that science, rather than political considerations, should drive environmental and public health rule-making. This is a complex issue that we, as a Nation, need to get right. Establishing reactive, ever-lowered limits for PFAS in drinking water in certain States will not make water any safer, and could create undue and unintended burdens on States, municipalities, and communities that are unnecessary and unsupported by science. That is why we have supported, and continue to support, calls for action, and calls to federal regulators to consider setting appropriate enforceable, national drinking water standards. What constitutes safe drinking water should not vary from State to State. We believe that any action should be determined by the best available science and should be left to federal agencies that have or have access to the relevant expertise and that are congressionally tasked with making such determinations. For this reason, we continue to call for a broad review by the National Academy of Sciences to thoroughly review the body of PFAS science, then advise the EPA as it moves forward with its Action Plan. We believe this can be done without any impact on existing timelines for action by the EPA.

Thank you for your consideration of these comments. We stand ready to continue to work with you on this important topic.



May 22, 2019

The Honorable John Barrasso
Chairman
Committee on Environment and Public Works
United State Senate
Washington, DC 20510

The Honorable Thomas R. Carper
Ranking Member
Committee on Environment and Public Works
United State Senate
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper:

I am writing today to provide Airports Council International-North America's (ACI-NA's) perspective on issues to be discussed in today's hearing, "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)." ACI-NA is the voice of North American airports and we represent local, regional and state governing bodies that own and operate commercial airports in the United States. Our members represent more than 300 airports operating in the United States and more than 400 aviation-related businesses.

America's airports are a fundamental component of our nation's transportation infrastructure. In 2018, $1.73 billion passengers and 32.3 million metric tons of cargo travelled through U.S. airports. With a national economic impact of $1.4 trillion, airports contribute more than seven percent to the U.S. gross domestic product and support over 11.5 million jobs around the country.

While passenger and cargo traffic through airport facilities continues to grow at a record pace, our outdated aviation infrastructure is not keeping up with demand. As a result, far too many airports around the country are overcrowded and cramped. In February 2019, ACI-NA released a new report detailing the significant infrastructure needs of America's airports. With America's airports facing more than $128 billion in new infrastructure needs across the system and a debt burden of $91.6 billion from past projects, the sad reality is that our airports are already cash strapped and falling further behind in their effort to upgrade their facilities and improve the overall experience of their customers.

Airports are committed to being responsible partners with their communities by operating their facilities in environmentally responsible ways. **However, in exercising its mandate to ensure the safety of the traveling public the Federal Aviation Administration (FAA) *requires* airports to provide aircraft rescue and firefighting services using aqueous film forming foam (AFFF) that contain PFAS compounds.** FAA directed the use of two of these compounds, Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS), in the 1970s, before there was any recognition of their potential downsides.

Because the federal government has mandated that airports use fire-fighting foam containing PFAS, the federal government must be responsible for any impacts flowing from that mandate. Fundamental fairness, as well as the legal principle that parties responsible for a hazard bear responsibility for that hazard, require this. Therefore, we urge you to ensure that any bill that would require airports to take any action or bear any burden as a result of the use of PFAS that was required by the Federal government, includes provisions for federal financial and legal responsibility for those actions. Airports should not be forced to pay for

consequences of actions the federal government required them to take. As an example, when appropriate remediation and disposal actions are identified for airports relating to their federally-mandated firefighting obligations, it is imperative that Congress ensures the federal government pay for them.

Clearly more work must be done to study PFAS compounds, discern the best way to minimize their impact on the environment, and remediate any damaging concentrations remaining in the environment. We recommend proceeding with caution on federal legislation that does not account for all of these factors and which may stifle important travel and trade through our nation's airports.

In a first step out of the dilemma, ACI-NA successfully pushed for a provision in the FAA Reauthorization Act of 2018, directing FAA to set performance standards within three years that do not require airports to use AFFF containing PFAS. This provision opens the door to future use of fluorine-free firefighting foams, similar to the PFAS-free foam allowed at European airports, provided such foams can meet FAA performance standards. While FAA has begun the research necessary to evaluate the use of such AFFF, it is unlikely that revised standards will be issued for several years. Therefore, we encourage Congress to emphasize the importance of these studies and encourage FAA to accelerate its research.

Additionally in February 2019, the Environmental Protection Agency (EPA) announced a "PFAS Action Plan" describing the agency's plan to begin the process to designate PFOA and PFOS as "hazardous substances" under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and develop interim cleanup recommendations to address contaminated groundwater. While EPA has published a lifetime health advisory guideline of 70 parts per trillion, which applies only to the combination of PFOA and PFOS, the agency has not yet established regulatory criteria or released health advisories for the wider family of PFAS compounds. Therefore, we encourage Congress to direct EPA to accelerate the development of these standards.

Also, given that PFAS has been used since for more than 70 years to manufacture stain-resistant, water-resistant, and non-stick products (such as clothing and cookware), we encourage Congress to direct and fund Department of Defense (DOD) research on "fingerprinting" PFAS to assist in determining the source of any groundwater contamination.

Additionally, there are many open questions related to remediation and disposal. Work that may be undertaken through the bills before Congress, as well as that being directed at the state level, will result in inventories of impacted areas. However, next steps are essentially unknown, as recommended practices for both remediation and disposal activities continue to evolve. ACI-NA encourages Congress to provide EPA funding to facilitate increased knowledge and suggested practices related to remediation and disposal.

ACI-NA requests that Congress defer general legislation on PFAS, PFOA, PFOS, and new drinking-water standards until the EPA, FAA, and DOD have completed their foundational research into the appropriate levels, historical sources, meaningful alternatives, remediation, and disposal methods available to end-users like airports. **In the event that any such legislation is moved forward, we urge you to ensure that it includes federal responsibility for any consequences of federally-mandated use of products containing PFAS.** Regarding legislation currently pending before your committee, we make these specific comments on those bills most concerning to us:

S. 638, "The PFAS Action Act of 2019"

ACI-NA opposes this legislation, as this blanket categorization such could result in the classification of many other PFAS compounds that may be found at airports as hazardous substances without the underlying science to justify this determination. Such action could significantly impact airport operations and negatively affect air service in hundreds of communities throughout the United States. As EPA is just beginning the process to

designate PFOA and PFOS as "hazardous substances" under CERCLA, this overly broad legislation is premature. EPA should be permitted to conduct its research and undertake its rulemaking process, taking into account the need to differentiate among the thousands of PFAS compounds and under their respective health impacts.

S. 1507, "The PFAS Release Disclosure Act"

This legislation is also premature, as it could require airports to report PFOA and PFOS data in the Toxic Release Inventory (TRI) given that scientific data necessary to facilitate the report is unlikely to be available on January 1, 2020, the date airports would be required to begin reporting if this bill is enacted. EPA has not yet determined a toxicity level for these PFAS compounds. Further, there is little scientific data available on contaminated soil for two of the required components of TRI reporting - "treatment" and "disposal".

We appreciate your consideration of the impact these bills would have on U.S. airports and the communities that depend on them for air transportation and economic development. If we can be of any assistance or provide additional information, please contact ACI-NA's Senior Director of Environmental Affairs, Melinda Pagliarello (202-861-8092 or MPagliarello@airportscouncil.org).

Sincerely,

Kevin M. Burke
President & CEO

May 20, 2019

The Honorable John Barrasso
Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

The Honorable Thomas Carper
Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

The Honorable Frank Pallone
Chairman
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

The Honorable Greg Walden
Ranking Member
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515

Dear Chairman Barrasso, Ranking Member Carper, Chairman Pallone, and Ranking Member Walden:

We are writing as members of the American Alliance for Innovation (AAI), a group of trade associations representing a broad spectrum of American companies who rely on sound chemical management policy. Because of the essential role per- and polyfluoroalkyl substances (PFAS) play in so many of the products Americans rely on every day, we urge you to refrain from taking overly broad actions regarding PFAS that would wholly circumvent existing EPA and other appropriate federal agencies' regulatory frameworks and processes for regulating chemicals. Rather, we support Congress's review of current authorities provided under federal law and developing a pathway to expedite necessary regulatory and clean-up actions to address the legacy challenges.

AAI members represent businesses both large and small spread across the United States economy. Multiple business sectors are included in our membership, such as aerospace, agriculture, automotive, building and construction materials, electronics, energy, and textiles. PFAS is a key enabling technology that plays a vital role in many of these industries, including products ranging from life-saving applications in pacemakers and defibrillators to low-friction and clot-resistant coatings for catheters, stents and needles. PFAS products are also used in the manufacturing of semiconductors, solar panels and high-performance electronics and are used to extinguish dangerous hydrocarbon fires efficiently and effectively.

While some of the chemical names sound the same, PFAS have differing characteristics, formulations, intended uses, and environmental and health profiles. Therefore, a blanket, one-size-fits-all approach to regulating all PFAS chemicals as a class is not only misleading to the public, but is scientifically inaccurate.

We continue to support strong national leadership in addressing PFAS and firmly believe that the career officials at the EPA, through the rulemaking process, are best positioned to provide the public with a comprehensive strategy informed by a full understanding of the safety and benefits of different PFAS chemistries. It is also essential that EPA implement its National PFAS Action Plan

quickly based on the best-available science and continue to communicate effectively to the public to build confidence, transparency, and credibility in the actions it takes.

Thank you for your leadership and your consideration of this important matter. Please let us know if you have any questions.

Sincerely,

Aerospace Industries Association
Airlines for America
American Chemistry Council
American Forest & Paper Association
American Petroleum Institute
Fashion, Jewelry & Accessories Trade Association
INDA, Association of the Nonwoven Fabrics Industry
International Liquid Terminals Association
National Association of Chemical Distributors
National Association of Printing Ink Manufacturers
National Association for Surface Finishing
National Council of Textile Organizations
National Tank Truck Carriers
Oregon Women in Timber
Painting and Decorating Contractors of America
Pine Chemicals Association
Resilient Floor Covering Institute
Single Ply Roofing Industry
Society of Chemical Manufacturers and Affiliates
Specialty Graphic Imaging Association
Spray Polyurethane Foam Alliance
The Chlorine Institute
The Treated Wood Council



American Forest & Paper Association

American Forest & Paper Association
Statement Submitted for the Record
U.S. Senate Committee on Environment and Public Works
Hearing Entitled: "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)"
May 22, 2019

We appreciate the opportunity to share our perspective on legislation under consideration by the Subcommittee on Environment and Climate Change on perfluoroalkyl and polyfluoroalkyl substances (PFAS).

The American Forest & Paper Association (AF&PA) serves to advance a sustainable U.S. pulp, paper, packaging, tissue and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry's sustainability initiative - Better Practices, Better Planet 2020. The forest products industry accounts for approximately 4 percent of the total U.S. manufacturing GDP, manufactures over $200 billion in products annually, and employs approximately 900,000 men and women. The industry meets a payroll of approximately $50 billion annually and is among the top 10 manufacturing sector employers in 45 states.

AF&PA members are committed to ensuring the safety of their products, including the safety of chemicals used in their manufacturing processes. AF&PA believes that chemical and product-related legislation and regulations should be protective of health, cost-effective, and based on the best available science. AF&PA also supports studies and research to achieve science-based assessments that ultimately may be used as the basis for establishing regulations. Policy and regulations should be based on credible science and reflect actual exposure to and risk from chemicals in specific products, not merely whether de minimis or trace levels of a chemical may be present.

PFAS are a large and diverse class of chemicals with widely varying uses and properties. AF&PA is opposed to any legislation that does not distinguish between short and long-chain PFAS, suggesting that all short-chain PFAS have similar potential for harm. The specific short-chain PFAS chemistry currently used in food packaging has been carefully reviewed and approved by the U.S. Food and Drug Administration (FDA) under a comprehensive federal regulatory program that ensures the safety of food packaging for public health and the environment.

FDA-regulated food packaging should be excluded from legislation. The FDA has "carefully reviewed the available science" on the short-chain compounds used for food packaging purposes and determined that they are safe for their intended use. The FDA's careful study and approval of the use of short-chain PFAS chemicals allows for continued production of safe and reliable food packaging.[i] AF&PA member companies do not use older, long-chain fluorinated chemistries such as perfluorooctanoic acid (PFOA) and perfluorooctanesulfonate (PFOS) in the

production of food contact paper and paperboard. These companies began using modified paper coating formulas around 2011-- ahead of the 2016 FDA ban on various long-chain PFAS chemicals.

We also are greatly concerned about the potential direct consequences on paper recycling from any legislation that does not exempt paper-based products and manufacturing byproducts where PFAS has not been intentionally added. The failure to provide an exemption will directly affect the paper recycling industry and diminish our ability, and that of our customers and suppliers, to operate in a sustainable manner. PFAS are ubiquitous in the environment, and legislation should exempt products, byproducts and substances where PFAS is not intentionally added.

We thank the Committee for their consideration on this important matter and stand ready to assist you and offer our expertise as a resource as you shape policy on this important issue.

For more information, please contact:

Elizabeth Bartheld
Vice President, Government and Industry Affairs
American Forest & Paper Association 1101 K Street, NW
Suite 700
Washington, DC 20005
Elizabeth_Bartheld@afandpa.org

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[i] Food packaging that complies with FDA regulations are safe for their intended use.

Chet M. Thompson
President and CEO

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Fuel & Petrochemical
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May 22, 2019

The Honorable John Barrasso
307 Dirksen Senate Office Building
Washington, DC 20510

The Honorable Tom Carper
513 Hart Senate Office Building
Washington, DC 20510

RE: Environment and Public Works Committee Hearing on Per- and Polyfluoroalkyl Substances (PFAS)

Dear Chairman Barrasso and Ranking Member Carper:

The American Fuel & Petrochemical Manufacturers (AFPM) is a trade association representing high-tech American manufacturers of virtually the entire U.S. supply of fuels and home heating oil, as well as the petrochemicals used as building blocks for thousands of vital products in daily life. AFPM members make modern life possible and keep America moving and growing as they meet the needs of our nation and local communities, strengthen economic and national security, and support over three million American jobs.

The safety of our workers and our communities is a core value for AFPM's member companies. It is in this context that AFPM evaluates legislation seeking to address the potential risks from per- and polyfluoroalkyl substances (PFAS).

Although AFPM's members do not manufacture PFAS, firefighting foam containing PFAS is the most effective firefighting foam commercially available today. AFPM fully supports the continued development and use of alternatives, including new generation fluorinated fire foams that will hopefully prove to be equally effective for emergency firefighting purposes. Our members are also implementing practices to limit the use of PFAS foam during non-emergency training exercises and equipment testing.

As Congress considers addressing risks associated with certain PFAS, it must preserve the ability to prevent and suppress fires at refineries and petrochemical facilities.

AFPM supports a consistent, national approach to address any potential risks associated with PFAS. AFPM does not support federal or state legislatures setting limits or hazardous classifications on PFAS chemicals by statute. Rather, any contaminant level or treatment level limits should be developed, as indicated by scientific review, by the proper rulemaking process, with the opportunity for input by all stakeholders.

Finally, AFPM urges any resulting regulations be supported by a peer-reviewed, risk-based approach on an individual PFAS chemical basis, not a "one-size-fits all" classification for all PFAS.

