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TOXIC AND HAZARDOUS SUBSTANCES LITIGATION

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IN THIS ISSUE

Jeffrey Karp, Edward Mahaffey, and Graham Ansell discuss how states are filling the regulatory void left by Congress and U.S. EPA by proposing and promulgating standards limiting exposure to PFAS in a variety of environmental media and consumer products. This article highlights recent efforts by several states to regulate PFAS compounds to adequately protect the public from potential negative health impacts.

Congress' Failure to Enact Broad-Based PFAS Legislation is Likely to Facilitate Ongoing State Regulatory Activity



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Despite extensive negotiation, insufficient bipartisan support was garnered to obtain inclusion of robust PFAS provisions in Congressional year-end spending legislation. Initially, there was some expectation that U.S. EPA might be directed in the National Defense Authorization Act (NDAA) to establish maximum contaminant levels (MCLs) for per- and polyfluoroalkyl substances (PFAS) in drinking water, and/or to designate PFAS as hazardous substances under CERCLA, but those proposals were not included in the legislation. In the absence of a Congressional mandate or U.S. EPA regulatory action establishing enforceable clean-up standards, states concerned about the potential negative health effects of exposure to PFAS compounds have taken matters into their own hands. As discussed, to fill the federal government void, states have set MCLs for certain PFAS compounds in drinking water, required testing of water systems and publication of results, and established remediation requirements for certain PFAS compounds in groundwater and surface water.

Health Risk Data

The findings of the C8 Science Panel[1], which evaluated the results of the largest scale epidemiological studies performed in the United States during the period 2005-2013, set the stage for findings of a "probable link" between exposure to perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) and increased risk of adverse health outcomes grouped into six disease categories: increased cholesterol levels, ulcerative colitis, liver and thyroid disease, testicular and kidney cancer, and pregnancy induced hypertension.[2] Moreover, U.S. EPA has stated, "Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. There is evidence that continued exposure above specific levels to certain PFAS may lead to adverse health effects."[3]

Nevertheless, the scientific consensus linking PFAS exposure to serious health impacts still is evolving as new studies involving humans, laboratory animals, and cell cultures (*in vitro* bioassays) continue to shed light on fundamental questions that guide risk assessment and regulatory developments, such as: Which health effects are most critical (i.e., likely to occur at environmentally relevant doses)? What exposure levels are protective of those critical health effects? And, which PFAS chemicals are regulatory priorities because they may account for the majority of the risk? In addition to U.S. EPA's Lifetime

[1] The C8 Science Panel's findings are based on its analysis of a link between PFAS exposure in areas surrounding a Dupont PFOA manufacturing plant in West Virginia and adverse health impacts.

[2] *Home*, C8 SCIENCE PANEL WEBSITE, http://www.c8sciencepanel.org/ (last updated Jan. 4, 2017).

[3] *Research on Per- and Polyfluoroalkyl Substances (PFAS)*, EPA.GOV, https://www.epa.gov/chemical-research/research-and-polyfluoroalkyl-substances-pfas (last visited Dec. 31, 2019).

Drinking Water Health Advisories (LHAs) for PFOA and PFOS,[4] recent comprehensive summaries of the state of the science on PFAS toxicology and epidemiology, conducted by lead regulatory agencies in the U.S. (e.g., ATSDR[5]) and internationally (e.g., Australia and New Zealand[6, 7, 8, 9] Canada[10], ESFA[11], the Netherlands[12]), may provide guidance for future PFAS risk management planning.

State Developments

As of November 30, 2019, 28 states have developed or adopted standards and guidance values for PFAS in drinking water, groundwater, and/or surface water.[13] Initially, 15 states adopted 70 parts per trillion (ppt) for PFOA and PFOS combined (for drinking water and/or groundwater),[14]

[4] U.S. Environmental Protection Agency, *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA) – May 2016* EPA.GOV 44–47 (May 2016), https://www.epa.gov/sites/production/files/2016-05/documents/pfoa_health_advisory_final_508.pdf; U.S. Environmental Protection Agency, *Drinking Water Health Advisory for Perfluorooctane Sulfonate (PFOS) – May 2016* EPA.GOV 42–43 (May 2016), https://www.epa.gov/sites/production/files/2016-05/documents/pfos_health_advisory_final_508.pdf.

