

Hazardous PFAS chemicals in Georgia's drinking water

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Executive Summary: Polyfluoralkyl substances (PFAS) are a group of synthetic chemicals found in Georgia's groundwater that have been linked to serious adverse health effects including thyroid disease, ulcerative colitis, testicular and kidney cancers, low infant birth weight, and low vaccine efficacy. Among other reports of PFAS contamination, the United States Air Force recently found high levels of PFAS groundwater contamination in three Georgia air bases. In 2016, the Environmental Protection Agency (EPA) released a non-regulatory "Lifetime Health Advisory" for two PFAS - perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) - recommending a lifetime limit of 70 parts-per-trillion (ppt). However, lifetime health advisories are not enforceable by law and some toxicology studies suggest that PFAS are unsafe at levels below 70 ppt. Eight states have adopted or proposed legally-enforceable maximum contaminant levels of PFAS in groundwater and more states are expected to propose such legislation. We recommend that the Georgia Environmental Protection Division (EPD) of the Georgia Department of Natural Resources (GDNR) adopt a maximum contaminant level for PFAS at 27 ppt.

I. The Problem: Groundwater Contamination

Polyfluoralkyl substances (PFAS) are used in the manufacture of packaged food, water-repellent fabrics, nonstick products such as Teflon, polishes, waxes, paints, electronics, chrome plating, and many other products. PFAS seep into drinking and groundwater from sites that produce and use products containing these chemicals²³. Due to their chemical makeup, PFAS are extremely difficult and expensive to remove from the environment and have earned the name "forever chemicals"^{5,9}.

In 2016, the EPA released non-enforceable public health advisories for the two most prevalent PFAS (PFOA and PFOS), setting the standard at a combined 70 ppt. However, scientific studies have suggested PFAS have adverse health effects at lower concentrations¹. New Jersey, a state with enforced maximum PFAS contaminant standards, initiated a toxicological limit of PFOS at 13 ppt⁷ and PFOA at 14 ppt⁶ for a combined level of 27 ppt. Philippe

Grandjean, professor of public health at Harvard University and expert in PFAS contamination, recommends that the EPA limit the amount of acceptable PFAS in drinking water to 1 ppt⁸. Reports vary; therefore, for the purpose of this memorandum, the most stringent studies are considered.

Recent investigations uncovered high levels of PFAS in Georgia groundwater - as much as 375 ppt¹⁵. The main sources of contamination come from carpet factory waste dumped into rivers and the use of firefighting foam on US Air Force bases²⁶. The Conasauga river is a major source of drinking water for the Georgia cities of Rome and Calhoun. Tests of downstream river water in Alabama measured 1.5 parts per billion (ppb) PFOA levels¹³, more than twenty times greater than the recommended standard of 70 ppt²³. It is therefore likely that other drinking water sources, such as residential wells, may be more susceptible to PFAS groundwater

contamination. PFAS have been found in public drinking water sourcing to over 110 million Americans². In Georgia alone, more than 524,000 people may be affected by PFAS water contamination²⁵. Purifying drinking water contaminated with PFAS is extremely difficult and costly. Communities across the country affected by the contamination have spent millions in efforts to filter their drinking water^{4,24}. In fact, it would cost billions if the Conasauga river were to be decontaminated by activated carbon filters²⁰. Once in the human body, PFAS have a half-life of five years, allowing the chemicals to accumulate, and possibly lead to problems during pregnancy, carcinoma, and other adverse health outcomes²¹. Although some companies are voluntarily phasing out the use of PFAS due to the detrimental effects to human health and the adverse environmental impacts, there is no regulation in place to prevent groundwater pollution.

II. Government Response

Drinking water in the United States is regulated under the Safe Water Drinking Act (SWDA). Under the SWDA, the EPA sets and enforces standards for drinking water quality, covering every public water system in the United States. Specifically, the EPA sets federal National Primary Drinking Water Regulations (NPDWR), composed of legally enforceable limits of specific contaminants in drinking water. The EPA has delegated primary enforcement responsibility for public water systems to the EPD of the GDNR, who enforce the NPDWR through state-specific standards outlined in the Georgia State Rules and Regulations (GAR&R). Currently, PFAS are neither listed in NPDWR nor in the GAR&R Section 391-3-5^{18, 22}.

In February 2019, the EPA announced a “PFA Action Plan” to set a regulatory framework for PFOA and PFOS²³. The EPA plans to propose a regulatory determination for all PFAS maximum contamination level for public comment in the next year. The EPA has not outlined when these regulations might take effect. The EPA also plans to categorize PFAS as hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) which gives the EPA additional authority to respond to imminent and substantial dangers to public welfare caused by contamination. It is also unclear when CERCLA regulation for PFOA/PFOS would take effect²³.