We appreciate your attention to this important issue and look forward to working with lawmakers as the process moves forward.

Sincerely,

Chet Thompson
President and CEO
American Fuel & Petrochemical Manufacturers



Howard J. Feldman
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June 3, 2019

The Honorable John Barrasso
Chairman, Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510

The Honorable Thomas R. Carper
Ranking Member, Committee on Environment and Public Works
U.S. Senate
Washington, DC 20510

Subject: "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)"

Chairman Barrasso, Ranking Member Carper and members of the Senate Committee on Environment and Public Works:

On behalf of the members of the American Petroleum Institute (API), I appreciate the opportunity to submit comments on the May 22 hearing, "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)" and respectfully request that this letter be entered into the formal record.

API is the only national trade association representing all facets of the oil and natural gas industry, which supports more than 10.3 million U.S. jobs and nearly 8 percent of the U.S. economy. API's more than 600 members include large integrated companies, as well as exploration and production, refining, marketing, pipeline, and marine businesses, and service and supply firms. They provide most of the nation's energy and are backed by a growing grassroots movement of more than 47 million Americans. API was formed in 1919 as a standards-setting organization. In its first 100 years, API has developed more than 700 standards to enhance operational and environmental safety, efficiency and sustainability.

PFAS are a group of chemicals that have been manufactured and used in the U.S. since the 1940s. Their unique characteristics have made them an important component to a range of industries – including aerospace, automotive, building and construction, defense, electronics, food packaging, healthcare, telecommunications, and oil and gas. Individual PFAS have distinct physical, chemical and structural properties, which impact how each one can be used and measured and the effect each may have on human health and the environment. Implementing a class-wide regulatory or legislative approach for these complex PFAS threatens to create a framework in which risk is not determined by evidence-based science and compliance may be technically unachievable or require significant cost with no associated health or environmental benefit.

One issue relevant to our industry is life-saving firefighting foam. Foams containing PFAS are the only available option that are effective in extinguishing liquid petroleum fires, such as those involving gasoline tankers and aboveground storage tanks. The use of these foams meets National Fire and Protection Association (NFPA) 11, the industry standard for firefighting foam. These foams are essential to the safety of employees, first responders, and members of the community, and to mitigating potential significant impacts to the environment that could result from uncontrolled fire incidents.

Companies strive to implement best practices and procedures related to fire prevention and response, including training, testing, containment, and personnel protection. To mitigate the need to deploy firefighting foams, API maintains and continuously improves new standards related to fire prevention and occupational safety. For non-emergency training, industry supports the use of fluorine-free foams. Additionally, API provides financial and technical support to the NFPA to develop standards to validate the effectiveness of fluorine-free alternatives. That being said, until an effective and proven alternative has been identified, API opposes a ban on the utilization of fluorinated foams for firefighting.

API and its member companies support a consistent and credible approach that leverages existing frameworks to assess the potential risks associated with PFAS. While grouping PFAS chemicals into simple categories may streamline the debate, it ignores the scientific complexity, range of properties, and potential benefits to modern society. As Congress continues to evaluate legislative proposals pertaining to PFAS, API strongly cautions against regulating these substances as a broad class and urges that any potential action be based on existing administrative procedures and sound science.

API appreciates the opportunity to provide these comments. Should you have any questions, please contact me at (202) 682-8340.

Sincerely,

Howard T. Feldman



May 16, 2019

The Honorable Jeanne Shaheen
506 Hart Senate Office Building
United States Senate
Washington, D.C. 20510

The Honorable Rob Portman
448 Russell Senate Office Building
United States Senate
Washington, D.C. 20510

Dear Senator Shaheen and Senator Portman:

On behalf of the undersigned water sector organizations, we would like to thank you for introducing S. 1251, the Safe Drinking Water Assistance Act. This important legislation will improve critical research into the potential human health impacts of unregulated emerging contaminants that may be found in drinking water supplies. We are pleased to offer our support.

As you know, the Safe Drinking Water Act includes a robust, science-based regulatory process that EPA must follow when determining whether to propose a national primary drinking water regulation for a currently-unregulated contaminant. As part of this process, the law requires EPA to regularly identify emerging contaminants – those not currently subject to federal regulation – and make determinations of whether they should be subject to new limits. However, a lack of scientific data that explains the human health effects of certain emerging contaminants often slows EPA's ability to make regulatory determinations in a timely manner, and leaves communities uncertain as to the precise human health impacts of emerging contaminants that may have been detected in their water supplies.

The Safe Drinking Water Assistance Act would improve research into the human health implications of emerging contaminants by establishing an interagency working group between EPA and the Department of Health and Human Services that will organize and coordinate federal activities to identify the human health effects of emerging contaminants. The bill would also establish a National Emerging Contaminant Research Initiative to improve the identification, monitoring, and treatment of emerging contaminants. Finally, the proposal would offer technical assistance to help states respond when emerging contaminants have been detected in water supplies relied upon by their residents.

We support the Safe Drinking Water Assistance Act because it would facilitate research into the human health effects of emerging contaminants – thus giving critical data to communities where contaminants are present, and to EPA as it undertakes the process of deciding whether a national primary drinking water regulation is warranted for a given contaminant. We appreciate your leadership on this issue, and we look forward to working with you as this legislation advances through the Senate.

Sincerely,

American Public Works Association
American Water Works Association
Association of Metropolitan Water Agencies
National Association of Water Companies
National Groundwater Association
Rural Community Assistance Partnership (RCAP), Inc.
Water Environment Federation
The Water Research Foundation
Water Quality Association
WateReuse Association

ASSOCIATION OF
METROPOLITAN
WATER AGENCIES

LEADERS IN WATER

1620 I Street, NW, Suite 500
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P 202.331.2820 F 202.785.1845
amwa.net

May 22, 2019

The Honorable John Barrasso
Chairman
Environment and Public Works Committee
United States Senate
Washington, D.C. 20510

The Honorable Tom Carper
Ranking Member
Environment and Public Works Committee
United States Senate
Washington, D.C. 20510

Dear Chairman Barrasso and Ranking Member Carper:

The Association of Metropolitan Water Agencies (AMWA) appreciates the opportunity to submit comments for the record of today's hearing on "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)." As an organization representing the nation's largest publicly owned drinking water systems, we commend the committee for organizing this hearing to explore policies that could address PFAS that have been increasingly detected in our environment and our water supplies in recent years.

As AMWA said in a statement that was submitted to a hearing in the House of Representatives last week, we believe that federal policies targeting PFAS should mirror the approach that is followed for other emerging contaminants. Namely, polluters should be held responsible, necessary research should be conducted, and any new regulations should be transparent, science-based, and protective of public health.

As you know, PFAS are a class of man-made chemicals that were developed over the second half of the 20th century for use in a variety of industrial applications, from nonstick cookware to firefighting foam. While the chemicals' nonstick properties carried useful commercial value, the substances accumulate over time, do not degrade easily, and are highly soluble in water – allowing their presence to spread throughout the environment. Human exposure to PFAS may occur through the use of products containing PFAS or the consumption of food or water that has absorbed the substances. EPA's Science Advisory Board has classified PFOA, one common PFAS, as likely to be carcinogenic, and numerous animal studies have shown associated impacts to the liver, immune system, thyroid, and reproductive systems after exposure to various other PFAS. However, we have little to no information on toxicity, particularly in relation to human toxicity, for the vast majority of the thousands of PFAS, and significant research is needed to fill in these gaps.

AMWA watched with interest in February when the Environmental Protection Agency released its PFAS Action Plan, which outlined EPA's strategy for addressing these contaminants through existing statutory authorities. We were pleased to see components of the plan that committed to additional research, cleanup assistance, and a continuation of the regulatory process under the Safe Drinking Water Act

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(SDWA). While much work remains to be done, we view the Action Plan as a positive first step, and Congress must conduct oversight to ensure implementation of the plan remains on track. For example, the Action Plan notes that EPA has initiated the regulatory development process for listing PFOA and PFOS – two of the most prominent PFAS – as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). AMWA strongly believes the entities that are responsible for releasing contaminants into the environment – and thus, into sources of drinking water – must also be held liable for the cost of removing these contaminants to the point that any imminent and substantial human health threat is abated, and any applicable Maximum Contaminant Level Goal under SDWA is achieved. This is especially true for man-made contaminants like PFAS, which would not be present in the country's water supplies had a company not manufactured them and allowed them to enter the environment. CERCLA is a proven and effective mechanism for holding responsible those who have polluted drinking water supplies, so we favor action under that statute to ensure that the entities that originally introduced PFOA and PFOS into the environment ultimately pay the cost of source water cleanup – not the utility ratepayers of those affected communities.

Equally important to holding polluters accountable is the need to develop sound, reliable research that identifies the precise human health risks associated with exposure to PFAS chemicals, as well as how community water systems can best remove them from water supplies. Testimony delivered to the House of Representatives last week suggested the existence of between 3,000 and 6,000 man-made PFAS compounds, but the human health implications of exposure to many of them remain unknown. Moreover, most lab facilities lack the capability to even detect more than several dozen of these compounds, and conventional drinking water treatments like ozonation, biofiltration, and UV disinfection are ineffective at removing many PFAS from water supplies. Other treatments like granular activated carbon or reverse osmosis may have greater success, but the cost of their initial installation and ongoing operation are significant obstacles for many communities. In sum, it is hard to formulate an appropriate public policy response without understanding the point at which a particular PFAS may pose a measurable human health risk, or whether a local community has the capability to effectively respond.

EPA's PFAS Action Plan outlines a number of near-term and long-term actions the agency intends to take to address the gaps in our current understanding of PFAS' toxicity profile and treatment options. These include identifying the human health and ecological effects of exposure to various PFAS, the significant sources of human PFAS exposure, the costs and effectiveness of different methods for removing PFAS from drinking water and other parts of the environment, and steps EPA can take in support of stakeholders who need up-to-date research to protect the public from harmful exposure. AMWA supports each of these objectives, and because quality science requires a financial investment, the association urges Congress to provide EPA with the resources it needs to carry out the studies necessary to answer these questions. To this end, AMWA supports the Safe Drinking Water Assistance Act (S. 1251), legislation offered by Sens. Shaheen and Portman that would expand research into emerging drinking water contaminants by instituting an interagency working group and facilitating technical assistance to help states respond when a new unregulated substance is detected in their water supplies. Clearly, robust research must be a central component of any effective nationwide response to PFAS.

Finally, AMWA continues to support the detailed, science-based regulatory process that EPA is required to follow when developing a national primary drinking water regulation for any contaminant under SDWA. The law requires EPA to regularly identify contaminants not currently subject to federal drinking water regulation and make a determination of whether each should be subject to new drinking water limits. PFOA and PFOS have been on EPA's Contaminant Candidate List for several years and were subject to monitoring by drinking water systems through the third Unregulated Contaminant Monitoring Rule. Important information about the prevalence of PFOA and PFOS in the nation's drinking water supplies was gathered during this time, and under SDWA the next step in the regulatory process is for EPA to decide whether to propose a Maximum Contaminant Level (MCL) for PFOA and PFOS in drinking water. EPA's PFAS Action Plan committed the agency to taking this step before the end of the year.

To make a positive determination and move forward to develop an MCL, the EPA Administrator must conclude that the contaminant in question is prevalent in drinking water across the country at levels that may carry an adverse human health risk, and that an MCL would present a meaningful opportunity to reduce this risk. Moreover, an initial MCL proposed by EPA must be followed by a period of public review and comment, where stakeholders and other interested parties are afforded a chance to engage with the agency, review the underlying science, and make their own suggestions about the appropriateness of an MCL at a given level. Only after collecting and considering this feedback may EPA promulgate a final MCL – one that the public can be confident is transparent, science-based, and protective of public health.

AMWA recognizes that at times SDWA's regulatory process can appear to move slowly, and that it can be tempting to instead direct EPA to issue a regulation for a particular contaminant. But it is also critically important to make sure, before a regulation is enacted, that the resulting compliance efforts by thousands of individual communities would result in a measurable reduction of risk. In the case of the broad family of PFAS, it is not clear how a drinking water standard could presently meet this test, given the thousands of different known compounds, limited information on effective detection and treatment strategies, and unknown human health impacts for many individual chemicals. A hasty formation of a PFAS MCL would run contrary to the consideration of sound and transparent science that is at the heart of the law's regulatory process.

AMWA believes that Congress should hold EPA accountable for meeting its self-imposed goal of issuing a regulatory determination for PFOA and PFOS by the end of the year, before considering legislation to mandate a standard. Departing from SDWA's defined regulatory process could ultimately lead to a regulation that is rushed, lacks transparency, and may not fulfill the objective of measurably improving human health outcomes. Such a regulation would be of questionable value, and would likely lead to increased compliance costs for communities that are already struggling with water affordability challenges. Again, AMWA supports SDWA's transparent and science-based regulatory process, and believes that following that process will lead to the most trusted outcome for communities and the public.

AMWA appreciates the opportunity to provide these comments for the record of today's hearing. The emergence of PFAS in our environment has posed a vexing challenge for water utilities, but we strongly

believe that holding polluters accountable, developing robust research and data, and considering science-based regulations represents the best way forward.

We thank you for holding this hearing today, and we look forward to continuing to work with you as this issue unfolds in the months ahead.

Sincerely,

Diane VanDe Hei
Chief Executive Officer

CHAMBER OF COMMERCE
OF THE
UNITED STATES OF AMERICA

NEIL L. BRADLEY
EXECUTIVE VICE PRESIDENT &
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May 21, 2019

The Honorable John Barrasso
Chairman
Committee on Environment and
Public Works
United States Senate
Washington, DC 20510

The Honorable Tom Carper
Ranking Member
Committee on Environment and
Public Works
United States Senate
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper:

The U.S. Chamber of Commerce appreciates the Committee holding the hearing, "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)." The Chamber is committed to proactively working with legislators, regulators, and all stakeholders to establish risk-based standards that protect human health and the environment. While well-intentioned, the legislation to be considered at the hearing should be improved to more appropriately address issues related to PFAS.

S. 638, the "PFAS Action Act," would require the Administrator of the U.S. Environmental Protection Agency (EPA) to designate all PFAS as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or Superfund, within one year.

EPA should retain its important authority to study the effects of potentially hazardous substances and to ascertain whether they should be designated as hazardous under CERCLA. The Superfund program has a strong track record of dealing with hazardous substances. EPA's career scientists have the requisite expertise to examine PFAS, and decisions on these substances should not be a political question addressed by Congress.

As currently drafted, S. 638 would have significant unintended consequences that could lead to the reopening of an innumerable amount of remediated sites. This has the potential to overwhelm the Superfund program, undermine the progress that has been made on the highest-risk sites, and create unnecessary economic burdens on stakeholders, including small businesses, which may otherwise not be able to afford the direct costs associated with such widespread remediation efforts.

S. 1507, the "PFAS Release Disclosure Act," would amend operation of the Emergency Planning and Community Right-to-Know Act of 1986 to require the reporting by industrial and federal facilities of certain PFAS releases via the Toxics Release Inventory (TRI). The TRI database serves as a centralized collection of mandatorily-reported information pertaining to

releases of toxic chemical emissions, toxic chemicals placed in certain land disposals, as well as those managed through recycling energy recovery and treatment.

