

May 8, 2020

Via Electronic Mail: cdphe.wqcc@state.co.us

Water Quality Control Commission
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South, A-5
Denver, CO 80246

Re: Comments on the March 2, 2020 Draft of the Policy for Interpreting the Narrative Water Quality Standards for Per- and Polyfluoroalkyl Substances (PFAS)

Commissioners:

Sierra Club, Conservation Colorado, Clean Water Action, Public Employees for Environmental Responsibility, Colorado Latino Forum, Earthjustice, the Fountain Valley Clean Water Coalition and GreenLatinos respectfully submit these comments to the Water Quality Control Commission (WQCC) regarding the March 2, 2020 draft of the Policy for Interpreting the Narrative Water Quality Standards for Per- and Polyfluoroalkyl Substances (PFAS) (the “Draft Policy”).

I. Introduction

The Draft Policy is an important start and we are pleased to see the Colorado Department of Public Health and Environment (CDPHE) stepping forward to proactively protect communities by addressing dangerous PFAS contamination in Colorado. Our organizations support the state of Colorado’s efforts to use its existing regulatory authority to address PFAS contamination in state surface and ground waters. The state should do everything it can with its existing authority and available resources to protect communities and Colorado water resources from PFAS chemicals. However, unfortunately the draft policy falls short of this goal and will not fully protect Coloradans from toxic PFAS chemicals.

As CDPHE is aware, PFAS are toxic even at extremely low concentrations, are bioaccumulative, are highly mobile leading them to spread quickly throughout the environment, and are found in a wide variety of industrial processes and consumer products.¹ Over 6,000 different dangerous PFAS chemical compounds exist.² Exposure to PFAS can cause a range of serious health effects including cancer; fertility and pregnancy problems; hormone disruption; increased cholesterol; immune system problems; and harm to liver, thyroid, and pancreatic function.³ Developing fetuses and newborn infants are particularly sensitive to PFAS chemicals.⁴

¹ See, e.g. Natural Resources Defense Council, *Fact Sheet - Toxic Drinking Water: The PFAS Contamination Crisis*, available at: <https://www.nrdc.org/sites/default/files/toxic-drinking-water-pfas-contamination-fs.pdf>.

² Concawe, *Environmental fate and effects of poly- and perfluoroalkyl substances (PFAS)* (June 2016), available at: https://www.concawe.eu/wp-content/uploads/2016/06/Rpt_16-8.pdf.

³ Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls 5-6*, available at <https://www.atsdr.cdc.gov/ToxProfiles/tp200.pdf>.

⁴ See U.S. Evtl. Prot. Agency. *Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)* (2016), available at: https://www.epa.gov/sites/production/files/2016-05/documents/pfoa_health_advisory_final_508.pdf.

Despite these effects, there are no regulatory standards for any PFAS chemicals in Colorado's drinking water or surface water, and the process of establishing standards can take the Environmental Protection Agency (EPA) a decade. Federal numeric standards for PFAS are likely years from being finalized and CDPHE must not wait for the EPA to take action. We would like to see CDPHE take aggressive, health-protective measures that rely on the most conservative assumptions and go beyond federal health advisory levels.

We support CDPHE doing everything in its power to protect Coloradans from these toxic and highly persistent chemicals. We believe it is critical for CDPHE to conduct consistent, state-wide monitoring for PFAS in surface and ground waters in order to better understand the prevalence of these "forever chemicals" throughout Colorado and to require PFAS effluent limits in industrial and wastewater permits to protect water quality and public health. CDPHE's Draft Policy is just one step toward addressing PFAS contamination in state waters and we urge the Department to secure the additional resources necessary to develop numeric water quality standards and maximum contaminant levels (MCLs).

