



New Jersey Department of Environmental Protection Testimony of Commissioner Catherine R. McCabe

Introduction

Thank you, Mr. Chairman, and Members of the Committee. I appreciate your interest in and attention to this important subject, and I thank you for the opportunity to testify before you regarding the environmental contamination and public health threats posed by the family of chemicals known as PFAS. I am pleased to share with you the scientific findings and the actions that the State of New Jersey is taking to address this problem, in the absence of effective federal leadership to protect the health of our residents.

What are PFAS Chemicals?

Poly- and perfluoroalkyl substances, collectively referred to as PFAS, are synthetic (man-made) organic chemicals manufactured and used in the United States since the 1940s. PFAS have fire-resistant properties and act as effective oil, grease, and water repellants. PFAS substances are used to make numerous household products, including name brands such as Stainmaster®, Scotchgard®, Teflon®, Gore-Tex®, and Tyvek®. PFAS substances also have been widely used in aqueous film-forming foam (AFFF) used to fight fuel fires for over 50 years.

The qualities that made PFAS chemicals so successful commercially also make them particularly difficult to eradicate if they escape into the environment. PFAS are highly persistent in the environment and are resistant to metabolic and environmental degradation processes.

PFAS chemicals are also bioaccumulative, meaning these toxins build up in living tissue. As a result, people exposed to these substances through drinking water or other means accumulate increasing concentrations of PFAS in their blood. Numerous scientific studies show that exposure to PFAS may cause testicular and kidney cancer in adults as well as developmental effects to fetuses during pregnancy or to breastfed infants. Other associated human health effects include reduced vaccine response, increased incidence of infection, and increased cholesterol and liver enzymes. Some PFAS are also classified as possible human carcinogens.

Scientific studies have increasingly shown that adverse human health effects from some PFAS chemicals can occur with exposure to extremely low levels in drinking water — measured in “parts *per trillion*” (compared to the “parts per billion” measure that is more typically used to set limits on drinking water contaminants). While manufacturers and some users of PFAS have understood their toxic characteristics for decades, regulatory agencies around the world are only now coming to understand the true nature and dangers of these global contaminants.



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New Jersey's Actions to Address PFAS Contamination

As PFAS contaminants began to be found in groundwater and drinking water sources in the early 2000's, the New Jersey Department of Environmental Protection (NJDEP) took early action to investigate the presence of these chemicals in the New Jersey environment and to assess the potential risks of these chemicals to human health.

In 2006, NJDEP first investigated the occurrence of PFAS in public drinking water systems near certain facilities that used, handled, stored, and/or manufactured PFAS, focusing on the PFAS chemicals known as PFOA (perfluorooctanoic acid) and PFOS (perfluorooctanesulfonic acid). Sixty-five percent of the samples taken tested positive for PFOA; 30 percent tested positive for PFOS. In 2009, NJDEP conducted statewide testing of 33 drinking water systems, located in 20 of the state's 21 counties. This testing found one to eight different PFAS chemicals in 67 percent of the samples. Most strikingly, PFNA (perfluorinated nonanoic acid), a PFAS chemical used at the Solvay chemical processing facility in West Deptford, New Jersey, was found in groundwater with contamination levels up to 96 ppt - the highest reported level of PFNA in drinking water in the world.

To protect residents who rely on private drinking water wells, NJDEP also conducted targeted sampling of private wells located near identified or suspected sources of contamination. A total of 992 private wells had been sampled as of June 2018. PFOA was detected in 427 wells, and PFOS was detected in 304 wells.

In 2018, NJDEP also performed an ecosystem assessment of eleven waterways across New Jersey, finding PFAS compounds in all surface water samples and in most sediment samples. NJDEP's analysis of PFAS in fish tissue samples resulted in a fish consumption advisory for ten of the sites.

To assess the level of public health risk from the PFAS contamination of drinking water, NJDEP called upon the expertise of the highly regarded New Jersey Drinking Water Quality Institute. The Institute's members are independent scientists and drinking water experts, as well as toxicologists and other scientists from the NJDEP and the NJ Department of Health. NJDEP also consulted with the U.S. Environmental Protection Agency, which has provided health guidelines for some PFAS in drinking water, but no regulatory standards. New Jersey and other states have repeatedly urged EPA to move forward with setting regulatory limits for PFAS under the Safe Drinking Water Act, but EPA has been very slow to act.