To be considered a toxic chemical subject to the TRI, EPA must find the chemical is known to cause or can reasonably be expected to cause "significant adverse acute human health effects" or a significant adverse environmental effect or is reasonably anticipated to cause cancer or other chronic health effects. Currently, no PFAS are subject to TRI reporting requirements.

This legislation would be substantially improved by targeting those PFAS that are of the highest priority based on *actual* risk, using existing regulatory processes to address both current and future issues. Any legislative action should respect the formal rulemaking processes and scientific approaches that serve as the foundation of environmental statutes.

S. 1507, as currently drafted, would add the two PFAS of greatest concern, PFOA and PFOS (including their associated salts), to the TRI, as well as a number of other PFAS or groups of PFAS subject to certain current or future regulatory processes provided for in the Toxic Substances Control Act. While initially limited in scope, the number of PFAS that could ultimately be subject to future TRI reporting requirements under this bill has the potential to reach well into the thousands.

S. 1507 would also reduce the TRI reporting threshold of 25,000 pounds for chemical manufacturers and processors and 10,000 pounds for chemical users to 100 pounds for all stakeholders. Although stakeholders would likely be better served by retaining the original threshold for reporting requirements, the bill would allow EPA to reexamine the lowered threshold every five years, based on the best available science and data. Notably, S. 1507 would also provide important protections for confidential business information.

We look forward to working with you on this important matter as the legislative process continues.

Sincerely,

Neil L. Bradley

cc: Members of the Senate Committee on Environment and Public Works

Written Statement of

Paul Kirsch

President, Chemours Fluoroproducts

The Chemours Company

Before the

U.S. Senate Committee on Environment and Public Works

May 22, 2019

Introduction

Water quality and emerging contaminants are growing concerns across the United States, and rightly so. Water is essential to our lives, our communities, and our planet. One focus of this concern is a class of fluorinated chemicals called PFAS, or perfluoroalkyl and polyfluoroalkyl substances. As discussed below, the term PFAS represents a broad and diverse range of compounds that have a variety of physical and chemical properties, health and environmental profiles, uses, and benefits.

The Chemours Company's fluoropolymers business uses a small subset of this class of chemicals in manufacturing some of its fluoropolymer materials. This includes fluoropolymer materials used for mission critical military operations, as well as for countless industries essential to modern life — including the medical, renewable energy, water treatment, electronics, aerospace, and semiconductor industries. Fluoropolymers are used in essentially every car, airplane, and cell phone in the United States. And they are used in the production of a wide variety of medical products ranging from prescription drugs to catheters.

As president of the fluoroproducts business at Chemours, I would like to state at the outset that we at Chemours take very seriously our obligation to manage the PFAS compounds in our manufacturing process in a responsible manner and ensure they are safe for their intended use.

As discussed below, we at Chemours also support the federal legislative efforts currently underway and their goals to develop a safe regulatory framework for PFAS using a science-based approach that takes advantage of the extensive, existing regulatory framework. This includes expeditiously addressing priority PFAS compounds under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), setting federal Maximum Contaminant Levels (MCLs) for priority PFAS compounds, and adding certain PFAS compounds to the Toxic Release Inventory (TRI) reporting requirements.

Chemours is committed to being a transparent and collaborative partner in this process. We have demonstrated just how seriously we take our commitment to stewardship by adopting ambitious Corporate Responsibility Commitment goals. One such goal is the reduction by 99% or greater of PFAS air emissions and water discharges at all of our sites globally. In making this commitment, Chemours has gone well beyond our legal and regulatory requirements to address local community expectations now and in the future. We know of no other company that has made this type of commitment.

Chemours' actions include:

- significant steps already taken at multiple manufacturing sites, including an investment of over $100 million in state-of-the-art abatement technology at our Fayetteville Works facility in North Carolina.

- investment in research and development of treatment technologies, including carbon and ion exchange.

- creation of more sensitive analytical methods and synthesis of authentic reference standards for researchers, as well as commercial labs, regarding certain PFAS byproducts, as no commercial standards or methods had previously been available for determining concentrations of these compounds.

Chemours has shared and contributed — and is willing to continue to do so — our analytical expertise and abatement knowledge related to this chemistry because we believe that it can be valuable in reaching real solutions.

PFAS — The Similarities and Differences

Some of the bills under consideration suggest a legislative approach that would apply a blanket "one size fits all" regulatory approach across all PFAS. I believe this approach poses two major challenges.

First, a blanket "one size fits all" approach will slow down the regulatory process and impede the science-based prioritization and progress that the nation so desperately wants to see on this topic. As outlined below, in order to provide swift progress, Chemours believes that the U.S. Environmental Protection Agency (EPA) should focus *immediately* on those compounds identified by the Agency for Toxic Substances and Disease Registry (ATSDR) with risk-based screening levels (namely, PFOA, PFOS, PFHxS, and PFNA). *See* ATSDR's Minimal Risk Levels (MRLs) and Environmental Media Evaluation Guides (EMEGs) for Perfluoroalkyls (PFAS), November 2018.[1] Addressing these compounds at the federal level — in a manner consistent with the Administrative Procedures Act and the relevant environmental statutes — will provide a much needed solution to a significant portion of the nation's water quality challenge related to PFAS.

The second challenge to a blanket approach is the fact that fluorinated compounds are not a uniform class of chemicals. While PFAS chemicals have similarities (for example, they all contain a fluorine-carbon bond), they also have many differences. For example, PFAS chemicals vary widely in physical-chemical properties, structure, and toxicity. As discussed below, the different characteristics among PFAS chemicals result in very different risk and toxicity profiles for particular substances. In order to ensure that our regulatory approach is science-based and does not unnecessarily stifle innovation, these differences should be incorporated into any effort to better regulate PFAS compounds.

The need to apply different regulatory strategies to different compounds within a class of chemicals is neither novel nor controversial. For example, consider the following three hydrocarbon substances: polyethylene (a widely used, if not the most widely used, plastic in the world), propane (an explosive gas), and ethanol (found in alcoholic beverages). All three of these substances are hydrocarbons but nobody would suggest regulating these three in the same way. The differences among PFAS compounds can be just as extensive as the differences among polyethylene, propane, and ethanol.

[1] While we agree that these substances identified by the ATSDR for MRLs are appropriate for regulation, we do not necessarily agree with the specific risk levels identified by the ATSDR. Any determination of risk levels should follow standard scientific risk assessment methodologies as well as the criteria set forth in the applicable regulations.

A. Durability vs. Toxicity

Essentially all PFAS compounds are durable, environmentally persistent compounds. This is because they contain carbon-fluorine covalent bonds, and these bond types are quite resistant to degradation. In fact, it is this characteristic that provides many of the commercial and consumer benefits of PFAS compounds.

But the *durability* of a chemical compound in the environment is not synonymous with its *toxicity* or hazard potential. Just think about other environmentally persistent compounds, such as metals. Iron, calcium, and arsenic, being metals, are all persistent in the environment. Two of these chemicals are essential nutrients, while the third is especially hazardous to human health. No one would consider these three, similarly persistent chemicals to pose equal risks to human health. And for this reason, it wouldn't make sense to consider adopting a "one size fits all" regulatory approach for all metals.

B. Biopersistence

Certain PFAS substances have been found to remain in people for a period of time. For instance, PFOA, which was phased out of production in the United States years ago, has been shown to have a half-life in humans of approximately 2 to 3 years. This characteristic is sometimes referred to as biopersistence because the chemical persists in the body.

Meanwhile, there are other "second generation" PFAS chemicals that have been developed to be non-biopersistent in mammals. One such compound is the compound called GenX made by Chemours and used to produce certain fluoropolymers. GenX has been shown to rapidly eliminate from the body.

The elimination of GenX from the body has recently been corroborated by independent researchers at North Carolina State University who have been studying the relationship between GenX levels in water and human blood. These researchers found no detectable levels of GenX in the blood of any participants, even for those individuals consuming drinking water with low levels of GenX. *See* North Carolina State University, Center for Human Health and the Environment, *The GenX Exposure Study*, 2018, https://chhe.research.ncsu.edu/the-genx-exposure-study/.

In addition, laboratory studies have also confirmed that GenX is eliminated within a few days, which indicates that it is not persistent in the bodies of those test animals. *See* Gannon, et al. *Absorption, distribution, metabolism, excretion, and kinetics of 2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propanoic acid ammonium salt following a single dose in rat, mouse, and cynomolgus monkey.* Toxicology. 2016 Jan 18; 340:1-9. doi: 10.1016/j.tox.2015.12.006.

Looking Forward — A Workable Approach

With these toxicological and regulatory considerations in mind, Chemours submits that several proposed bills addressing PFAS could be targeted more precisely to align with the scientific data and reduce unnecessary regulatory burdens on productive economic activity and innovation. For example:

- Senate Bill 638 seeks to have EPA designate "all PFASs" as hazardous substances under CERCLA. As a workable alternative, EPA could be required under CERCLA to move immediately to address those PFAS compounds for which the ATSDR has already established MRL screening values. Then, EPA should move promptly to address other PFAS compounds pursuant to an expedited regulatory "on ramp" as described below. This scientifically-based, tiered approach would prevent unanticipated complications and expensive regulatory burdens that could arise from the current bill, such as the unnecessary creation of hundreds or thousands of potential new Superfund sites.

- The PFAS Release Disclosure Act properly targets PFAS compounds with MRL screening values (PFOA and PFOS) for listing on the TRI. This Act also seeks to have EPA add a list of other chemicals to the TRI based on EPA's prior regulatory determination that such chemicals posed similar toxicological risks as PFOA and PFOS. We understand that the proposed PFAS Release Disclosure Act would seek to apply thresholds to substances individually (not as a single value to different substances) using existing statutory criteria and regulatory processes. On that basis, we concur with the proposed legislation.

- The Protect Drinking Water from PFAS Act of 2019 appears to require EPA to create a single MCL for PFAS in drinking water under the Safe Drinking Water Act. As discussed above, lumping all PFAS together makes little sense from a toxicological perspective. Instead, as with our proposal related to CERCLA, it would make more sense to create MCLs immediately for the priority PFAS compounds identified by the ATSDR with screening levels. This approach would also avoid a host of technical problems that the bill would create for EPA, among them how to develop a scientifically-credible single safe drinking water level for an unspecified mixture of chemicals with varying or unknown levels of toxicity.

Regulatory On-Ramps

For PFAS other than those with minimum screening levels established by the ATSDR, Chemours proposes that EPA develop an expedited protocol for determining whether particular substances should undergo standard toxicity testing.

This screening protocol should incorporate several criteria including:

- Presence and concentration of the compound in the environment
- Actual or potential human exposure
- Indications of toxicity based upon credible structural and chemical similarity to other compounds for which toxicity data exists
- Results from rapid, non-animal toxicity testing methods
- Remediation or other response efforts in place
- Other appropriate toxicological criteria

If, based upon these criteria, EPA determines that there is a high likelihood that additional regulatory action will be necessary, EPA should undertake or require focused studies designed to identify potential human hazards using generally-accepted scientific methodologies and applying the regulatory criteria and processes of the relevant statutes. Then, any future MCLs and/or other regulatory designations can be based upon sound science and relevant toxicological data.

Finally, Chemours is not alone in proposing a tiered, prioritization approach to PFAS toxicity testing. Several leading scientists at EPA and the National Institutes of Health recently published a paper describing a similar approach. *See* Patlewicz, et al. *A Chemical Category-Based Prioritization Approach to Selecting 74 Per- and Polyfluoralkyl Substances (PFAS) for Tiered Toxicity and Toxicokinetic Testing.* Environmental Health Perspectives. January 2019. These types of tiered approaches may be appropriate where also supported by evidence of exposure and other relevant information and environmental data.

Conclusion

Chemours supports the regulation of PFAS compounds, focusing first on the highest priority substances, and then on other appropriate PFAS compounds on an expedited basis.

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DUPONT

June 5, 2019

The Honorable John Barrasso
Chairman
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

The Honorable Thomas Carper
Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, D.C. 20510

The Honorable Frank Pallone
Chairman
Committee on Energy and Commerce
United States House of Representatives
Washington, DC 20515

The Honorable Greg Walden
Ranking Member
Committee on Energy and Commerce
United States House of Representatives
Washington, D.C. 20515

Dear Chairman Barrasso, Ranking Member Carper, Chairman Pallone, and Ranking Member Walden:

Thank you for your leadership on addressing the legacy of poly and per-fluorinated alkyl substances (PFAS) that you have shown during your recent Committee hearings.

DuPont believes a comprehensive, risk-based federal chemical regulatory system, combined with strict compliance, will protect public health and the environment, while allowing innovation to continue to develop safe and innovative products that meet customers' needs. That is why DuPont supports Congressional and EPA efforts to develop science-based guidelines and regulations for PFAS chemicals, with an emphasis on building on past EPA's actions to regulate long-chain bio-persistent PFAS compounds including PFOA.

We believe Congress should utilize EPA's extensive knowledge base of PFAS chemicals to evaluate and regulate, as appropriate, those legacy PFAS chemicals. Congress should empower EPA to expeditiously conduct regulatory evaluations using its existing authority under the Clean Water Act (CWA), Safe Drinking Water Act (SDWA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Toxic Substances Control Act (TSCA), and Toxics Reporting Inventory (TRI). In particular, the regulatory focus should be on those bio-persistent, long-chain PFAS chemicals as defined by EPA in its 2009 Long-Chain Perfluorinated Chemicals (PFCs) Action Plan. Congress should also provide EPA and other Agencies with appropriate funding and resources to fulfill regulatory responsibilities, to further advance the development of test methods, and to assist local communities in dealing with

PFAS chemicals in the environment. Finally, acknowledging the hundreds of different PFAS chemicals that have been and continue to be utilized in the U.S. by many manufacturers to produce a broad range of important industrial and consumer products, Congress should establish a process for differentiation, classification, and potential regulation of additional PFAS chemicals as data becomes available.

Safety and environmental stewardship are core values at DuPont. We are committed to fulfilling our compliance and remediation obligations and to continuous improvement of our chemical stewardship process. We uphold the highest standards for the safe operation of facilities and the protection of our environment, our employees, our customers and the people of the communities in which we do business.

Thank you for your leadership and your consideration of this important matter. Please let us know if you have any questions.

Sincerely,

Dr. Alexa Dembek
Senior Vice President, Chief Technology and Sustainability Officer

May 21, 2019

The Honorable John Barrasso
Chairman
Senate Environment & Public
Works Committee
Washington, D.C.

The Honorable Thomas R. Carper
Ranking Member
Senate Environment & Public
Works Committee
Washington, D.C.

Re: May 22, 2019 Senate Environment and Public Works Committee Hearing Entitled "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)"

Dear Chairman Barrasso and Ranking Member Carper:

On behalf of the National Association of Clean Water Agencies (NACWA) and the Water Environment Federation (WEF), we appreciate the opportunity to provide the Committee with some insights and recommendations from the clean water community on the emerging and highly complex issue of per- and polyfluoroalkyl substances (PFAS) and the potential impacts proposed legislation may have on the communities our members serve[1]. Our members include public agencies and clean water professionals providing clean water services in communities nationwide.