[5] Agency for Toxic Substances and Disease Registry (ATSDR), TOXICOLOGICAL PROFILE FOR PERFLUOROALKYLS (draft for public comment June 2018).

[6] Australian Government Department of Health (enHealth), *Health Based Guidance Values for PFAS for Use in Site Investigations in Australia*, HEALTH.GOV.AU (last updated Sept. 16, 2019), https://www1.health.gov.au/internet/main/publishing.nsf/Content/ohp-pfas-hbgv.htm#final.

[7] EnHealth, *Procedural Review of Health Reference Values Established by enHealth for PFAS*, HEALTH.GOV.AU (2016), https://www1.health.gov.au/internet/main/publishing.nsf/Content/2200FE086D480353CA2580C900817CDC/$File/eHealth-interim-full.pdf.

[8] Australian National University, *PFAS Health Study*, ANU (last visited Jan. 1, 2020), https://rsph.anu.edu.au/research/projects/pfas-health-study. The study was commissioned by the Australian Government Department of Health, and results will be available at the end of 2020.

[9] Australian Government Department of Health, *Food Standards Australia New Zealand's (FSANZ) Report on Perfluorinated Chemicals in Food – April 2017*, HEALTH.GOV.AU (last updated Sept. 16, 2019), https://www1.health.gov.au/internet/main/publishing.nsf/Content/ohp-pfas-hbgv.htm.

[10] Health Canada, *Water Talk – Perfluoroalkylated Substances in Drinking Water*, CANADA.CA (April 2019), https://www.canada.ca/en/services/health/publications/healthy-living/water-talk-drinking-water-screening-values-perfluoroalkylated-substances.html.

[11] European Food Safety Authority (EFSA), *Risk to Human Health Related to the Presence of Perfluorooctane Sulfonic Acid and Perfluorooctanoic Acid in Food*, EFSA JOURNAL (Dec. 13, 2018; first adopted March 22, 2018), https://www.efsa.europa.eu/en/efsajournal/pub/5194.

[12] MJ Zeilmaker et al., *Mixture Exposure to PFAS: A Relative Potency Factor Approach*, RIJKSINSTITUUT VOOR VOLKSGEZONDHEID EN MILIEU (Oct. 9, 2018), https://www.rivm.nl/publicaties/mixture-exposure-to-pfas-a-relative-potency-factor-approach.

[13] Interstate Technology and Regulatory Council (ITRC), *PFAS Fact Sheets*, Microsoft Excel® Table 4-1, PFAS — PER- AND POLYFLUOROALKYL SUBSTANCES (updated Nov. 2019), https://pfas-1.itrcweb.org/fact-sheets/.

[14] The 15 states that adopted a drinking water or groundwater standard, guidance value, or other action level for PFOA and PFOS of 70 ppt combined include Alabama, Alaska, Arizona, Colorado, Connecticut, Delaware, Idaho, Iowa, Kansas, Kentucky, Massachusetts, Montana, Nebraska, Pennsylvania, and Rhode Island. As of December 23, 2019, Massachusetts enacted a regulation requiring that responsible parties remediate groundwater that is usable as drinking water to 20 ppt for six PFAS

thus matching U.S. EPA's 2016 LHAs,[15] and six states have adopted more stringent values.[16] While PFOA and PFOS remain the primary focus of attention for regulatory agencies, 12 states have included additional PFAS chemicals found on U.S. EPA's target analyte list for PFAS in drinking water, which is likely to expand to include as many as 29 PFAS chemicals in 2020.[17]

A fundamental challenge with addressing emerging contaminants such as PFAS is that regulations are dynamic, reflecting the interplay between scientific uncertainties, public awareness, regulatory agency priorities, and court decisions. At the federal level, both the U.S. EPA and ATSDR have reached differing conclusions in the past decade on the toxicity of PFOA and PFOS, and health-protective measures. Likewise, several states, including California, Massachusetts, New Jersey, and Texas, have made mid-course corrections on drinking water and groundwater standards for PFAS to keep pace with scientific, political, and legal developments.

Highlights of recent state efforts to develop regulatory responses to PFAS in drinking water and other media are presented below for California, Maine, Massachusetts, Michigan, New Hampshire, New Jersey, New York and Wisconsin.