In the absence of any national regulatory standard, in 2018 New Jersey became the first state to establish a Safe Drinking Water Act maximum contaminant level (MCL) for a PFAS chemical. Based on the latest scientific research and the recommendations of the NJ Drinking Water



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Quality Institute, NJDEP finalized an MCL of 13 parts per trillion (ppt) for PFNA in 2018 and proposed MCLs of 13 and 14 ppt for PFOS and PFOA, respectively, in 2019. New Jersey's extensive research on the latest available science shows that these limits are necessary to protect public health, including vulnerable populations, such as infants, who may be disproportionately exposed to these contaminants in drinking water.

As a result of the 2018 adoption of the New Jersey Safe Drinking Water Act limit on PFNA contaminants, public water systems in New Jersey began regulatory monitoring for PFNA in January 2019. This requirement will be fully phased in by January 2020 for all regulated systems (community and nontransient noncommunity water systems). Since lab test results for PFNA also reveal the presence of PFOA and PFOS, NJDEP has encouraged the water systems who are currently monitoring for PFNA to voluntarily report detections of PFOA and PFOS as well. The vast majority of the water systems are doing so. To date, only four additional water systems (not previously reporting) have reported exceedances of the MCL for PFNA. However, more than 100 systems have detected PFNA, PFOA and/or PFOS at levels that exceed New Jersey's existing and proposed standards for those chemicals. PFOA and PFOS are the most commonly found contaminants, with approximately 10 percent of the drinking water systems reporting levels that exceed New Jersey's proposed MCL standards.

PFAS Contamination at Federal Facilities in New Jersey

Several federal facilities located in New Jersey have become contaminated with PFAS, largely as a result of firefighting and training activities using aqueous film-forming foam (AFFF) that contained PFOS and/or PFOA. Federal groundwater investigations have identified significant PFAS contamination at Naval Weapons Station Earle; Former Naval Air Warfare Center; FAA Technical Center; Joint Base McGuire/Dix/Lakehurst, and Picatinny Arsenal, located in various counties throughout the state. All the bases have impacted private or public water supplies. Additional investigation and remediation are needed at all the bases. To date, the federal agencies are taking responsibility by working with water purveyors and providing treatment or alternate water supplies to all impacted public supplies. The federal agencies are also treating off-site private wells found above EPA advisory levels for PFOA and PFOS. NJDEP has had to pay for treatment of off-site private wells impacted with concentrations found above the NJDEP health-based criteria but below the EPA advisory levels of 70 ppt for PFOA and PFOS. The Federal Aviation Administration has funded treatment for PFAS found in the Atlantic City water supply, but is currently in a dispute with Atlantic City Municipal Utility Authority regarding future treatment of the water supplies. It is New Jersey's position that the federal government must treat all impacted water supplies to meet New Jersey's proposed standards.



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Parties Responsible for PFAS Contamination

New Jersey believes that the manufacturers, as well as chemical processors and other users of PFAS that have allowed those chemicals to contaminate the environment and drinking water supplies, should be held responsible to the public for the costs and damages of the drinking water contamination and other harmful consequences of their actions and negligence.

The manufacturers and some users of PFAS have known of the potential environmental impacts and health risks of these substances for decades, as information made available through legal actions increasingly has revealed. For example, studies conducted by manufacturer 3M in the early 1970's showed that PFOA and PFOS were harmful to people and the environment. 3M also knew that these chemicals could readily leach into groundwater and contaminate the environment.

Similarly, the evidence shows that PFAS manufacturer DuPont knew for decades that PFOA was toxic, through studies of its own workers. DuPont also knew that PFOA was being discharged into the environment, but failed to disclose risks to regulators or to the public. Despite this knowledge — or perhaps because of it — in 2015 DuPont created a woefully underfunded spin-off company, Chemours, and saddled it with DuPont's environmental liabilities, including liability for PFAS contamination.