The PFAS family constitutes a suite of more than 3,000 known chemical varieties that have been in production and in the environment since the 1940s. Recently, these chemicals have been detected in elevated concentrations in groundwater in certain parts of the country, especially near airports and military bases where aqueous film forming foams (AFFF) were used as well as near industrial manufacturing sites.

These synthetic chemical substances are engineered and utilized specifically for their strong carbon-fluorine bonds which are enormously effective at resisting heat, water, and oil. As such, PFAS chemicals are commonly found in everyday consumer products including fast food containers, nonstick cookware, stain resistant coatings, water resistant clothing and personal care products. Due to their chemical structure and their commercial value and use, PFAS are ubiquitous in the environment. They are also persistent, bioaccumulate, and do not readily degrade.

NACWA and WEF submitted comments to the U.S. Environmental Protection Agency (EPA) in 2018 urging the Agency to develop a federal response that appropriately reflects the risks posed by PFAS, close the unresolved scientific gaps—including fate, transport, and toxicity of PFAS using a science based approach—and evaluate the appropriate regulatory response to target the sources of PFAS and responsible disposal techniques.

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[1] NACWA & WEF, PFAS ISSUE BACKGROUND AND ADVOCACY ASKS (2019), *available at* https://www.waterweek.us/wp-content/uploads/2019/04/pfas-3-onepager-1-FINAL-web.pdf

Building on those comments, NACWA and WEF support legislative approaches that utilize existing environmental statutes as tools to address current, and mitigate future, PFAS contamination. We believe that an important priority for Congress is to prioritize and stop these chemicals at their source through appropriate controls on industrial and other uses—before PFAS enters a public sewer system or the environment. We further believe that added protections under the Toxic Substances Control Act (TSCA) and the Emergency Planning and Community Right-to-Know-Act's (EPRCA) Toxic Release Inventory (TRI) would be extremely useful in expanding the knowledge of industrial sources and identifying specific PFAS chemicals entering commerce and ultimately the environment.

Congress can also empower the Clean Water Act's pretreatment program. NACWA and WEF's POTW members are the primary implementers of the national pretreatment program and are charged with controlling commercial and industrial discharges to the sewer system. Limiting the amount of PFAS discharged into the sewer system will prevent PFAS from passing through the wastewater treatment process and into the environment. Congress can direct EPA to complete its current study of industrial dischargers containing PFAS and to develop appropriate PFAS pretreatment standards for high-priority industrial sectors.

NACWA and WEF believe the above recommendations are critical first steps to protect public health and mitigate environmental contamination. However, NACWA and WEF have concerns regarding legislation that aims to address PFAS contamination through designation of PFAS chemicals as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Public clean water utilities receive and treat a broad range of wastewater influent from heterogenous sources including domestic, industrial, and commercial sources. Our members are responsible for treating and managing billions of gallons of wastewater and stormwater everyday but are typically not equipped or designed to remove synthetic industrial chemicals such as PFAS. It is imperative that Congress and EPA recognize that municipal clean water utilities are not sources of PFAS themselves, but because they were not designed to remove these chemicals, they can convey PFAS from their actual source to the environment.

Removing PFAS chemicals from wastewater influent/effluent at the large volumes received by publicly owned treatment works (POTWs) would require the installation of very costly advanced treatment techniques such as granular activated carbon, ion exchange, or reverse osmosis. These technologies would only transfer the PFAS to another medium where it would still need to be managed. POTWs will face considerable operational and technical challenges as well as substantial costs if required to treat for or otherwise address the presence of these substances in wastewater.

Should the Committee and Congress move to designate all PFAS (as proposed in S. 638) or a select subset of PFAS chemicals as hazardous substance under CERCLA, NACWA and WEF strongly urge the inclusion of clear, unambiguous statutory language excluding municipal wastewater residuals from potential CERCLA liability. While we understand that designating PFAS constituents as hazardous substances could provide the necessary monetary relief for states seeking to hold parties responsible and to adequately clean up contaminated PFAS sites, Congress must ensure this designation does not have broader, significant unintended consequences for public clean water utilities.

As part of managing and treating the nation's wastewater each day, our public utility members are actively engaged in resource recovery, including the treatment and management of nutrient-rich biosolids for use on farmlands and other soil applications. Biosolids are highly beneficial for

our environment and our economy because they not only enhance soil health, recycle nutrients, reduce fertilizer and pesticide use, but they also put to productive use the wastewater treatment residuals that every community in the United States must manage.

A CERCLA designation for PFAS could potentially open liability for public clean water utilities that have been beneficially land applying their biosolids for decades. The majority of the biosolids generated in the US is land applied and a clear municipal wastewater exclusion from CERCLA hazardous substances designation would ensure that efforts to address PFAS do not have unintended consequences for the POTWs who must receive these chemicals from their sources. Once the science has been fully developed on the extent to which PFAS levels must be further managed, the clean water utility community stands ready to find an appropriate path forward.

Typical biosolids with no direct large industrial inputs are unlikely to impact ground and surface waters at levels above EPA's existing health advisory levels for drinking water (70 ppt). Only in a few worst-case scenarios have wastewater and biosolids been found to contribute to PFAS water contamination at levels of concerns. These are rare and involve large discharges to the sewer system from industrial facilities using significant volumes of PFAS. In these situations, PFAS concentrations have been greatly reduced by stopping discharges through industrial pretreatment requirements and other source control methods.

As public and environmental stewards of their communities, NACWA and WEF members want to continue working with Congress, the federal and state regulatory authorities, and stakeholders to address PFAS contamination and how PFAS may be entering wastewater treatment systems. We believe it is imperative to identify potential sources of PFAS and mitigate these chemicals from entering water resources. To achieve our common goals of protecting public health and the environment, it is critical that we continue to build upon our scientific understanding of these emerging contaminants and their potential risks. Additional research on these issues is necessary, and NACWA and WEF fully support EPA's ongoing efforts to better understand the fate and transport of PFAS, and their ultimate impact on the environment and public health.

NACWA and WEF appreciate your consideration of these comments and the impacts current legislation could have on the operations of public clean water utilities, their ratepayers, and the constituents you serve. We all share a goal of protecting the health and safety of the communities we serve and welcome further discussions with the Committee on this issue.

Sincerely,

Adam Krantz
CEO
NACWA

Eileen J. O'Neill, Ph.D, BCES
Executive Director
WEF

May 20, 2019

The Honorable John Barrasso, Chairman
U.S. Senate Committee on Environment and Public Works
410 Dirksen Senate Office Building
Washington, DC 20510-6175

Re: Senate EPW Hearing on Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)

Dear Mr. Chairman:

On behalf of The National Association of Surface Finishing (NASF) we appreciate the opportunity to submit information on the Committee's hearing, "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)." The industry understands the potential concerns associated with PFAS compounds and has a long history of proactive environmental stewardship on PFAS used in the surface finishing industry. Based on the industry's experience and the current best available science, it is clear that not all PFAS compounds pose the same risks and the entire class of PFAS compounds should not be regulated the same. Below we provide evidence on why the Committee should allow the U.S. Environmental Protection Agency (EPA) to make substance-by-substance, risk-based evaluations on PFAS compounds, consistent with the best available science, rather than attempt to address risks for the broad range of PFAS compounds as a class.

NASF Overview

NASF promotes the advancement of the North American surface finishing industry globally. It has approximately 800 members, including surface finishing companies, surface finishing suppliers, large global industrial customers and individual and professional members. The NASF represents the business, management, technical, and educational programs, as well as the regulatory and legislative advocacy interests of the surface finishing industry.

Surface finishing is the process of coating, usually a metal or plastic object, with one or more layers of another metal, paint, or plastic to furnish its surface with desired properties, such as: corrosion, abrasion and wear resistance; improved lubrication; non-toxicity; altered dimensions; light reflection; insulation or conductivity; improved electrical properties and solderability; heat and cold resistance; and improved appearance. The many industries that rely on metal finishing include: automotive, aerospace and defense, industrial equipment, computers and electronics, medical equipment, tools and dies, shipbuilding, petroleum, furniture, steel mill products, jewelry, plumbing fixtures, household appliances, and construction.

The surface finishing industry plays a vital role in the lives of consumers and in the nation's economic future. The industry's role in corrosion protection alone provides an estimated $200 billion annual economic benefit to the nation, including significant corrosion protection for military equipment that provides national defense. Surface finishing maximizes our productivity, safety and quality of life, and ensures that the products people use every day last longer, work better, and look better.

Surface finishing operations are performed in two ways: 1) as a "captive" operation where the finishing work is performed on the products made at the manufacturing company; and 2) on a job-shop basis where the finishing work is performed under contract for the owner of the product or material that is to be finished. Nearly all surface finishing job shops are small businesses. Over 80 percent of the job-shops in business employ fewer than 75 people, while nearly 40 percent employ fewer than 20 people. Most job-shop surface finishing firms are family-owned

businesses, located in every state but more heavily concentrated in the industrial Midwest, the Southeast, New England and California.

NASF History of Proactive Environmental Stewardship

Historic Use of PFOS in the Plating Industry

Beginning in 1995 as part of the chromium electroplating and anodizing National Emissions Standards for Hazardous Air Pollutants (NESHAP) of the Clean Air Act (40 CFR Part 63 Subpart N), EPA recommended the use of perfluorooctane sulfonate (PFOS)-based fume suppressant as an effective and cost-efficient option to reduce hexavalent chromium emissions from chromium electroplating and anodizing processes. The small businesses in the surface finishing industry relied on fume suppressants because they were as effective as air emission control equipment in reducing hexavalent chromium emissions, but were not as expensive and did not require significant capital investment.

In 2006 OSHA promulgated a revised workplace exposure standard for hexavalent chromium with a more stringent permissible exposure limit (PEL). Surface finishing operations also used PFOS-based fume suppressants in chromium plating processes to reduce workplace exposure levels as an effective and cost-efficient control option for ensuring worker safety.

The PFOS was added to the fume suppressant to reduce hexavalent chromium emissions in the harsh chemical environment of a chromium plating bath without degrading. Based on EPA's data, the implementation of the chromium electroplating NESHAP with the use of PFOS-based fume suppressants reduced hexavalent chromium emissions by over 99 percent from the agency's 1995 baseline.

Just ounces of PFOS-based fume suppressants were added to process tanks to reduce hexavalent chromium emissions effectively. Before the industry requested that EPA prohibit it from use in the surface finishing industry, the estimated use of PFOS in the surface finishing industry represented only 0.4 percent of global commercial uses.

NASF's Environmental Stewardship on PFOS

NASF has had a long history of environmental stewardship on the use of PFOS-based fume suppressants. Over a decade ago, as the initial concerns regarding PFOS in the environment started to emerge, the State of Minnesota detected PFOS in wastewater discharges from chromium electroplating shops. Working together, NASF, EPA, and Minnesota eliminated the use of PFOS-based fume suppressants in chromium electroplating shops in Minnesota. Based on these efforts, the levels of PFOS in wastewater discharges from facilities were reduced dramatically from levels of approximately 100 parts per million (ppm) to levels measured in parts per billion (ppb), which at the time, EPA and Minnesota considered extremely low and of little concern.

Following the success in Minnesota, NASF proactively approached EPA in the context of the EPA's standard review of the chromium electroplating NESHAP to implement a nationwide phase-out of PFOS-based fume suppressants. **The surface finishing industry is the only industry to have proactively requested and received a ban on the use of PFOS in an EPA regulation.** The revised chromium electroplating NESHAP was finalized in 2012, and the ban on the use of PFOS became effective in September 2015.

The surface finishing industry no longer uses PFOS-based fume suppressants to control hexavalent chromium emissions in chromium plating baths. The surface finishing industry took steps during the transition time to adopt safer, EPA-compliant, commercially available, effective PFOS alternatives for fume suppression, described below. The industry has since been working to explore both fluorinated and non-fluorinated based alternatives as fume suppressants in order to protect both the environment and workers.

Levels of PFOS Detected In Wastewater Effluent

Even with the industry's proactive efforts to eliminate the use of PFOS-based fume suppressants, the State of Michigan recently detected levels of PFOS in wastewater effluent from some surface

finishing operations, measured in the parts per trillion (ppt) range. As a frame of reference, one ppt is equivalent to a single drop in 20 Olympic-sized swimming pools.

Industry and regulatory agencies are uncertain why PFOS has been found in wastewater effluent from surface finishing facilities that have not used PFOS since September 2015. NASF has engaged with EPA, Michigan, the wastewater treatment plant community, industry partners, technical experts, and other stakeholders to gain a more thorough understanding of the source of the residual PFOS in surface finishing effluent and the most effective solutions to minimize and eliminate these residual concentrations in the effluent.

Currently, several surface finishing facilities in Michigan have installed granular activated carbon (GAC) filtration to reduce the levels of PFOS in their wastewater effluent. While this treatment can be effective, it is expensive, does not remediate the source of the residual PFOS, and may pose additional environmental challenges. For example, a small plating operation spends approximately $20,000 per month for the GAC treatment. In addition, the spent carbon must be incinerated at a site designated to handle PFAS-laden GAC incineration, greatly increasing the costs. Simply put, these costs are not economically sustainable for small, family-owned plating operations.

NASF Research Efforts to Address PFOS Issues

NASF has been working to develop and launch national research projects to understand why PFOS is present in the wastewater effluent of surface finishing operations and how to address these residual levels. For example, the AESF Foundation, the research and education organization affiliated with NASF, recently funded research to be conducted at the University of Illinois at Chicago on the potential electro-chemical destruction of PFOS in wastewater. NASF looks forward to updating the committee on the results of this important research.

In addition, NASF has developed other resources that address the legacy issues from the past uses of PFOS and the new challenges presented by the safer, alternative fume suppressant currently used in the industry. For example, NASF engaged toxicologist and national expert on

PFOS risks, Dr. Janet Anderson, to prepare a "White Paper" to summarize the industry's background and use of PFOS-based fume suppressants and technical information on the alternative fume suppressant. This document is appended to this letter. Furthermore, NASF has created a "PFAS Resource Center" on its website at https://nasf.org/pfas/ that provides valuable information on the issue for the industry, government officials, the public, and other interested stakeholders.

Status of Substitute Chemistry for Fume Suppressants

Today's hexavalent chromium fume suppressant formulations in the U.S. use only "short-chain" fluorotelomer chemistry, primarily 6:2 fluorotelomer sulfonate (6:2 FTS). Fluorotelomers are fluorinated carbon compounds named via the "X:Y" designation in which X is the number of fully fluorinated carbons and Y is the number of non-fluorinated carbons. 6:2 FTS is composed of six fully fluorinated carbon atoms, and two non-fluorinated carbon atoms. Compared to PFOS, 6:2 FTS is significantly less toxic than PFOS; 6:2 FTS does not bio accumulate, and is not environmentally persistent.

The fully fluorinated carbon end of 6:2 FTS can break off and form short-chain perfluorinated compounds such as perfluorohexanoic acid (PFHxA; five fully fluorinated carbons) and perfluorpentanoic acid (PFPeA; four fully fluorinated carbons), but does not degrade to long-chain fully fluorinated compounds such as perfluorooctanoic acid (PFOA), or PFOS. PFOA and PFOS have seven and eight fully fluorinated carbon chains, respectively, which cannot form in the environment from a smaller molecule such as the 6:2 FTS. Short-chain fluorotelomers such as 6:2 FTS and short-chain fully fluorinated compounds such as PFHxA are less toxic than PFOS and do not build up in a human body.[1] Therefore, they are of less concern for human health risks.