However, the EPA’s PFAS action plan has been criticized by environmentalists and congress members, including Sen. Tom Carper (D-DE) who heads the Senate Environment Committee. Critics believe the plan will delay progress towards PFAS safety standards in drinking water because the EPA has a reputation for executing substance regulation on a lengthy timeline. The EPA’s work with perchlorates, for which the EPA proposed a maximum contamination limit in 2011, is still underway eight years later¹⁴. There have not been major advancements in the processes since the Obama administration proposed action on PFOA and PFOS in 2016³. The recently-formed Congressional PFA Task Force, co-chaired by Reps. Dan Kildee (D-MI) and Brian Fitzpatrick (R-PA), voiced concern over the plan and intend to hold the EPA accountable for their actions moving forward¹².

Because the EPA has introduced no binding national regulations regarding PFAS contamination of drinking water, many states have introduced their own PFAS water quality standards, specifically regulating PFOA/PFOS levels. Massachusetts, New Hampshire, Rhode Island, and Michigan have issued guidance recommending their citizens not consume water contaminated with greater than 70 ppt. Minnesota, Wisconsin, and Alabama are also in the process of setting standards within the states¹⁹. However, some states have adopted more stringent standards given the uncertainty regarding PFAS toxicity. Vermont issued a health advisory for a combined PFAS level of 20 ppt. New Jersey currently has the most rigid enforceable PFAS regulations, setting a maximum contaminant level of 27 ppt.

III. Stakeholders

In early 2019, significant PFAS contamination was reported in groundwater at all three of Georgia’s Air Force bases. In some samples tested, PFAS concentrations measured were five thousand times higher than the screening level¹⁵. Military personnel may thus suffer increased risk of PFAS-related health effects. Furthermore, the potential health and ecological impacts of PFAS worry community members living near contaminated areas. Although drinking water in the Air Force bases did not contain PFAS, the Air Force did not perform any tests immediately outside their bases in either drinking or groundwater. This PFAS contamination thus has the potential to affect communities surrounding the

bases, with shallow private wells especially vulnerable.

Other state and local investigations into PFAS have attracted media attention, leading to public outcry and legal action. Polluters have dismissed concerns. Instances of drinking water contamination with PFAS have already resulted in both federal and class-action lawsuits in West Virginia, Colorado, and Minnesota, and more states are expected to file lawsuits in the future^{11,16,17}.

The Alabama cities of Gadsden and Centre recently sued Georgia carpet manufacturers over PFAS contamination, although the companies do not believe they were intentionally negligent in the matter. Within Georgia, rather than taking legal action, the city of Rome is moving towards cleaner water sources and widespread installation of water filters on the taxpayers' dime¹⁰.

IV. Timeline

Due to the accumulating evidence on PFAS toxicity and contamination in Georgia water supplies, it is imperative PFA regulation is addressed rapidly. A maximum contaminant limit for PFAS in drinking water needs to be set as soon as possible to limit health and environmental impact. In addition, drinking water found to be contaminated with PFAS should have filters installed as soon as possible.

V. Path Forward

Regulations will require tighter monitoring of PFAS levels in both drinking and groundwater to ensure public safety and prevent further contamination. Fines for PFAS polluters will fund clean-up efforts while simultaneously encouraging manufacturers to protect our drinking water. New Jersey adopted a PFOA maximum contaminant limit of 14 ppt after analysis by the state's Drinking Water Quality Institute, which also recommended a limit of 13 ppt for PFOS. Because Georgia's groundwater is subject to significant exposure from Air Bases and carpet

manufacturers, the state is encouraged to follow suit and adopt a similar standard.

VI. Options

i. Option A

Adopt a maximum contaminant level of 27 ppt in the State of Georgia for combined PFOA/PFOS in water sources under GAR&R Section 391-3-5 (Rules for Safe Drinking Water). This option would match the strictest current state maximum contaminant level for PFAS contamination in drinking water. Setting a stringent standard provides the greatest margin of safety for Georgian citizens.

ii. Option B

Adopt a maximum contaminant level of 70 ppt in the state of Georgia for combined PFOA/PFOS in water sources under GAR&R Section 391-3-5. This option would match the current EPA recommendation regarding combined PFOA/PFOS contamination. However, recent toxicity studies cause uncertainty as to whether a 70 ppt limit is sufficient.

iii. Option C

Wait for the EPA to introduce a national maximum contaminant level for combined PFOA/PFOS under the National Primary Drinking Water Regulations. As the EPA has not announced when it intends to implement national PFAS regulations, this option would likely take the longest to implement. Therefore, this option presents the greatest health risk to Georgian citizens, as PFAS contamination represents an imminent and substantial public health risk.

VII. Recommendations

We, members of Emory Science Advocacy Network, recommend that the State of Georgia adopt a maximum contaminant level of 27 ppt PFAS (**Option A**) to protect its citizens from incurring detrimental health consequences.

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