Solvay, the company responsible for the extensive PFNA contamination in West Deptford, NJ, was a member of an industry trade group that conducted toxicology studies of PFNA in the 2000's, and knew or should have known of the adverse effects of exposure to this toxic PFAS chemical. Solvay nevertheless continued to discharge large amounts of PFNA into the environment, contaminating groundwater and drinking water over a wide radius.

New Jersey understands that the manufacture and distribution of PFNA, PFOA and PFOS by these companies has been discontinued. However, as noted above, these chemicals are highly persistent in the environment and their adverse effects on the environment and threats to public health can be expected to continue indefinitely into the future.

In addition to the PFNA, PFOA and PFOS contamination found in New Jersey groundwater and drinking water, NJDEP also has found some newer PFAS chemicals, such as the chemical known as "GenX," in groundwater in New Jersey near chemical processing facilities. We are concerned about the potential for future pollution by these types of chemicals, as manufacturers continue to produce and distribute them without adequate investigation or disclosure of their potentially harmful effects on the environment and human health.



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Legal Actions Taken by New Jersey

Where responsible parties can be identified, New Jersey has taken administrative and legal action, including issuing administrative orders, when necessary to compel responsible parties to address PFAS contamination in groundwater and drinking water near their facilities. Required response actions have included preventing the spread of and cleaning up groundwater contamination, and providing or paying for treatment systems or alternate drinking water supplies. Responsible parties have not yet been identified, however, at many of the locations in New Jersey where PFAS chemicals have been found in groundwater or drinking water.

In March 2019, NJDEP issued a statewide Directive to the four primary known contributors to PFAS contamination in New Jersey that have been identified – Dupont, Chemours, Solvay and 3M – directing them to produce information related to their past and current activities in manufacturing, distributing or using PFAS in New Jersey, and to provide sufficient funding to address the future remediation of PFAS contamination throughout the state. Each of the companies has expressed an interest in cooperating, and our efforts to gather information and obtain reimbursement of state-incurred response costs have been partially successful to date. There is still much work to be done related to this Directive. It remains to be seen how cooperative these companies will really be.

In addition, the New Jersey Attorney General, Gurbir Grewal, has filed complaints in federal court against Dupont and Chemours to address two specific sites where those companies used and discharged large volumes of PFAS compounds into the environment, as well as a complaint against 3M for its contributions as a manufacturer and supplier of PFAS compounds for various manufacturing processes at these facilities. At both of the Dupont/ Chemours sites, now owned by Chemours, Dupont discharged massive amounts of PFAS-containing waste into water and disposed such waste into on-site landfills. PFAS were released into soils, groundwater and surface waters, including the Delaware River, and contaminated nearby drinking water wells. New Jersey also seeks restoration and compensation for its damaged natural resources, including groundwater, surface waters, sediments and wetlands.

New Jersey also seeks to hold Dupont accountable for the PFAS liabilities it assigned to Chemours when it spun Chemours off as a separate company in 2015. Dupont created an underfunded corporate entity in Chemours and saddled it with its potentially massive PFAS liability, in violation of NJ laws. Notably, Chemours itself recently filed a lawsuit against DowDupont and its affiliates, alleging that Dupont massively understated its environmental cleanup burdens when it spun off Chemours.

In May 2019 New Jersey filed state court complaints against multiple manufacturers of PFAS-containing AFFF, including Dupont, Chemours and 3M, along with Tyco Fire Product,



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ChemGuard, Buckeye, Kidde-Fenwal and National Foam. The claims asserted in those complaints are based on product liability, consumer fraud and negligence. New Jersey seeks to compel these companies to bear the costs of investigating, cleaning up and removing PFOA and PFOS contamination at and around sites where AFFF was used within New Jersey. The AFFF case is now part of a federal multi-district litigation in South Carolina.

While we are confident that these actions, in conjunction with our regulatory changes, will ultimately be successful in holding these corporations responsible for the contamination they have subjected our residents to, we also recognize that this is a nationwide issue and welcome the assistance of Congress and call for further action by EPA to make the path to accountability easier and to be proactive in preventing the need for such actions in the future.