[1] Luz et al. 2019. Perfluorohexanoic acid toxicity, part I: Development of a chronic human health toxicity value for use in risk assessment. *Regulatory Toxicology and Pharmacology*, 103, pp. 41-55; Anderson et al. 2019. Perfluorohexanoic acid toxicity, part II: Application of human health toxicity value for risk characterization. *Regulatary Toxicology and Phormacology*, 103, pp. 10-20

Not All PFAS Compounds Pose the Same Risk

Treating "PFAS" (per- and polyfluoroalkyl substances) as if all PFAS belong to one uniform class of chemicals is not scientifically justified, and regulating all PFAS chemicals as if they are the same could have significant negative consequences to our industry. The term "per- and polyfluoroalkyl substances (PFAS)" encompass a wide range of thousands of chemicals that can have very different chemical and physical properties. Subclasses of PFAS are remarkably different in ways that affect their potential impact on human health and the environment; some are not soluble in water, some are not environmentally persistent, some are not absorbed into the human body, and some are eliminated from the body in a few days or hours.

These characteristics are notably different than the perfluorinated substances such as PFOS and PFOA, which are soluble in water and therefore found in drinking water, are environmentally persistent, and can be absorbed in the human body and remain there for years. These important distinctions should be acknowledged when issuing legislation and regulation – only those PFAS that have persistent, bioaccumulative and toxic characteristics should be considered for CERCLA and/or TRI reporting.

Impacts of Proposed Legislation on Surface Finishing Industry

CERCLA Hazardous Substance Designation

Senate bill 638 would require EPA to designate all PFAS as "Hazardous Substances" under section 102(a) of CERCLA; 42 U.S.C. §9602(a). This indiscriminate, generic approach would add thousands of individual chemicals to the Hazardous Substance list – more than doubling the total number added to the listing in the last 38 years – without any evaluation of whether the individual listings are warranted. Such an overly broad designation is unprecedented and unnecessary.

Hazardous substance designations have been and should continue to be reserved for those substances known to present a substantial danger to public health or the environment when

released.[2] As noted previously PFAS substances present a wide range of properties and toxicological profiles, which do not support lumping all PFAS together. It may be appropriate to ensure that EPA assesses and prioritizes specific PFAS under the Hazard Substances listing criteria on a practicable schedule, but EPA's experts must be allowed to collect and review the best available science and make appropriate regulatory decisions as required by CERCLA and the other environmental statutes that Congress has delegated to EPA to fully implement.

Limiting CERCLA Hazardous Substance designations only to those substances that fully meet the statutory criteria is important because of the costs such designations impose on individuals, small businesses like surface finishing operations, and local and federal governments. CERCLA imposes strict liability (regardless of fault) for costs to investigate, remove or remediate Hazardous Substances. Liability falls on the past and current owners or operators of those facilities, and those who arranged for the disposal of Hazardous substances on those properties.

CERCLA does not impose any liability on producers of substances sold as useful products that come to be located in the environment in connection with storage and use by customers. *Burlington N. & S. F. R. Co. v. United States, 556 U.S. 599 (2009).* Instead, liability falls on the current or past owners of any of the thousands of properties where the Hazardous Substances are found – whether a farmer's field used by a water treatment utility to reuse recovered biosolids, a landfill that unknowingly, but lawfully, accepted solid waste with PFAS, or a small business such as a plater that in good faith used commercial chemical formulations recommended or approved by regulatory bodies to reduce hexavalent chromium emissions.

And once the hazardous substance designation is made, policy makers have no ability to control where these costs are incurred or the massive cascade of litigation that will surely follow. Federal and state governments can incur investigation and remedial costs and seek to recover

[2] The several alternative Hazardous Substance listing criteria include substances that, (1) when released, "present substantial danger to the public health or welfare or the environment" (CERCLA Section 102(a)); or (2) "present an imminent and substantial danger to the public health or welfare (Federal Water Pollution Control Act Section 311(b)(2)(A)); or (3) when emitted into the air, ambient concentrations, bioaccumulation or deposition of the substance are known to cause or may reasonably be anticipated to cause adverse effects to human health or adverse environmental effects (Clean Air Act Section 112(b)(3)(B)); or (4) is likely to result in serious or widespread injury to health or the environment (Section 7 of the Toxic Substances Control Act).

them from past and current affected property owners, or they can issue orders compelling property owners and operators to conduct the investigations themselves and pay for the government for its oversight expenses. *See, e.g., Cooper Industries, Inc. v. Aviall Services, Inc., 543 U. S. 157, 161 (2004).*

Cost recovery rights are not, however, limited to governments. Once a substance is designated as a Hazardous Substance, any private citizen can investigate a property and seek to recover those investigation and remediation costs from the alleged local source of the contaminant; or they can file a declaratory judgment action and seek an order compelling such other persons to help fund their private cleanup efforts.

Decades of CERCLA experience shows unequivocally that each of these initial claims – whether by government or a private party – will spawn further litigation that can bankrupt small businesses, blight neighborhoods, erode local tax bases, and impose significant remedial and property damage costs on municipal water treatment utilities, among others. The magnitude of the costs associated with these consequences can be expected to be particularly high in the case of PFAS because of EPA's extremely low health guidance values. The existing legal framework is designed to allow EPA to make these substance-by-substance evaluations, based on the best available science, evaluation by experts of all relevant disciplines, and with input from the public.[3]

[3]Hazardous Substance designations also will trigger new reporting obligations for releases of any of the thousands of PFAS substances to the extent released in quantities greater than the chemical- specific reporting threshold (reportable quantity or "RQ") in a 24-hour period. 42 U.S.C. §9603. Since it would be arbitrary to set a single RQ for all PFAS, EPA will be obligated to devote significant resources over years to set individual RQs for each PFAS substance, and until then the RQ for all will be one pound.

TRI Reporting

Legislatively adding certain PFAS to the TRI list as envisioned by Senate bill 1507[4] would grossly add to the existing number of listings and would completely bypass the administrative process, established in the statute and implemented by EPA to ensure that chemicals added to the list are first determined by EPA experts to present the kinds of serious hazards that warrant the societal costs of tracking and reporting manufacturing, processing and use information. Having this broad range of PFAS compounds categorized in "one bucket" is not scientifically defensible from experts in the field, and is a massive oversimplification of the class of chemicals as a whole.

The TRI program requires companies to report annually on Form R if they intentionally or inadvertently manufacture or process a TRI chemical in quantities greater than 25,000 pounds, or if they otherwise use a listed chemical in quantities greater than 10,000 pounds. Reporting companies must report on chemical waste management activities, including any recycling, energy recovery, treatment, disposal, or environmental release of each TRI substance. This is time consuming, difficult work which, in the case of PFAS, will be compounded if hundreds of chemicals potentially may need to be addressed by industry as a whole.

In addition, the legislative proposal to reduce the reporting threshold for PFAS compounds to 100 pounds would exacerbate the problems associated with the overly broad inclusion of these PFAS compounds. As the statute provides, these reporting efforts should be confined to the limited number of substances that meet the stringent statutory listing criteria.

[4] This would include PFOA and associated salts, PFOS and associated salts; and a PFAS substance or class of PFAS substance listed as an active chemical substance under the Toxic Substances Control Act (TSCA) section 8(b)(1) and subject to a TSCA Significant New Use Rule (SNUR). The bill would also require EPA to determine whether to add to TRI a GenX substance, 12 other specified PFAS substances, and any PFAS substance used to manufacture fluoropolymers.

Conclusion

On behalf of NASF and its members, we appreciate the opportunity to provide this information. NASF is committed to developing best practices for managing PFAS compounds and identifying science-based solutions to address the concerns posed by PFAS compounds used in the surface finishing industry. Despite our reservations on the specific language of the proposed legislation to address PFAS compounds, NASF looks forward to working with the Committee to find science-based approaches to protect human health and the environment that are economically and environmentally sustainable.

If you have any questions or would like additional information regarding the issues discussed above, please contact Christian Richter at crichter@thepolicygroup.com or 202-257-0250 and Jeff Hannapel at jhannapel@thepolicygroup.com or 202-257-3756.

Respectfully submitted,

Christian Richter
Jeff Hannapel
On behalf of the National Association of Surface Finishing (NASF)

NATIONAL RURAL WATER ASSOCIATION
America's Largest Utility Membership

Testimony

Before the

U.S. Senate

Committee on the Environment and Public Works

On Behalf of the

National Rural Water Association

May 22, 2019 Hearing on

Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)

Small and rural communities thank you for the opportunity to comment on PFAS-related legislation being considered by the Committee: S. 638, The PFAS Action Act of 2019; S. 950, The PFAS Detection Act of 2019; S. 1251, The Safe Drinking Water Assistance Act of 2019; S. 1372, The PFAS Accountability Act of 2019; S. 1473, The Protect Drinking Water from PFAS Act of 2019; and S. 1507, The PFAS Release Disclosure Act.

The National Rural Water Association (NRWA) is the non-profit association of the federated state rural water associations with a combined membership of over 30,000 small and rural communities. NRWA is the country's largest water utility association and the largest community-based environmental organization. State Rural Water Associations are non-profit associations governed by elected board members from the membership. Our member utilities have the very important public responsibility of complying with all applicable U.S. Environmental Protection Agency (EPA) regulations and for supplying the public with safe drinking water and sanitation every second of every day.

NRWA shares the Committee's goal of eliminating environmental public health risks including the elimination of all concentrations of PFAS from the public's drinking water. Local governments and state governments exist solely to protect and assist their citizens. The provision of safe drinking water is perhaps the most elemental purpose of local government and is generally recognized as one of the most essential public health, public welfare, and civic necessities. Most all of the country's approximately 50,000 community drinking water systems are typically administered by their local governments. Approximately 91 percent of the 50,000 community water systems serve fewer than 10,000 persons (EPA SDWIS database 2019). The great majority of public water systems affected by any future federal action for PFAS will be these small water systems.

Small and rural communities have a much more challenging time complying with federal Safe Drinking Water Act regulations and operating complex drinking water treatment systems due to the lack of technical resources in small communities. While we have fewer resources, we are regulated in the exact same manner as a large community. While the cost of a small community's water infrastructure may only be a fraction of a large metropolitan community, the cost per household is often much higher because we have so few ratepayers to spread out the cost. Similarly, the compliance burden of the Safe Drinking Water Act is more severe because we don't have the same technical resources as large communities. Many small communities may only have one operator with multiple duties, not just

wastewater treatment – and we don't have staff engineers, compliance officers and attorneys to help with compliance. But we still have to stay current with all the new rules, maintain our treatment and distribution systems, and manage our very complex federal drinking water compliance requirements.

Federal regulations that are not supported by local governments, while well-intentioned, may have an adverse effect of mandating that local communities and consumers pay the cost of federal compliance that they don't believe is resulting in the most beneficial public health or environmental policy. This dynamic is especially acute and problematic for economically disadvantaged populations.

We appreciate the Committee's continued assistance in advancing new funding and administrative policies to help the most economically disadvantaged consumers afford public water. Many stakeholders believe that economically disadvantaged populations are facing a crisis in affording their current water utility bills. We appreciate the Committee's sensitivity in understanding that any new federal unfunded mandates on local governments can increase the cost of the public's essential drinking water service and force the most economically at-risk consumers to be unable to afford their water bill or other necessary public health expenditures.

We appreciate the intent of Senators Carper, Stabenow, Shaheen, Gillibrand, and Capito in crafting legislation to protect the public from the risk of PFAS in their drinking water supplies including testing, remediation, health effects research, treatment technologies research, direct assistance to affected populations including members of the military, modifications to federal environmental statutes, funding assistance to affected communities, and new federal authorities to hold responsible parties accountable for harming communities and individuals. We support these objectives in principle and we will be submitting additional comments regarding the specifics of the legislation after further review and consideration from our local government membership. We are grateful for the opportunity to work with these Senators and the Committee to ensure any final legislation is of maximum benefit to the public and their local governments.

We also commend the EPA for their efforts to assist public drinking water systems in protecting the public from PFAS in their drinking water. Specifically, we appreciate the Agency's May 2018 PFAS National Leadership Summit and Engagement and the Agency's 2016 PFOA and PFOS Drinking Water Health Advisories. We urge the Committee to recognize and endorse the Agency's novel Health Advisory concept because it gives the public what they most want, the best scientific knowledge about the safety of their drinking water. This knowledge empowers the very people who are drinking the water and paying for its service to make responsible decisions about their public health. This dynamic is evinced by the numerous EPA-sponsored PFAS Community Engagement Events where the local government presenters have detailed how they were taking immediate action to remediate PFAS contamination in their drinking water regardless of a federally enforceable standard.

The EPA Safe Drinking Water Act Health Advisory level is preferable to the Act's National Primary Drinking Water Regulation process (i.e. Maximum Contaminant Levels of MCLs) because the MCL mechanisms function as if the local communities are the responsible parties for contamination with a remedy of civil penalties which actually further penalize the communities whose drinking water was contaminated. Again, this dynamic is especially acute and problematic for economically disadvantaged communities and populations. Numerous stakeholders, including Members of Congress, have called on the EPA to promulgate a federal regulatory standard or MCL for PFAS. NRWA urges the Congress to resist calls for a national SDWA MCL for PFAS. Instead, we urge the Agency to rely on alternative federal initiatives to assist communities dealing with PFAS contamination as opposed to enforcement and levying fines on local citizens (the ratepayers) for communities out of compliance. What is actually needed in affected communities is assistance (i.e., funding for treatment,

monitoring assistance, on-site technical assistance for emergency operations, credible public health information, emergency access to safe drinking water, and compensation from responsible parties). The SDWA's mechanism of levying federal fines on local consumers for violations of MCLs is not a helpful solution for small and rural communities adversely affected by PFAS contamination. Federal civil enforcement fines of up to $25,000 a day do not help a rural, low income community afford better water. Alternatively, the federal government should identify the level where PFAS becomes unsafe in drinking water or acknowledge whether such a determination is impossible given the complexity of the analysis.

Another reason that Health Advisory levels are preferable is that they are based on the safety of the water rather than MCLs. MCLs are not public health levels, but rather are determined by what a large metropolitan community can "feasibly" afford. There is a level authorized in the Safe Drinking Water Act for EPA to identify a healthy base level, the so-called "unreasonable risk to health" level that has never been identified by EPA in the manner proposed under the SDWA. The public wants to know what levels of PFAS in drinking water are safe or unsafe. The current MCL approach, as currently implemented, does not provide this essential information.

Every local government detecting PFAS contamination prefers to have all traces of contamination removed from their drinking water and all local governments are likely advancing plans and policies toward that goal absent a federal regulation or MCL. The promulgation of an MCL does not advance the goal of removal of all PFAS from community drinking water supplies in locally governed water utilities. Local governments are not responsible for PFAS contamination and responsible parties should be held accountable for remediation, treatment and providing alternative sources of safe drinking water.