California

California regulates both drinking water supplies and consumer products containing PFAS. In August 2019, the Division of Drinking Water revised its 2018 assessment based in part on results from a 2-year cancer study in rats on PFOA published by the National Toxicology Program.[18] As of January 1, 2020, all public water systems

compounds, including PFOA and PFOS. See, infra, at 5.

[15] *See* U.S. Environmental Protection Agency, Drinking Water Health Advisories for PFOA and PFOS, EPA.GOV (last visited Jan. 1, 2020), https://www.epa.gov/ground-water-and-drinking-water/drinking-water-health-advisories-pfoa-and-pfos.

[16] According to ITRC's November 2019 PFAS Fact Sheet, the six states that have adopted standards or guidance values for PFOA and PFOS that are lower than 70 ppt are California, Michigan, Minnesota, New Hampshire, New Jersey, and Vermont. Note that the Fact Sheet does not list developments that are preliminary (i.e., proposed or undergoing public comment).

[17] The NDAA requires that public water systems must monitor for all PFAS for which U.S. EPA has validated a monitoring method. U.S. EPA also must pay the cost of such monitoring for water systems that serve 10,000 persons or fewer. National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92 § 7311.
U.S. EPA Analytical Method 537.1 applies to testing for 18 "long chain" PFAS chemicals in drinking water. On December 19, 2019, U.S. EPA announced a new method, Analytical Method 533, a methodology for testing "short chain" PFAS compounds, thus increasing the list from 18 to 29 PFAS chemicals. *See* U.S. Environmental Protection Agency, *Method 533: Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry*, EPA.GOV (Dec. 2019), https://www.epa.gov/dwanalyticalmethods/method-533-determination-and-polyfluoroalkyl-substances-drinking-water-isotope.

[18] TR-598 Toxicology and Carcinogenesis Studies of PFOA Administered in Feed to Sprague Dawley (Hsd:Sprague Dawley® SD®) Rats. See

must monitor for PFOA and PFOS, and notify the public if levels in drinking water exceed 5.1 ppt of PFOA or 6.5 ppt for PFOS.

The Water Resources Control Board (State Water Board) also is examining PFAS in water sources. In October 2019, it released test results from almost 600 drinking water wells. Trace levels of PFAS were found in samples from dozens of wells, while the remainder of tested wells exceeded U.S. EPA's LHAs of 70 ppt of PFOS and PFOA combined.[19] The State Water Board has made the data available online, and plans to conduct further testing throughout the state.[20]

In March 2018, the Department of Toxic Substances Control ("DTSC") initially proposed in its 2018-2020 Priority Work Plan that carpets and rugs containing PFAS be considered for "priority product" status under California's Safer Consumer Products (SCP) regulatory program.[21] More recently, in November 2019, DTSC instead proposed to list treatments containing PFAS substances for use on converted textiles or leathers, such as carpets, upholstery, clothing, and shoes as priority products under the SCP regulations.[22] The proposal followed nearly three years of research by the agency on the use of PFAS substances in carpets, rugs and indoor upholstered furniture, as well as in treatment and care products used on these household items. Further, DTSC now is seeking information on chemicals used in food packaging, including PFAS.[23]

If finalized, the proposed "priority products" designation would require manufacturers of the treatment and care products containing PFAS to either stop selling them in California or conduct an alternative analysis to determine whether there are safer substitute products. The proposal covers all PFAS substances in current or future production.

DTSC held a meeting on December 9, 2019 to receive public input on the proposal, and

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https://tools.niehs.nih.gov/cebs3/views/?action=main.dataReview&bin_id=13658

[19] Kurtis Alexander, *Tests of California Water Supplies Reveal Widespread PFAS Contamination*, S.F. CHRON., Oct. 14, 2019, https://www.sfchronicle.com/news/article/Tests-of-California-water-supplies-reveal-14527427.php.

[20] State Water Resources Control Board, *Per- and Polyfluoroalkyl Substances (PFAS)*, CALIFORNIA WATER BOARDS (last visited Jan. 1, 2020), https://www.waterboards.ca.gov/pfas/.

[21] Under California's Safer Consumer Products program, DTSC identifies chemicals used in consumer products that pose potential health or environmental risks, and evaluates possible safer alternatives. Department of Toxic Substances Control, *Safer Consumer Products Program Overview*, CA.GOV (last visited Jan. 1, 2020), https://dtsc.ca.gov/scp/safer-consumer-products-program-overview/.