Review of Federal Action to Date

EPA has identified PFAS as “emerging contaminants,” which are currently unregulated at the federal level. In 2009, EPA issued preliminary health advisory values for PFOA and PFOS in drinking water of 400 ppt and 200 ppt, respectively. In 2016, EPA reduced its advisories for these chemicals in drinking water to 70 ppt, combined. Other federal agencies have suggested drinking water values should be much lower. For example, in 2018, the U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR) released draft Minimal Risk Levels—the amount of chemical a person can eat, drink or breathe each day without a detectable risk to health—for PFOA and PFOS that are almost identical to the “reference doses” recommended by the New Jersey Drinking Water Quality Institute as the basis for the New Jersey MCLs for PFOA and PFOS of 14 ppt and 13 ppt, respectively.

Given the threat posed by PFAS and their demonstrated prevalence, these actions are not enough to protect public health effectively.

In a letter dated June 21, 2018, addressed to the Honorable David Ross, EPA’s Assistant Administrator for Water, NJDEP strongly recommended a series of actions, based on more than ten years of experience in dealing with this class of compounds. In that letter, we noted assessments by a broad range of scientists from New Jersey, several other states, the European Food Safety Authority, and academia indicating that the EPA Health Advisories of 70 ng/L for PFOA and PFOS may not be sufficiently protective of public health. Toxicological effects such as decreased immune response for PFOS and low-dose developmental effects such as delayed mammary gland development for PFOA are well-established at levels below those used as the basis for the EPA Health Advisories, and a recent rodent carcinogenicity study conducted by the National Toxicology Program suggests that PFOA can cause tumors at much lower doses than previously known.



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Replacement Compounds

New Jersey would also like to highlight for the Committee that PFAS contamination is not simply an issue of the past but a challenge for the future as well. Some of the companies mentioned above, and likely others, have replaced historic PFAS compounds with new replacement PFAS chemicals. While some of these replacements may be less toxic, others are not, and we must take steps to properly regulate these chemicals now, lest we find ourselves here again in 5, 10, 20, 30 or even 50 years attempting to address massive contamination and threats to public health from these other PFAS or similar compounds that have yet to even be named.

Appropriate and rigorous federal review of new and replacement chemicals must occur to evaluate their potential health and ecological effects and environmental fate and persistence, before they are approved for introduction into the market. PFAS that were phased out have been replaced with other related compounds before adequate study was completed, and the replacement compounds were later found to have similar health and environmental concerns. A recent paper by Pan et al. (2018)¹ found replacement PFAS chemicals, such as “GenX”, are already ubiquitous in surface waters worldwide. The replacement PFAS chemicals have been discovered in New Jersey near industrial facilities where they are being used, as well as in surface waters and other media that are not connected or adjacent to locations near known sources.

There are believed to be thousands of PFAS compounds in commercial use. Many sources of PFAS contamination have not been identified or evaluated. States lack the most basic information regarding the current and historic production and use of most PFAS compounds. Corporate manufacturers must be made to share information concerning chemical and physical characteristics, toxicity and analytical methods for detection of these chemicals in the environment, and provide the necessary calibration standards for the EPA and/or commercial laboratories to develop analytical methods.

The current approach of releasing chemical products into the marketplace and subjecting the human beings and environment to their effects without a full understanding of their chemical characteristics, toxicity, and persistence, and without proper analytical methods, leaves us in a position of perpetually scrambling to address the injuries caused by these chemicals rather than preventing them. The consequences, in scope and costs, of those decisions are only beginning to be understood.

¹ “Worldwide Distribution of Novel Perfluoroether Carboxylic and Sulfonic Acids in Surface Water. Yitao Pan, Hongxia Zhang, Qianqian Cui, Nan Sheng, Leo W. Y. Yeung, Yan Sun, Yong Guo, and Jiayin Dai. Environmental Science & Technology Article ASAP. DOI:10.1021/acs.est.8b00829”



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EPA must undertake the development and establishment of a federal standard that is protective of human health and that supports individual state efforts to protect their residents by developing and utilizing their own state PFAS standards and that sets an enforceable minimum protection standard at federal facilities in our states.