America's small and rural communities are the foundation of our nation's economy and high quality of life. NRWA is proud to represent this sector of American society.

Thank you for the opportunity to comment and participate. We are very appreciative of the Committee's many public outreach opportunities. Please contact Mike Keegan with any questions or if we can be of any assistance.



May 21, 2019

The Honorable John Barrasso
Chairman
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

The Honorable Tom Carper
Ranking Member
Committee on Environment and Public Works
United States Senate
Washington, DC 20510

Dear Chairman Barrasso and Ranking Member Carper:

The Rural Community Assistance Partnership (RCAP), Inc. works with rural and tribal communities across the country on issues relating to safe drinking water and sees firsthand the impacts dangerous contaminants have at the local level. RCAP also understands the profound impact that regulatory compliance can have on the economic viability and operation of small systems, and the financial and health implications for both the system and the larger community.

It is vital that all systems protect the health of their community, and that all considerations are taken to ensure the safety of the public's water sources and systems. With the responsibility of managing a water system also comes the need to balance the technical, managerial and financial (TMF) aspects of sustaining that system (and the community that it serves), and regulations can sometimes affect the ability to ensure sustainability of the system when the TMF implications are not properly understood. A balance must be achieved between ensuring the sustainability of the system and the incredible responsibility each system has to ensure the community is safe and healthy.

With our vast experience working with some of the smallest and most distressed communities across the country, RCAP supports the development of maximum contaminant levels (MCLs) under the Safe Drinking Water Act (SDWA) for perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) by the United States Environmental Protection Agency (US EPA). These compounds are being detected in drinking water, and MCLs are needed to ensure consistent and effective protection of public health.

US EPA classifies PFAS as emerging contaminants, which means that they are characterized as a perceived, potential, or real threat to human health or the environment. As some PFAS are bioaccumulative, they build up in the body over time and they are slow to be eliminated.

Currently, there is much confusion on how to address the detection of these compounds in drinking water. In 2016, EPA issued health advisories for PFOA and PFOS. EPA stated:

> EPA has established health advisories for PFOA and PFOS based on the agency's assessment of the latest peer-reviewed science to provide drinking water system operators, and state, tribal and local officials who have the primary responsibility for overseeing these systems, with information on the health risks of these chemicals, so they can take the appropriate actions to protect their residents. EPA is committed to supporting states and public water systems as they determine the appropriate steps to reduce exposure to PFOA and PFOS in drinking water. As science on health effects of these chemicals evolves, EPA will continue to evaluate new evidence.

In the absence of MCLs, these health advisories are being used as defacto MCLs in states. When these compounds are detected, state and local regulatory agencies have no choice but to require treatment or other action because there is no MCL in place to help guide these decisions. In many cases they do not have the authority to do so, leading to many states scrambling to develop their own regulatory requirements. To the public, exceeding an advisory level means the water is unsafe. PFAS are pervasive and are becoming a hot-button issue across the country and many states have taken regulatory action, meaning that it is imperative to regulate them uniformly from a federal perspective.

RCAP strongly recommends a national MCL process be undertaken by EPA to ensure a transparent, scientifically defensible, and consistent approach is taken, including understanding the health risks to individuals and families and the sustainability of systems to abide by regulations required by the MCL. A robust public process will allow stakeholders an opportunity to comment, review, and debate the science required for MCL development. Stakeholder input is also required and needed to ensure that the regulations can be effectively implemented while not placing an undue burden on communities, especially the smallest and most distressed regions of the country. The voice of systems of all sizes are needed, and the MCL process allows for that input.

A national total MCL will provide states, utilities, and technical assistance providers clear guidance on how to address these compounds through a transparent and clear process. It is important to understand the impact this will have on small systems across the country,

and a MCL should be accompanied by additional resources, through technical assistance and funding, to help small systems comply. This will help ensure small systems continue to maintain the health of the public they serve, while addressing the sustainability issues many are facing on a daily basis.

RCAP stands ready to work with EPA, states, and small water systems nationwide as the regulatory process for these contaminants is determined.

Sincerely,

RCAP Board of Directors

Cc: The Honorable Kevin Cramer
The Honorable Tammy Duckworth

WESTFIELD RESIDENTS ADVOCATING FOR THEMSELVES

May 21, 2019

The Honorable John Barrasso
Chairman, Senate Committee on Environment and Public Works
307 Dirksen Senate Office Building
Washington, DC 20150

The Honorable Thomas R. Carper
Ranking Member, Senate Committee on Environment and Public Works
513 Hart Senate Office Building
Washington, DC 20510

Dear Chairman Barrasso, Ranking Member Carper, and Honorable Members of the Committee,

Thank you for holding this very important legislative hearing entitled, "Examining Legislation to Address the Risks Associated with Per- and Polyfluoroalkyl Substances (PFAS)." Thank you also for this opportunity to provide comment on behalf of myself, my family, and Westfield Residents Advocating For Themselves.

Westfield, Massachusetts is a community positioned in the western portion of the state, at the southeastern foothills of the Berkshires. Our city is bisected roughly in half, North/South, by the Westfield River. Barnes Air National Guard Base is located in the North side of our City, atop the Barnes Aquifer, into which all four of our North side municipal wells tap. Presumably because of fire training exercises spanning decades, per- and polyfluoroalkyl substances (PFAS) have been detected in all four of these wells, and several private wells in the contamination plume area that spans roughly three miles from the air base to the river. In a 2018 letter to the Westfield City Council, researchers from Silent Spring Insritute noted that, "PFOS levels in Well 7 were in the top 0.5% of all samples in public water supplies tested across the U.S." Those tests were performed *before* the EPA modified method 537 to account for branched chain isomers, so those PFOS levels, while in the top 0.5%, were dramatically less than they would have been if the same water sample were analyzed today.

As you can well imagine, legislation aimed at addressing "the risks associated with PFAS" is extremely important to us, as it is to every other person whose lives have been affected by these toxic, persistent, and pervasive chemicals. Essentially, we all need to: stop our exposure - from air, water, soils, biosolid use, and foods; clean up the contamination; stop PFAS use and discharges; create the legal framework required to hold accountable those responsible for PFAS contamination; and create the laboratory capacity and public health supports to assess the exrent of PFAS contamination in our environment and bodies.

Affected Americans, at this point, still do not have access to accurate information about sources of PFAS in their communities as PFAS discharges are still not required to be reported. Without designating PFAS as hazardous substances or hazardous waste, we are left without a means to stop PFAS discharges to our environment and our bodies, and we are left with the victims of PFAS contamination and exposure bearing the cost for clean up as well as medical care, loss in property values, and lost time at work.

Eliminating PFAS exposure in air, from industrial emissions, product degradation, and inadequate PFAS incineration must be addressed. Due to the toxicity, mobility, and fate of these "forever chemicals", and the intimate and dynamic relationship between surface water, groundwater, and soil, along with eliminating discharges, we need PFAS contamination characterization in the surface waters, groundwaters, and soils of affected communities. Protection from PFAS exposure and contamination also requires informed consent and carefully managed use of PFAS containing products for consumers and particularly for fire fighters whose personal protective gear and equipment are loaded with PFAS.

It also bears mentioning that since many of the PFAS contamination sites are surrounding military bases, affected communities here and abroad need the help of the U.S. government to require the Department of Defense provide clean drinking water immediately and make every timely effort to restore the natural resources they have polluted.

While elimination and clean up are necessary, at this very moment neither can be completely and safely accomplished. Therefore, we all need research into safe, complete PFAS destruction, and into the toxicity and health effects that have resulted from decades of mismanagement and coverup.

Thank you for holding this legislative hearing and for accepting these comments into the record. Americans across the globe, contaminated without consent, are depending on our government to step up and do the right things to address our toxic PFAS problems.

Very sincerely,

Kristen L. Mello

Co-founder, WRAFT
Westfield Residents Advocating For Themselves
https://www.facebook.com/WRAFT01085
klm.wraft@gmail.com

Senator BARRASSO. Now I would like to thank all of you for being here today. Some members of the Committee may have written questions that they will give to you. So the hearing record will remain open for 2 weeks. But I just want to thank all of you for your time and your testimony and sharing your wisdom with us today.

Thank you. The hearing is adjourned.

[Whereupon, at 10:58 a.m., the hearing was adjourned.]

[A prepared statement submitted for the record follows:]

STATEMENT OF HON. BERNARD SANDERS,
U.S. SENATOR FROM THE STATE OF VERMONT

Since early 2016, when perfluorooctanoic acid (PFOA), a type of per- and polyfluoroalkyl substances (PFAS), was found in hundreds of private wells and one municipal water system in southwestern Vermont, I have worked to ensure the Environmental Protection Agency (EPA) takes this threat seriously. The groundwater contamination in Vermont is the product of past industrial manufacturing in the area. PFAS—a toxic chemical that can cause cancer, thyroid disease, obesity, and immune problems—is very dangerous to human health in extremely low concentrations.

Vermont has led the Nation in its response to PFAS contamination, passing a law requiring one of the strongest drinking water standards in the country for five PFAS compounds. The law requires water system managers to test for the five compounds by the end of this year. If levels above the standard are found, water utilities will have to treat water to lower levels and provide residents with clean drinking water until the public supply is safe.

Meanwhile, Andrew Wheeler's EPA has proposed a very weak "action plan" that does not come close to protecting public health and a clean environment. That is what happens when the EPA acts on behalf of corporate polluters instead of protecting public health and a clean environment. Communities all across the country, particularly communities of color, find themselves time and time again fighting for the basic right to clean air and clean water. If Administrator Wheeler is successful, we will continue to see this same type of groundwater contamination in communities all across the country. That is unjust, and that has got to change.

In the richest country in the history of the world, it is not a radical idea to demand that when people turn on their taps, the water they drink is safe and clean, not filthy and poisonous. In February, I was proud to introduce the WATER Act to deliver water justice to millions of people who lack access to clean and safe drinking water and create up to a million jobs in the process.

My bill would help communities struggling with PFAS contamination by extending the State Revolving Loan Fund to cover PFAS contamination. My bill would provide support to update treatment systems or find alternative water supplies when community water systems or household water wells have PFAS contamination.

If President Trump was serious about addressing our crumbling infrastructure, which he is not, he would tell Mitch McConnell to bring this bill up for a vote and get Republican Senators to vote for it. Most Americans agree that everyone has a right to breathe clean air and drink clean water, but this EPA apparently disagrees. We have got to stand up and demand environmental policies that protect all of us, not just the profits of chemical corporations.

If we are serious about modernizing our aging water infrastructure in Vermont and across the country, we must make a significant and prolonged investment on the Federal level. Instead of cutting rural water funding like the Trump administration has proposed, we should dramatically increase support for these types of critically important projects.

[Text of legislation submitted for the record follows:]

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II

116TH CONGRESS
1ST SESSION

S. 638

To require the Administrator of the Environmental Protection Agency to designate per- and polyfluoroalkyl substances as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and for other purposes.

IN THE SENATE OF THE UNITED STATES

FEBRUARY 28, 2019

Mr. CARPER (for himself, Mrs. CAPITO, Mr. PETERS, Mr. TILLIS, Ms. STABENOW, Mr. RUBIO, Mr. MERKLEY, Mr. GARDNER, Mr. REED, Ms. MURKOWSKI, Mrs. SHAHEEN, Mr. BURR, Mr. BENNET, Mr. MANCHIN, Mr. SCHUMER, Mr. UDALL, Mr. HEINRICH, Ms. HASSAN, Mrs. GILLIBRAND, and Ms. BALDWIN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To require the Administrator of the Environmental Protection Agency to designate per- and polyfluoroalkyl substances as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "PFAS Action Act of 2019".

SEC. 2. DESIGNATION AS HAZARDOUS SUBSTANCES.

Not later than 1 year after the date of enactment of this Act, the Administrator of the Environmental Protection Agency shall designate all per- and polyfluoroalkyl substances as hazardous substances under section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9602(a)).

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II

116TH CONGRESS
1ST SESSION

S. 950

To require the Director of the United States Geological Survey to perform a nationwide survey of perfluorinated compounds, and for other purposes.

IN THE SENATE OF THE UNITED STATES

MARCH 28, 2019

Ms. STABENOW (for herself, Mr. ROUNDS, Mr. PETERS, Mr. TILLIS, Mr. BURR, and Ms. BALDWIN) introduced the following bill; which was read twice and referred to the Committee on Environment and Public Works

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A BILL

To require the Director of the United States Geological Survey to perform a nationwide survey of perfluorinated compounds, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "PFAS Detection Act of 2019".

SEC. 2. DEFINITIONS.

In this Act:

(1) ADMINISTRATOR.—The term "Administrator" means the Administrator of the Environmental Protection Agency.

(2) DIRECTOR.—The term "Director" means the Director of the United States Geological Survey.

(3) PERFLUORINATED COMPOUND.—

(A) IN GENERAL.—The term "perfluorinated compound" means a perfluoroalkyl substance or a polyfluoroalkyl substance that is manmade with at least 1 fully fluorinated carbon atom.

(B) DEFINITIONS.—In this definition:

(i) FULLY FLUORINATED CARBON ATOM.—The term "fully fluorinated carbon atom" means a carbon atom on which all the hydrogen substituents have been replaced by fluorine.

(ii) NONFLUORINATED CARBON ATOM.—The term "nonfluorinated carbon atom" means a carbon atom on which no hydrogen substituents have been replaced by fluorine.

(iii) PARTIALLY FLUORINATED CARBON ATOM.—The term "partially fluorinated carbon atom" means a carbon

atom on which some, but not all, of the hydrogen substituents have been replaced by fluorine.

(iv) PERFLUOROALKYL SUBSTANCE.—The term "perfluoroalkyl substance" means a manmade chemical of which all of the carbon atoms are fully fluorinated carbon atoms.

(v) POLYFLUOROALKYL SUBSTANCE.—The term "polyfluoroalkyl substance" means a manmade chemical containing a mix of fully fluorinated carbon atoms, partially fluorinated carbon atoms, and nonfluorinated carbon atoms.

SEC. 3. PERFORMANCE STANDARD FOR THE DETECTION OF PERFLUORINATED COMPOUNDS.

(a) IN GENERAL.—The Director shall establish a performance standard for the detection of perfluorinated compounds.

(b) EMPHASIS.—

(1) IN GENERAL.—In developing the performance standard under subsection (a), the Director shall emphasize the ability to detect as many perfluorinated compounds present in the environ-

ment as possible using analytical methods that are as sensitive as is feasible and practicable.

(2) REQUIREMENT.—In developing the performance standard under subsection (a), the Director may—

(A) develop quality assurance and quality control measures to ensure accurate sampling and testing;

(B) develop a training program with respect to the appropriate method of sample collection and analysis of perfluorinated compounds; and

(C) coordinate as necessary with the Administrator to develop methods to detect individual and different perfluorinated compounds simultaneously.

SEC. 4. NATIONWIDE SAMPLING.

(a) IN GENERAL.—The Director shall carry out a nationwide sampling to determine the concentration of perfluorinated compounds in estuaries, lakes, streams, springs, wells, wetlands, rivers, aquifers, and soil using the performance standard developed under section 3(a).