[22] Department of Toxic Substances Control, *Proposed Priority Product: Treatments Containing Perfluoroalkyl or Polyfluoroalkyl Substances for Use on Converted Textiles or Leathers*, CA.GOV (last visited Jan. 1, 2020), https://dtsc.ca.gov/scp/treatments-with-pfass/.

[23] After October 1, 2021, the NDAA prohibits packaging for military "Meals Ready to Eat" from containing PFAS compounds. National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92 § 329.

written comments are due by December 31, 2019.

Maine

The Maine Center for Disease Control tested public water supplies for PFAS in October 2019. It found that nine of the 19 water supplies tested contained PFOA or PFOS, while another 17 water systems refused to allow testing.[24] The highest levels found were 10.2 ppt for PFOA and 5.2 ppt for PFOS.[25]

In December 2019, a PFAS task force created by Maine's governor released a report recommending that public water suppliers be required to notify system users of PFAS in their drinking water,[26] but stopped short of recommending that MCLs be established for PFAS in the state's drinking water.[27]

Massachusetts

The Massachusetts Department of Environmental Protection (MassDEP) formally published the final version of its soil and groundwater PFAS cleanup rule on December 27, 2019. The regulation, issued as an amendment to the Massachusetts Contingency Plan, requires that responsible parties remediate PFAS in groundwater that is usable as drinking water[28] to 20 ppt for six PFAS compounds combined: PFOS, PFOA, PFHxS, PFNA, PFHpA, and PFDA.[29]

Also, on December 27, 2019, MassDEP filed a proposed drinking water standard establishing MCLs of 20 ppt for the six referenced PFAS compounds combined.[30] Comments on the draft regulation will be accepted through February 28, 2020.[31]

Michigan

On November 14, 2019, Michigan's Environmental Rules Review Committee (Committee) voted to seek public comment on regulations proposed by the State Department of Environment, Great Lakes and Energy (EGLE) that, if enacted, would set limits for seven PFAS compounds in drinking

[24] Maine CDC Drinking Water Program, *Summary of PFAS Sampling for Maine Public Water Systems*, MAINE PUBLIC (Oct. 2019), https://www.mainepublic.org/sites/mpbn/files/201910/summary_pfas_sampling_oct_2019.pdf.
[25] Id.
[26] Maine PFAS Task Force, *Managing PFAS in Maine*, MAINE.GOV (Dec. 2019), https://www.maine.gov/pfastaskforce/materials/report/Draft-PFAS-Task-Force-Report+appendices.pdf.
[27] Id. at 11–16.
[28] MassDEP, *Final PFAS-Related Revisions to the MCP (2019)*, MASS.GOV (last visited Jan. 1, 2020), https://www.mass.gov/lists/preview-of-the-final-pfas-related-revisions-to-the-mcp-2019; *Summary of Proposed Regulations and Note to Reviewers: 310 CMR 22.00: Drinking Water Regulation*, MASS.GOV (last visited Jan. 1, 2020), https://www.mass.gov/doc/310-cmr-2200-summary-of-proposed-regulations-and-note-to-reviewers/download.
[29] 310 C.M.R. 30.0974(2), https://www.mass.gov/doc/final-pfas-related-changes-to-the-mcp-2019-12-13/download.
[30] PFAS Maximum Contaminant Level (MCL) Proposed Amendments (proposed Dec. 27, 2019) (to be codified at 310 C.M.R. 22.07G(3)), https://www.mass.gov/regulations/310-CMR-22-the-massachusetts-drinking-water-regulations.
[31] Martin Suuberg, Notice of Public Hearing, https://www.mass.gov/doc/310-cmr-2200-pfas-amendments-public-hearing-notice/download.

water.[32] The proposed regulations, derived from health-based values recommended by a Science Advisory Panel,[33] would establish MCLs for PFNA – 6 ppt; PFOA – 8 ppt; PFOS – 16 ppt; PFHxS – 51ppt; HFPO-DA (GenX) – 370 ppt; PFBS – 420 ppt; and PFHxA – 400,000 ppt.[34] According to EGLE, at least 1.9 million Michiganders are drinking water containing at least one of these PFAS compounds.