(b) REQUIREMENTS.—In carrying out the sampling under subsection (a), the Director shall—

(1) first carry out the sampling at sources of drinking water near locations with known or suspected releases of perfluorinated compounds;

(2) when carrying out sampling of sources of drinking water under paragraph (1), carry out the sampling prior to any treatment of the water;

(3) survey for ecological exposure to perfluorinated compounds, with a priority in determining direct human exposure through drinking water; and

(4) consult with—

(A) States to determine areas that are a priority for sampling; and

(B) the Administrator—

(i) to enhance coverage of the sampling; and

(ii) to avoid unnecessary duplication.

(c) REPORT.—Not later than 90 days after the completion of the sampling under subsection (a), the Director shall prepare a report describing the results of the sampling and submit the report to—

(1) the Committee on Environment and Public Works and the Committee on Energy and Natural Resources of the Senate;

(2) the Committee on Energy and Commerce of the House of Representatives;

(3) the Senators of each State in which the Director carried out the sampling; and

(4) each Member of the House of Representatives that represents a district in which the Director carried out the sampling.

SEC. 5. DATA USAGE.

(a) IN GENERAL.—The Director shall provide the sampling data collected under section 4 to—

(1) the Administrator of the Environmental Protection Agency; and

(2) other Federal and State regulatory agencies on request.

(b) USAGE.—The sampling data provided under subsection (a) shall be used to inform and enhance assessments of exposure, likely health and environmental impacts, and remediation priorities.

SEC. 6. COLLABORATION.

In carrying out this Act, the Director shall collaborate with—

(1) appropriate Federal and State regulators;

(2) institutions of higher education;

(3) research institutions; and

(4) other expert stakeholders.

SEC. 7. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Director to carry out this Act—

(1) $5,000,000 for fiscal year 2020; and

(2) $10,000,000 for each of fiscal years 2021 through 2024.

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MAZ19401 S.L.C.

116TH CONGRESS
1ST SESSION

S. _____

To improve and coordinate interagency Federal actions and provide assistance to States for responding to public health challenges posed by emerging contaminants, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mrs. SHAHEEN (for herself and Mr. PORTMAN) introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To improve and coordinate interagency Federal actions and provide assistance to States for responding to public health challenges posed by emerging contaminants, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Safe Drinking Water Assistance Act of 2019".

SEC. 2. FINDINGS.

Congress finds that—

(1) safe and clean drinking water is essential to the health, well-being, comfort, and standard of living of every person of the United States;

(2) emerging contaminants in drinking water systems are increasingly being detected at low levels;

(3) prolonged exposure to unregulated drinking water contaminants, including emerging contaminants, may pose human health risks, particularly to vulnerable populations;

(4) the Safe Drinking Water Act (42 U.S.C. 300f et seq.) requires the Administrator of the Environmental Protection Agency—

(A) to periodically make regulatory determinations with respect to unregulated contaminants; and

(B) not less frequently than once every 5 years, to identify and publish a description of unregulated contaminants that may require regulation;

(5) in a 2011 report of the Government Accountability Office, the Comptroller General of the United States found, with respect to unregulated drinking water contaminants, that—

(A) the Administrator has made limited progress in prioritizing drinking water contaminants based on greatest public health concern;

(B) the lack of data relating to the exposure of the public to potentially harmful drinking water contaminants and the related health effects of that exposure continues to limit the ability of the Administrator to make regulatory determinations; and

(C) in many cases, gathering sufficient data to address contaminants awaiting regulatory determinations by the Administrator has taken the Administrator more than 10 years, and obtaining data on other contaminants that are currently awaiting regulatory determinations may take decades;

(6) in the 2016 Drinking Water Action Plan of the Environmental Protection Agency, the Administrator recommended that the Federal Government and key water stakeholders strengthen the effectiveness of drinking water health advisories through enhanced collaboration and increased focus on risk management and risk communication approaches;

(7) in response to the report of the Committee on Appropriations of the Senate accompanying S.

1662 of the 115th Congress (S. Rept. 115–139), the Office of Science and Technology Policy developed a coordinated cross-agency plan for addressing critical research gaps related to detecting, assessing exposure to, and identifying the adverse health effects of emerging contaminants in drinking water; and

(8) it is vital that legislators, regulatory officials, public water system owners and operators, scientists, and environmental advocacy groups continue to work to ensure that the public water systems of the United States are among the safest in the world.

SEC. 3. DEFINITIONS.

In this Act:

(1) ADMINISTRATOR.—The term "Administrator" means the Administrator of the Environmental Protection Agency.

(2) CONTAMINANT.—The term "contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

(3) CONTAMINANT OF EMERGING CONCERN; EMERGING CONTAMINANT.—The terms "contaminant of emerging concern" and "emerging contaminant" mean a contaminant—

(A) for which the Administrator has not promulgated a national primary drinking water regulation; and

(B) that may have an adverse effect on the health of individuals.

(4) FEDERAL RESEARCH STRATEGY.—The term "Federal research strategy" means the cross-agency plan described in section 2(7).

(5) TECHNICAL ASSISTANCE AND SUPPORT.—The term "technical assistance and support" includes—

(A) assistance with—

(i) identifying appropriate analytical methods for the detection of contaminants;

(ii) understanding the strengths and limitations of the analytical methods described in clause (i);

(iii) troubleshooting the analytical methods described in clause (i);

(B) providing advice on laboratory certification program elements;

(C) interpreting sample analysis results;

(D) providing training with respect to proper analytical techniques;

(E) identifying appropriate technology for the treatment of contaminants; and

(F) analyzing samples, if—

(i) the analysis cannot be otherwise obtained in a practicable manner otherwise; and

(ii) the capability and capacity to perform the analysis is available at a Federal facility.

(6) WORKING GROUP.—The term "Working Group" means the Working Group established under section 4(b)(1).

SEC. 4. RESEARCH AND COORDINATION PLAN FOR ENHANCED RESPONSE ON EMERGING CONTAMINANTS.

(a) IN GENERAL.—The Administrator shall—

(1) review Federal efforts—

(A) to identify, monitor, and assist in the development of treatment methods for emerging contaminants; and

(B) to assist States in responding to the human health risks posed by contaminants of emerging concern; and

(2) in collaboration with owners and operators of public water systems, States, and other interested

stakeholders, establish a strategic plan for improving the Federal efforts referred to in paragraph (1).

(b) INTERAGENCY WORKING GROUP ON EMERGING CONTAMINANTS.—

(1) IN GENERAL.—Not later than 90 days after the date of enactment of this Act, the Administrator and the Secretary of Health and Human Services shall jointly establish a Working Group to coordinate the activities of the Federal Government to identify and analyze the public health effects of drinking water contaminants of emerging concern.

(2) MEMBERSHIP.—The Working Group shall include representatives of the following:

(A) The Environmental Protection Agency, appointed by the Administrator.

(B) The following agencies, appointed by the Secretary of Health and Human Services:

(i) The National Institutes of Health.

(ii) The Centers for Disease Control and Prevention.

(iii) The Agency for Toxic Substances and Disease Registry.

(C) The United States Geological Survey, appointed by the Secretary of the Interior.

(D) Any other Federal agency the assistance of which the Administrator determines to be necessary to carry out this subsection, appointed by the head of the respective agency.

(3) EXISTING WORKING GROUP.—The Administrator may expand or modify the duties of an existing working group to perform the duties of the Working Group under this subsection.

(c) NATIONAL EMERGING CONTAMINANT RESEARCH INITIATIVE.—

(1) FEDERAL RESEARCH STRATEGY.—

(A) IN GENERAL.—Not later than 90 days after the date of enactment of this Act, the Director of the Office of Science and Technology Policy (referred to in this subsection as the "Director") shall coordinate with the heads of the agencies described in subparagraph (C) to establish a research initiative, to be known as the "National Emerging Contaminant Research Initiative", that shall—

(i) use the Federal research strategy to improve the identification, analysis, monitoring, and treatment methods of contaminants of emerging concern; and

(ii) develop any necessary program, policy, or budget to support the implementation of the Federal research strategy, including mechanisms for joint agency review of research proposals, for interagency co-funding of research activities, and for information sharing across agencies.

(B) RESEARCH ON EMERGING CONTAMINANTS.—In carrying out subparagraph (A), the Director shall—

(i) take into consideration consensus conclusions from peer-reviewed, pertinent research on emerging contaminants; and

(ii) in consultation with the Administrator, identify priority emerging contaminants for research emphasis.

(C) FEDERAL PARTICIPATION.—The agencies referred to in subparagraph (A) include—

(i) the National Science Foundation;

(ii) the National Institutes of Health;

(iii) the Environmental Protection Agency;

(iv) the National Institute of Standards and Technology;

(v) the United States Geological Survey; and

(vi) any other Federal agency that contributes to research in water quality, environmental exposures, and public health, as determined by the Director.

(D) PARTICIPATION FROM ADDITIONAL ENTITIES.—In carrying out subparagraph (A), the Director shall consult with nongovernmental organizations, State and local governments, and science and research institutions determined by the Director to have scientific or material interest in the National Emerging Contaminant Research Initiative.

(2) IMPLEMENTATION OF RESEARCH RECOMMENDATIONS.—

(A) IN GENERAL.—Not later than 1 year after the date on which the Director and heads of the agencies described in paragraph (1)(C) establish the National Emerging Contaminant Research Initiative under paragraph (1)(A), the head of each agency described in paragraph (1)(C) shall—

(i) issue a solicitation for research proposals consistent with the Federal research strategy; and

(ii) make grants to applicants that submit research proposals selected by the National Emerging Contaminant Research Initiative in accordance with subparagraph (B).

(B) SELECTION OF RESEARCH PROPOSALS.—The National Emerging Contaminant Research Initiative shall select research proposals to receive grants under this paragraph on the basis of merit, using criteria identified by the Director, including the likelihood that the proposed research will result in significant progress toward achieving the objectives identified in the Federal research strategy.

(C) ELIGIBLE ENTITIES.—Any entity or group of 2 or more entities may submit to the head of each agency described in paragraph (1)(C) a research proposal in response to the solicitation for research proposals described in subparagraph (A)(i), including—

(i) State and local agencies;

(ii) public institutions, including public institutions of higher education;

(iii) private corporations; and

(iv) nonprofit organizations.

(d) FEDERAL TECHNICAL ASSISTANCE AND SUPPORT FOR STATES.—

(1) STUDY.—

(A) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall conduct a study on actions the Administrator can take to increase technical assistance and support for States with respect to emerging contaminants in drinking water samples.

(B) CONTENTS OF STUDY.—In carrying out the study described in subparagraph (A), the Administrator shall identify—

(i) methods and effective treatment options to increase technical assistance and support with respect to emerging contaminants to States, including identifying opportunities for States to improve communication with various audiences about the risks associated with emerging contaminants;

(ii) means to facilitate access to qualified contract testing laboratory facilities that conduct analyses for emerging contaminants; and

(iii) actions to be carried out at existing Federal laboratory facilities, including the research facilities of the Administrator, to provide technical assistance and support for States that require testing facilities for emerging contaminants.

(C) AVAILABILITY OF ANALYTICAL RESOURCES.—In carrying out the study described in subparagraph (A), the Administrator shall consider—

(i) the availability of—

(I) Federal and non-Federal laboratory capacity; and

(II) validated methods to detect and analyze contaminants; and

(ii) other factors determined to be appropriate by the Administrator.

(2) REPORT.—Not later than 1 year after the date of enactment of this Act, the Administrator shall submit to Congress a report describing the results of the study described in paragraph (1).

(3) PROGRAM TO PROVIDE FEDERAL ASSISTANCE TO STATES.—

(A) IN GENERAL.—Not later than 3 years after the date of enactment of this Act, based on the findings in the report described in paragraph (2), the Administrator shall develop a program to provide technical assistance and support to eligible States for the testing and analysis of emerging contaminants.

(B) APPLICATION.—

(i) IN GENERAL.—To be eligible for technical assistance and support under this paragraph, a State shall submit to the Administrator an application at such time, in such manner, and containing such information as the Administrator may require.

(ii) CRITERIA.—The Administrator shall evaluate an application for technical assistance and support under this paragraph on the basis of merit using criteria identified by the Administrator, including—

(I) the laboratory facilities available to the State;

(II) the availability and applicability of existing analytical methodologies;

(III) the potency and severity of the emerging contaminant, if known; and

(IV) the prevalence and magnitude of the emerging contaminant.

(iii) PRIORITIZATION.—In selecting States to receive technical assistance and support under this paragraph, the Administrator—

(I) shall give priority to States with affected areas primarily in financially distressed communities;

(II) may—

(aa) waive the application process in an emergency situation; and

(bb) require an abbreviated application process for the continuation of work specified in a previously approved application that continues to meet the criteria described in clause (ii); and

(III) shall consider the relative expertise and availability of—

(aa) Federal and non-Federal laboratory capacity available to the State;

(bb) analytical resources available to the State; and

(cc) other types of technical assistance available to the State.

(C) DATABASE OF AVAILABLE RESOURCES.—The Administrator shall establish and maintain a database of resources available through the program developed under subparagraph (A) to assist States with testing for emerging contaminants that—

(i) is—

(I) available to States and stakeholder groups determined by the Administrator to have scientific or material interest in emerging contaminants, including—

(aa) drinking water and wastewater utilities;

(bb) laboratories;

(cc) Federal and State emergency responders;

(dd) State primacy agencies;

(ee) public health agencies; and

(ff) water associations;

(II) searchable; and

(III) accessible through the website of the Administrator; and

(ii) includes a description of—

(I) qualified contract testing laboratory facilities that conduct analyses for emerging contaminants; and

(II) the resources available in Federal laboratory facilities to test for emerging contaminants.

(D) WATER CONTAMINANT INFORMATION TOOL.—The Administrator shall integrate the database established under subparagraph (C) into the Water Contaminant Information Tool of the Environmental Protection Agency.

(4) FUNDING.—Of the amounts available to the Administrator, the Administrator may use not more than $15,000,000 in a fiscal year to carry out this subsection.

(e) REPORT.—Not less frequently than once every 2 years until 2029, the Administrator shall submit to Congress a report that describes the progress made in carrying out this Act.

(f) EFFECT.—Nothing in this section modifies any obligation of a State, local government, or Indian Tribe with respect to treatment methods for, or testing or monitoring of, drinking water.

MAZ19433

116TH CONGRESS
1ST SESSION

S. _____

To encourage Federal agencies to expeditiously enter into or amend cooperative agreements with States for removal and remedial actions to address PFAS contamination in drinking, surface, and ground water and land surface and subsurface strata, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Ms. STABENOW (for herself, Mr. RUBIO, Mr. CARPER, Mr. TILLIS, Mrs. SHAHEEN, Mr. BURR, Mr. PETERS, Ms. HASSAN, Ms. BALDWIN, and Ms. CANTWELL) introduced the following bill; which was read twice and referred to the Committee on _____

+Mr. Manchin

A BILL

To encourage Federal agencies to expeditiously enter into or amend cooperative agreements with States for removal and remedial actions to address PFAS contamination in drinking, surface, and ground water and land surface and subsurface strata, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "PFAS Accountability Act of 2019".

SEC. 2. COOPERATIVE AGREEMENTS WITH STATES FOR REMOVAL AND REMEDIAL ACTIONS TO ADDRESS DRINKING, SURFACE, AND GROUND WATER AND SOIL CONTAMINATION FROM PFAS.

(a) DEFINITIONS.—In this section:

(1) FEDERAL FACILITY.—

(A) IN GENERAL.—The term "Federal facility" means a facility (as defined in section 101 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601)) that is owned or operated by the Federal Government.

(B) INCLUSION.—The term "Federal facility" includes—

(i) a facility or site—

(I) owned by, leased to, or otherwise possessed by the United States; or

(II) under the jurisdiction of the Secretary of Defense;

(ii) a facility or site that, at the time of the actions leading to contamination or suspected contamination of drinking water, surface water, or groundwater or land sur-

face or subsurface strata from a perfluorinated compound, was—

(I) owned by, leased to, or otherwise possessed by the United States; or

(II) under the jurisdiction of the Secretary of Defense; and

(iii) land owned and operated by a State when the land is used for training the National Guard pursuant to chapter 5 of title 32, United States Code, with funds provided by the Secretary of Defense or the Secretary of a military department, even though that land is not under the jurisdiction of the Secretary of Defense.

(2) FULLY FLUORINATED CARBON ATOM.—The term "fully fluorinated carbon atom" means a carbon atom on which all the hydrogen substituents have been replaced by fluorine.

(3) PERFLUORINATED COMPOUND.—The term "perfluorinated compound" or means a perfluoroalkyl substance or a polyfluoroalkyl substance (or "PFAS") that is manmade with at least 1 fully fluorinated carbon atom.

(4) STATE.—The term "State" has the meaning given the term in section 101 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601).

(b) COOPERATIVE AGREEMENT.—

(1) IN GENERAL.—On request by the Governor or chief executive of a State, a Federal department or agency shall work expeditiously to finalize a cooperative agreement for, or to amend an existing cooperative agreement to address, testing, monitoring, removal, and remedial actions to address contamination or suspected contamination of drinking water, surface water, or groundwater or land surface or subsurface strata from a perfluorinated compound originating from a Federal facility.

(2) MINIMUM STANDARDS.—A cooperative agreement finalized or amended under paragraph (1) shall require the area subject to the cooperative agreement to meet or exceed the most stringent of the following standards for perfluorinated compounds in any environmental media:

(A) An enforceable State standard, in effect in that State, for drinking water, surface water, or groundwater or land surface or subsurface strata, as required under section 121(d)

of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9621(d)).

(B) A health advisory under section 1412(b)(1)(F) of the Safe Drinking Water Act (42 U.S.C. 300g–1(b)(1)(F)).

(C) Any Federal standard, requirement, criterion, or limit, including a standard, requirement, criterion, or limit issued under—

(i) the Toxic Substances Control Act (15 U.S.C. 2601 et seq.);

(ii) the Safe Drinking Water Act (42 U.S.C. 300f et seq.);

(iii) the Clean Air Act (42 U.S.C. 7401 et seq.);

(iv) the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.);

(v) the Marine Protection, Research, and Sanctuaries Act of 1972 (commonly known as the "Ocean Dumping Act") (33 U.S.C. 1401 et seq.); or

(vi) the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.).

(3) OTHER AUTHORITY.—In addition to the requirements for a cooperative agreement under para-

graph (1), when otherwise authorized to expend funds for the purpose of addressing ground or surface water contaminated by a perfluorinated compound, the head of a Federal department or agency may, to expend those funds, enter into a grant agreement, cooperative agreement, or contract with—

(A) the local water authority with jurisdiction over the contamination site, including—

(i) a public water system (as defined in section 1401 of the Safe Drinking Water Act (42 U.S.C. 300f)); and

(ii) a publicly owned treatment works (as defined in section 212 of the Federal Water Pollution Control Act (33 U.S.C. 1292)); or

(B) a State, local, or Tribal government.

(c) NOTIFICATION REQUIREMENT.—

(1) DEFINITION OF APPROPRIATE CONGRESSIONAL COMMITTEES.—In this subsection, the term "appropriate congressional committees" means—

(A) the Committee on Environment and Public Works of the Senate;

(B) the Committee on Homeland Security and Governmental Affairs of the Senate;

(C) the Committee on Energy and Commerce of the House of Representatives; and

(D) the Committee on Oversight and Reform of the House of Representatives.

(2) REPORT.—

(A) IN GENERAL.—If a cooperative agreement is not finalized or amended under subsection (b) by the date that is 1 year after the date on which a request by the Governor or chief executive of a State was made, the President shall submit a report described in subparagraph (B) to—

(i) the appropriate congressional committees;

(ii) each Senator from the State affected by the perfluorinated compound contamination; and

(iii) each member of Congress that represents a district affected by the perfluorinated compound contamination.

(B) REPORT DESCRIBED.—The report referred to in subparagraph (A) shall include—

(i) a detailed explanation of why a cooperative agreement has not been finalized or amended, as applicable; and

(ii) a projected timeline for finalizing or amending a cooperative agreement, as applicable.

MAZ19412 S.L.C.

Kirsten Gillibrand

116TH CONGRESS
1ST SESSION

S. _____

To amend the Safe Drinking Water Act to require the Administrator of the Environmental Protection Agency to set maximum contaminant levels for certain chemicals, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mrs. GILLIBRAND (for herself and Mrs. CAPITO) introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To amend the Safe Drinking Water Act to require the Administrator of the Environmental Protection Agency to set maximum contaminant levels for certain chemicals, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "Protect Drinking Water from PFAS Act of 2019".

SEC. 2. MAXIMUM CONTAMINANT LEVELS.

Section 1412(b)(2) of the Safe Drinking Water Act (42 U.S.C. 300g–1(b)(2)) is amended by adding at the end the following:

"(D) PERFLUORINATED COMPOUNDS.—

"(i) REQUIRED REGULATIONS.—Not later than 2 years after the date of enactment of the Protect Drinking Water from PFAS Act of 2019, the Administrator shall publish a maximum contaminant level and promulgate a national primary drinking water regulation for perfluoroalkyl and polyfluoroalkyl substances.

"(ii) MONITORING.—In establishing monitoring requirements under the national primary drinking water regulation for perfluoroalkyl and polyfluoroalkyl substances under clause (i), the Administrator shall—

"(I) consider options for tailoring monitoring requirements for public water systems that do not detect, or are reliably and consistently below the maximum contaminant level for, those substances; and

"(II) prioritize the use of existing authorities to provide technical assistance and funding to help small, rural, or disadvantaged public water systems to comply with the national primary drinking water regulation.".

RYA19233 S.L.C.

Shelley Moore Capito

116TH CONGRESS
1ST SESSION

S. _____

To include certain perfluoroalkyl and polyfluoroalkyl substances in the toxics release inventory, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mrs. CAPITO (for herself, Mrs. GILLIBRAND, and Mr. CARPER) introduced the following bill; which was read twice and referred to the Committee on

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A BILL

To include certain perfluoroalkyl and polyfluoroalkyl substances in the toxics release inventory, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "PFAS Release Disclosure Act".

SEC. 2. ADDITIONS TO TOXICS RELEASE INVENTORY.

(a) DEFINITIONS.—In this section:

(1) ADMINISTRATOR.—The term "Administrator" means the Administrator of the Environmental Protection Agency.

(2) TOXICS RELEASE INVENTORY.—The term "toxics release inventory" means the toxics release inventory under section 313(c) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11023(c)).

(b) IMMEDIATE INCLUSION.—

(1) IN GENERAL.—Subject to subsection (e), beginning January 1 of the calendar year following the date of enactment of this Act, the following chemicals shall be deemed to be included in the toxics release inventory:

(A) Perfluorooctanoic acid (commonly referred to as "PFOA") (Chemical Abstracts Service No. 335–67–1).

(B) The salt associated with the chemical described in subparagraph (A) (Chemical Abstracts Service No. 3825–26–1).

(C) Perfluorooctane sulfonic acid (commonly referred to as "PFOS") (Chemical Abstracts Service No. 1763–23–1).

(D) The salts associated with the chemical described in subparagraph (C) (Chemical Ab-

stract Service Nos. 45298–90–6, 29457–72–5, 56773–42–3, 29081–56–9, 4021–47–0, 111873–33–7, and 91036–71–4).

(E) A perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances that is—

(i) listed as an active chemical substance in the February 2019 update to the inventory under section 8(b)(1) of the Toxic Substances Control Act (15 U.S.C. 2607(b)(1)); and

(ii) on the date of enactment of this Act, subject to the provisions of—

(I) section 721.9582 of title 40, Code of Federal Regulations; or

(II) section 721.10536 of title 40, Code of Federal Regulations.

(2) THRESHOLD FOR REPORTING.—

(A) IN GENERAL.—Subject to subparagraph (B), the threshold for reporting the chemicals described in paragraph (1) under section 313(f)(1) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11023(f)(1)) is 100 pounds.

(B) REVISIONS.—Not later than 5 years after the date of enactment of this Act, the Administrator shall—

(i) determine whether revision of the threshold under subparagraph (A) is warranted; and

(ii) if the Administrator determines a revision to be warranted under clause (i), initiate a revision under section 313(f)(2) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11023(f)(2)).

(c) INCLUSION FOLLOWING ASSESSMENT.—

(1) IN GENERAL.—Subject to subsection (e), a perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances shall be automatically included in the toxics release inventory beginning January 1 of the calendar year after any of the following dates:

(A) ESTABLISHMENT OF TOXICITY VALUE.—The date on which the Administrator establishes a toxicity value for the perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances.

(B) SIGNIFICANT NEW USE RULE.—The date on which the Administrator finalizes a significant new use rule under subsection (a)(2) or (f) of section 5 of the Toxic Substances Control Act (15 U.S.C. 2604) for the perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances.

(C) ADDITION TO EXISTING SIGNIFICANT NEW USE RULE.—The date on which the perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances is added to a list of substances covered by a significant new use rule under subsection (a)(2) or (f) of section 5 of the Toxic Substances Control Act (15 U.S.C. 2604).

(D) ADDITION AS ACTIVE CHEMICAL SUBSTANCE.—The date on which the perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances that is on a list of substances covered by a significant new use rule under subsection (a)(2) or (f) of section 5 of the Toxic Substances Control Act (15 U.S.C. 2604) is added as an active chemical substance on the inventory under sec-

tion 8(b)(1) of the Toxic Substances Control Act (15 U.S.C. 2607(b)(1)).

(2) THRESHOLD FOR REPORTING.—

(A) IN GENERAL.—Subject to subparagraph (B), the threshold for reporting under section 313(f)(1) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11203(f)(1)) the substances and classes of substances included in the toxics release inventory under paragraph (1) is 100 pounds.

(B) REVISIONS.—Not later than 5 years after the date of enactment of this Act, the Administrator shall—

(i) determine whether revision of the thresholds under subparagraph (A) is warranted; and

(ii) if the Administrator determines a revision to be warranted under clause (i), initiate a revision under section 313(f)(2) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11023(f)(2)).

(d) INCLUSION FOLLOWING DETERMINATION.—

(1) IN GENERAL.—To the extent not already subject to subsection (b), not later than 2 years after the date of enactment of this Act, the Administrator shall determine whether the substances and classes of substances described in paragraph (2) meet the criteria described in section 313(d)(2) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11023(d)(2)) for inclusion in the toxics release inventory.

(2) SUBSTANCES DESCRIBED.—The substances and classes of substances referred to in paragraph (1) are perfluoroalkyl and polyfluoroalkyl substances and classes of perfluoroalkyl and polyfluoroalkyl substances, including—

(A) hexafluoropropylene oxide dimer acid (Chemical Abstracts Service No. 13252–13–6);

(B) the compounds associated with the chemical described in subparagraph (A) (Chemical Abstracts Service Nos. 62037–80–3 and 2062–98–8);

(C) perfluoro[(2-pentafluoroethoxy-ethoxy)acetic acid] ammonium salt (Chemical Abstracts Service No. 908020–52–0);

(D) 2,3,3,3-tetrafluoro 2-(1,1,2,3,3,3-hexafluoro)-2-(trifluoromethoxy) propanoyl fluo-

ride (Chemical Abstracts Service No. 2479–75–6);

(E) 2,3,3,3-tetrafluoro 2-(1,1,2,3,3,3-hexafluoro)-2-(trifluoromethoxy) propionic acid (Chemical Abstracts Service No. 2479–73–4);

(F) 3H-perfluoro-3-[(3-methoxy-propoxy) propanoic acid] (Chemical Abstracts Service No. 919005–14–4);

(G) the salts associated with the chemical described in subparagraph (F) (Chemical Abstracts Service Nos. 958445–44–8, 1087271–46–2, and NOCAS_892452);

(H) 1-octanesulfonic acid 3,3,4,4,5,5,6,6,7,7,8,8-tridecafluoro-potassium salt (Chemical Abstracts Service No. 59587–38–1);

(I) perfluorobutanesulfonic acid (Chemical Abstracts Service No. 375–73–5);

(J) 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-potassium salt (Chemical Abstracts Service No. 29420–49–3);

(K) the component associated with the chemical described in subparagraph (J) (Chemical Abstracts Service No. 45187–15–3);

(L) heptafluorobutyric acid (Chemical Abstracts Service No. 375–22–4);

(M) perfluorohexanoic acid (Chemical Abstracts Service No. 307–24–4); and

(N) a perfluoroalkyl and polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances other than those chemicals described in subparagraphs (A) through (M) that is used to manufacture fluoropolymers, as determined by the Administrator.

(3) ADDITION TO TOXICS RELEASE INVENTORY.—Subject to subsection (e), if the Administrator determines under paragraph (1) that a substance or a class of substances described in paragraph (2) meets the criteria described in section 313(d)(2) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11023(d)(2)), the Administrator shall revise the toxics release inventory to include that substance or class of substances not later than 2 years after the date on which the Administrator makes the determination.

(e) CONFIDENTIAL BUSINESS INFORMATION.—

(1) IN GENERAL.—Prior to including on the toxics release inventory pursuant to subsection (b)(1), (c)(1), or (d)(3) any perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances the chemical identity of which is subject to a claim of a person of protection from disclosure under subsection (a) of section 552 of title 5, United States Code, pursuant to subsection (b)(4) of that section, the Administrator shall—

(A) review that claim of protection from disclosure; and

(B) require that person to reassert and substantiate or resubstantiate that claim in accordance with section 14(f) of the Toxic Substances Control Act (15 U.S.C. 2613(f)).

(2) NONDISCLOSURE OF PROTECTION INFORMATION.—If the Administrator determines that the chemical identity of a perfluoroalkyl or polyfluoroalkyl substance or class of perfluoroalkyl or polyfluoroalkyl substances qualifies for protection from disclosure under paragraph (1), the Administrator shall include the substance or class of substances, as applicable, on the toxics release inventory

in a manner that does not disclose the protected information.

(f) EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986.—Section 313(e) of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11023(e)) is amended—

(1) by striking the period at the end and inserting "; and";

(2) by striking "are those chemicals" and inserting the following: "are—

"(1) the chemicals"; and

(3) by adding at the end the following:

"(2) the chemicals included under subsections (b)(1), (c)(1), and (d)(3) of section 2 of the PFAS Release Disclosure Act.".

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