The regulations are expected to be promulgated in the spring of 2020. But the Committee, which has oversight authority of EGLE rulemaking, still could delay completion of the regulatory process. The Committee, a creation of the prior Republican legislature, is a 12-person panel, half of which is comprised of business representatives appointed by the former Governor. Although the Committee agreed to move the rulemaking process forward, it reserved the right to again review the proposed regulations following completion of the public comment period.

The Committee's stated purpose for retaining control of the process is to consider the remaining concerns of several members about potential costs to businesses and municipal utilities. These reservations include the potential application of the proposed stringent drinking water standards to future groundwater and surface water or wastewater treatment sludge cleanup requirements, which could impose significant costs on industries that have discharged PFAS into the environment. Another unresolved issue is how municipal water utilities would fund infrastructure upgrades if their drinking water supplies fail to meet the new standards, which are expected to apply to about 2,700 water systems. The State PFAS Action Response Team and EGLE, which support expedited promulgation of the proposed MCLs based on the Michigan Science Panel's health-based values, are at odds with the Committee's decision that will further delay finalizing the proposed regulations.

New Hampshire

The New Hampshire Department of Health and Human Services has proposed requiring the testing for PFAS in bottled water sold in the state following a May 2019 study that found some store brands of bottled water contained PFAS.[35] Also, the New Hampshire Department of Environmental Services (DES)

[32] Stateside Staff, *State Moves Forward on Draft Rules to Regulate PFAS in Drinking Water*, MICH. RADIO, Nov. 15, 2019, https://www.michiganradio.org/post/state-moves-forward-draft-rules-regulate-pfas-drinking-water.

[33] *See* Michigan PFAS Science Advisory Panel, *Scientific Evidence and Recommendations for Managing PFAS Contamination in Michigan*, (Dec. 7, 2018), https://www.michigan.gov/documents/pfasresponse/Science_Advisory_Board_Report_641294_7.pdf.

[34] EGLE Media Office, *Michigan Moves Forward on Drinking Water Standards for PFAS*, EGLE (Oct. 11, 2019), https://www.michigan.gov/egle/0,9429,7-135-3308_3323-509830--,00.html.

[35] Kimberly Houghton, *State Wants to Test All Bottled Water for PFAS Contaminants*, N.H. UNION LEADER, Nov. 24, 2019, https://www.unionleader.com/news/safety/state-wants-to-test-all-bottled-water-for-pfas-contaminants/article_d35d6bc5-2fce-5891-89eb-567b17d785ca.html.

established MCLs in drinking water of 12 ppt for PFOA and 15 ppt for PFOS that became effective on October 1, 2019.[36] However, the regulation was challenged by The 3M Company and several New Hampshire-based companies and, on November 26, 2019, a state court judge issued an injunction prohibiting enforcement of the new rule. The court found that DES had not performed an adequate cost-benefit analysis of the rule, as required under the state law authorizing DES to promulgate PFAS regulations protecting the public from negative health effects.[37] The judge delayed the injunction's effective date to December 31, 2019, to enable the parties to appeal the court's decision.

New Jersey

PFAS has been detected in more than 500 drinking water systems and groundwater sources in New Jersey. Many of the detections were discovered during Department of Environmental Protection (DEP) testing in 2019. The highest detection recorded was 264,000 ppt of combined PFOA and PFOS in a groundwater monitoring well at a military base, Joint Base McGuire-Dix-Lakehurst (Joint Base). A major source of such contamination is aqueous film-forming foam (AFFF), a PFAS-based firefighting material used to extinguish Class-B fires.[38] AFFF is a pervasive problem at military installations around the country where the firefighting foam can seep into groundwater and potentially pollute drinking water supplies at such bases and in the surrounding communities.

The Department of Defense has identified PFAS contamination at more than 400 bases. Currently, the military is investigating the PFAS contamination detected at the Joint Base and other military installations around the country.[39] Moreover, the PFAS provisions in the NDAA include funding to assist communities whose drinking water systems were contaminated from the use of PFAS at nearby military bases.[40] The legislation requires the Defense Department to enter into cooperative agreements with such communities to test, monitor and clean-up PFAS-contaminated areas from military operations.[41]

Moreover, the NDAA requires the military to phase-out by no later than 2024 the use of AFFF. In May 2019, the New Jersey Attorney General filed a lawsuit against the 3M

[36] Brian Henthorn and Christopher Loos, *PFAS Rolling into Regulation*, NAT'L L. REV., Nov. 4, 2019, https://www.natlawreview.com/article/pfas-rolling-regulation. The legislation authorizing the establishment of PFAS limits in drinking water specifically required that the new standards protect against early childhood risks.

[37] Adrianne Appel, New Hampshire Judge Suspends State's New PFAS Restrictions, BLOOMBERG ENVIRONMENT, Nov. 26, 2019, https://news.bloombergenvironment.com/environment-and-energy/new-hampshire-judge-suspends-states-new-pfas-restrictions.

[38] Class B materials include gasoline, oil, and jet fuel. AFFF is highly effective in fighting high-hazard flammable liquid fires.

[39] The NDAA requires the military to remediate pollutants and contaminants, including PFAS, on federal facilities. National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92 § 332.

[40] Id.

[41] Id.

Company, Dupont Company, and other companies that produce and distribute AFFF. This case was consolidated with more than 100 others filed throughout the U.S. in a multi-district federal court litigation in South Carolina.

Last year, New Jersey adopted an MCL of 13 ppt for PFNA, a PFAS compound used in the manufacture of high-performance plastics. More recently, in April 2019, DEP proposed MCLs of 14 ppt for PFOA and 13 ppt for PFOS in drinking water,[42] which were recommended by a state agency, the New Jersey Drinking Water Quality Institute. The proposal is subject to a year-long process during which public comment is solicited, considered and responded to by DEP. In the meantime, under state law, DEP has established an interim PFOA and PFOS standard of 10 ppt, which applies to both drinking water supplies and groundwater.[43]

New York

In July 2019, New York proposed limits in drinking water of 10 ppt each for PFOS and PFOA. The public comment period for the proposal ended September 24, 2019.[44] Based on its review of 5,000 public comments, state health department officials announced on December 17, 2019 that the proposed rule would be amended to allow municipal water utilities to seek a 24-month compliance deferral while they obtain the funding to purchase and install the costly treatment systems that are needed to meet the new drinking water MCL. The revised proposal will be republished for comment and is expected to be finalized in the spring of 2020.

It is unknown how many of the water systems in New York State presently would not meet the proposed MCL for PFOA and PFOS. However, removing PFAS compounds from drinking water is technically challenging and costly. PFAS are a diverse group of chemicals with a wide range of properties (i.e., persistent, stable, water soluble, bioaccumulative, and non-biodegradable) that can change depending on their carbon chain length. Thus, adaptable technology is needed to address the challenges of removing these differing chemical compounds.

To illustrate the potential cost impact of these technologies, recently the Suffolk County, Long Island Water Authority has imposed a $20 surcharge on its customers' monthly water service bills to cover the cost

[42] Ground Water Quality Standards and Maximum Contaminant Levels (MCLs) for Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS), 51 N.J. Reg. 437(a) (proposed Apr. 1, 2019).
[43] New Jersey Department of Environmental Protection, *Ground Water Quality Standards (GWQS)*, NJ.GOV, https://www.nj.gov/dep/wms/bears/gwqs.htm.
[44] Henthorn and Loos, *supra* note 34; *Governor Cuomo Announces Availability of $350 Million for Water System Upgrades Statewide and Directs Health Department to Begin Adopting Maximum Contaminant Levels for PFOA, PFOS and 1,4-Dioxane*, NY.GOV (July 8, 2019), https://www.governor.ny.gov/news/governor-cuomo-announces-availability-350-million-water-system-upgrades-statewide-and-directs.

of meeting the state's new drinking water MCL. Moreover, in August 2019, Environmental Resources Management and CHA Consulting released a municipal water supply study for the village of Hoosick Falls,[45] which was undertaken to examine several possible long-term solutions to cost-effectively remove PFAS from the Village's municipal water supply.[46] PFOA contamination was estimated to have occurred for 40 years or longer, though exact dates are unknown. In 2014, testing detected PFOA concentrations of 595 ppt average in the drinking water supply.[47] Bottled water was distributed to all Village residents in 2016, after which the state installed a Granular Activated Carbon (GAC) treatment system to meet U.S. EPA's recommended LHAs of 70 ppt for PFOA and PFOS combined.[48] Although the State Department of Health found that the GAC treatment system effectively removed PFOA and PFOS from the Village's public drinking water,[49] it was thought to be very costly to operate.

The study was funded by Saint-Gobain Performance Plastics and Honeywell, companies that operated the manufacturing plant from which the PFAS contamination is alleged to have been released, under a Consent Order with the New York Department of Environmental Conservation.[50] It evaluated five possible long-term solutions: 1) develop a new groundwater source; 2) develop a new surface water source; 3) interconnect with an existing water supply source; 4) continue to use the current wells with a GAC treatment system; and 5) continue to use the current wells with a GAC treatment system while also intercepting the migrating contaminated groundwater and discharging it after treatment. The researchers found that all of the alternatives were protective of public health and the environment and technically feasible, although by far the second ($34.4M) and third ($48.5M) alternatives would be the most costly.[51] While the first ($6.9M) and fifth ($10.1M) alternatives would be less costly, the fourth alternative, which provides for the continued use of the existing public supply wells with the full GAC treatment system, would be the least costly ($6.3M) of the five considered solutions.[52]

[45] Environmental Resources Management and CHA Consulting, *Municipal Water Supply Study for the Village of Hoosick Falls* (Aug. 2019), https://www.dec.ny.gov/docs/remediation_hudson_pdf/hoosickmuniwatersupprept.pdf.

[46] New York State Department of Health, *Cancer Incidence Investigation 1995-2014* 3 (May 2017), https://www.health.ny.gov/environmental/investigations/hoosick/docs/cancer_report.pdf.

[47] Id.

[48] Environmental Resources Management and CHA Consulting, *supra* note 38, at 3.

[49] New York State Department of Health, *Hoosick Falls Area Drinking Water Response*, NY.GOV (last visited Jan. 1, 2020), https://www.health.ny.gov/environmental/investigations/hoosick/public_water.htm.

[50] New York State Department of Environmental Conservation, *Municipal Water Supply Study for the Village of Hoosick Falls*, NY.GOV (last visited Jan. 1, 2020), https://www.dec.ny.gov/chemical/108791.html#water.

[51] Id.

[52] Id.

According to the study's authors, active treatment processes other than GAC, such as reverse osmosis and ion exchange resins, were not evaluated because their effectiveness is less clearly proven than GAC.[53] Apparently, Dupont Company disagrees with this assessment. On December 11, 2019, it announced an agreement to acquire Desalitech Ltd., an Israeli company that had developed a closed-circuit reverse osmosis (CCRO) filtration technology. The technology is marketed by Desalitech to a number of industries, as well as to municipal water authorities. Like GAC, CCRO successfully can remove fluorinated chemicals such as PFOA and PFOS from water systems. As stated on Desalitech's website, "Municipal water treatment plants require reliable water treatment technologies to effectively produce high quality water. If plagued by PFAS and PFOS reverse osmosis is an excellent remedy."[54]

For many years, Dupont manufactured PFAS compounds which it used to make Teflon, the major component in non-stick cookware, and AFFF to fight petroleum fires at military bases and airports. Dupont is a named defendant in a number of the PFAS lawsuits brought by state Attorneys General, including the New York State Attorney General, municipal water utilities, and others. It may be a coincidence, but, perhaps, Dupont purchased Desalitech in anticipation of being required to pay for the treatment of PFAS-contaminated municipal water systems and to remediate PFAS-impacted groundwater and surface water bodies.

Wisconsin

Much like many of Maine's public water suppliers, Wisconsin's water utilities declined a request by the Governor to voluntarily test their facilities for PFAS.[55] The Wisconsin utilities asserted that, in the absence of sampling protocols and standards for PFAS in surface water, the test results would lack meaning.[56] While this claim may have had some validity at the time, U.S. EPA announced a new analytical method on December 19, 2019 that can test for an additional 11 "short chain" PFAS compounds. Previously, there only was one test method, which could detect 18 "long chain" PFAS compounds, including PFOA and PFOS.[57] With the new development, government and private laboratories now can test for a total of 29 PFAS compounds. [58]

[53] Id. at 26–27.
[54] Desalitech Ltd., *Overcoming Municipal Water Treatment Challenges*, DESALITECH (last visited Jan. 3, 2020), https://www.desalitech.com/industries/municipal-water-treatment/.
[55] Stephen Joyce, *Wisconsin Water Utilities Point to State PFAS Challenges*, BLOOMBERG ENVIRONMENT, Nov. 19, 2019, https://news.bloombergenvironment.com/environment-and-energy/wisconsin-water-utilities-point-to-state-pfas-challenges.
[56] Id.
[57] *Method 533*, *supra* note 17.
[58] EPA Press Office, *EPA Announces New Method to Test for Additional PFAS in Drinking Water*, EPA.GOV (Dec. 19, 2019), https://www.epa.gov/newsreleases/epa-announces-new-method-test-additional-pfas-drinking-water.

In November 2019, the Wisconsin Department of Natural Resources (WDNR) held public meetings to discuss plans to develop surface water quality criteria, groundwater clean-up standards, and drinking water MCLs for PFAS. The Wisconsin Department of Health has recommended a groundwater clean-up standard of 20 ppt for PFOA and PFOS.[59] WDNR also has announced plans to investigate PFAS contaminated-farmland in the northeastern part of the state.[60] The Department has tapped Johnson Controls, the parent company of the largest known source of PFAS contamination in the area, to perform the work.[61]

Conclusion

Congress failed in the 2020 appropriations legislation to direct U.S. EPA to set standards for PFAS in drinking water systems or include PFAS compounds as hazardous substances under CERCLA. Nor has U.S. EPA independently acted to set such drinking water standards on a national level or designate PFAS compounds under CERCLA, although a proposed rule that would designate PFAS as CERCLA hazardous substances remains under policy review by U.S. EPA's senior management.[62] Instead, the agency has moved cautiously and deliberately to effectuate its PFAS Action Plan.[63] It has focused on collecting data to help inform any future regulatory action the agency eventually may take to establish PFAS drinking water standards or groundwater cleanup requirements.

In the meantime, U.S. EPA has stood behind its 2016 LHAs of 70 ppt for PFOA and PFOS in drinking water systems, recommending that water utilities take appropriate steps to protect their customers from ingesting higher concentrations of those PFAS compounds. More recently, U.S. EPA again has endorsed 70 ppt as an appropriate health-based value, using that concentration as its recommended cleanup parameter for PFOA or PFOS in groundwater that is a current or potential source of drinking water.[64]

In the absence of broad-based Congressional action or definitive steps taken by U.S EPA to

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[59] Wisconsin Department of Natural Resources, *Per- and Polyfluoroalkyl Substances (PFAS) Contamination*, WI.GOV (last updated Dec. 19, 2019), https://dnr.wi.gov/topic/contaminants/PFAS.html.

[60] Danielle Kaeding, *Johnson Controls, DNR Disputing Process For Investigating PFAS On Farm Fields*, WIS. PUBLIC RADIO, Nov. 19, 2019, https://www.wpr.org/johnson-controls-dnr-disputing-process-investigating-pfas-farm-fields.

[61] Id.

[62] *Congress Takes Initial Steps to Address PFAS in the National Defense Authorization Act Conference Report*, Nat'l L. Rev., Dec. 20, 2019, https://www.natlawreview.com/article/congress-takes-initial-steps-to-address-pfas-national-defense-authorization-act,

[63] U.S. Environmental Protection Agency, *EPA's Per- and Polyfluoroalkyl Substances (PFAS) Action Plan*, EPA.GOV (Feb. 2019), https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf.

[64] U.S. ENVIRONMENTAL PROTECTION AGENCY, DRAFT INTERIM RECOMMENDATION TO ADDRESS GROUNDWATER CONTAMINATED WITH PERFLUOROOCTANOIC ACID AND PERFLUOROSULFONIC ACID (Dec. 19, 2019).

fill the federal PFAS regulatory void, states essentially have been left to their own devices to propose and promulgate standards limiting exposure to PFAS in a variety of environmental media and consumer products. This situation has created an uncertain regulatory environment characterized by some states seeking to establish their own PFAS drinking water standards, monitoring and reporting duties, and groundwater remediation requirements, while others continue to apply U.S. EPA's LHAs for PFOA and PFOS. Given the scientific uncertainties and policy disagreements among stakeholders, a consensus on how best to regulate PFAS compounds to adequately protect the public from potential negative health impacts is unlikely to occur any time soon.

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