II. PFAS Contamination in Colorado

Several Colorado communities are already heavily impacted by PFAS. For example, an estimated 70,000 residents of El Paso county drank groundwater contaminated with PFHxS for decades and continue to live on top of a plume of contaminated groundwater. A recent study by the Colorado School of Public Health found residents have on average 10-times more of the chemical in their blood than average for American adults, based on measurements from a large, statistically representative sample of adults in the United States.⁵

Residents down gradient from the Air Force Academy may be similarly affected. While the Air Force recently sampled more than a dozen private wells for residences adjacent to the Academy site, it only reported results for PFOS and PFOA publicly, and not the fact that it detected significant levels of so-called "shorter-chain" PFAS chemicals in wells. Total concentrations of 4 to 7-carbon chain PFAS exceeded 100 parts per trillion in three of the sampled wells, and are described in Appendix A.⁶

In addition to these known hotspots, PFAS have been detected in the ground water well of the Sugarloaf volunteer fire stations in Boulder county, and contamination has spread to several private wells and a nearby Boy Scout camp. Some testing indicates contamination around the Suncor refinery, and PFAS of unknown origin were detected in a large metropolitan water system in Adams County. An unknown number of industries could be discharging PFAS into Colorado wastewater treatment plants or directly into surface waters, posing a risk to Colorado waterways.

⁵ Barton, et al. *Sociodemographic and behavioral determinants of serum concentrations of per- and polyfluoroalkyl substances in a community highly exposed to aqueous film-forming foam contaminants in drinking water*. *International Journal of Hygiene and Environmental Health* (2019), available at: <https://www.sciencedirect.com/science/article/abs/pii/S1438463919304419>.

⁶ Public Employees for Environmental Responsibility (PEER), *Press release: PEER Obtains Evidence of "Forever Chemicals" at Air Force Academy - Washing Your Hands Can't Stop PFAS in Water* (Mar. 12, 2020). Appendix A.

In most cases, the Draft Policy proposed to the WQCC would not be sufficient to protect Colorado communities from the most commonly detected and concerning sources of water contamination, including PFAS used in firefighting foams, industrial discharges, and the land application of contaminated biosolids.

III. The Draft Policy’s Translation Levels Are Too High to Protect Coloradans

In Table 3 of the Draft Policy, CDPHE proposes Translation Levels of 70 ppt for 8 and 9-carbon chain compounds (PFOA, PFOS & PFNA), 700 ppt for 6-carbon chain (PFHxS) compounds, and 400,000 ppt for 4-carbon chain compounds (PFBS). The State has suggested that by loosely basing its Translation Levels on EPA guidelines we avoid the need to “pick and choose” between other water guidelines. But the result is that Colorado could ignore emissions that render some state waters dangerous, undrinkable, or in need of long-term and expensive treatment.

The Draft Policy’s Translation Level of 70 ppt for 8 and 9-carbon chains closely follows the EPA’s drinking water health advisory for PFOA and PFOS. Yet, in establishing this health advisory, the EPA relied on several assumptions that are not sufficiently conservative and will not protect public health, including a reference dose (toxicity value) of 2×10^{-5} mg/kg-day and a water ingestion rate of .054L/kg/d which are lower values than commonly assumed.⁷ Colorado should instead consider adopting stronger protections that rely on more protective assumptions, including those recently relied on by the federal Agency for Toxic Substances and Disease Registry (ATSDR) and others which use more potent toxicity values for several PFAS chemicals as well as a more conservative water ingestion rate.⁸ Alternatively, as discussed in Section IV below, many states have recently set or proposed more protective state standards for PFAS in groundwater and surface waters.

Of particular concern, the Translation Levels are too high and are not protective of human health, particularly exposures during pregnancy and infancy. There is abundant evidence that PFAS exposures in the low parts per trillion range can impact human health, and studies have documented adverse health effects from PFAS exposure at concentrations well below the proposed Translation Levels. For example, one research team documented a response between a child’s exposure to PFAS and reduced antibody concentrations against tetanus and diphtheria toxoids in serum two years later, concluding that exposure to concentrations of PFOA and PFOS

⁷ Anna Reade, et al., *Scientific and Policy Assessment for Addressing Per- and Polyfluorinated Substances (PFAS) in Drinking Water* (2019), at 28-44, available at: <https://www.nrdc.org/sites/default/files/assessment-for-addressing-pfas-chemicals-in-michigan-drinking-water.pdf>. (Noting on page 35 that the “EPA applied a combined uncertainty factor of 300 (10 for human variability, 3 for animal to human toxicodynamic difference, 10 for use of a lowest-observed-adverse-effect-level (LOAEL) instead of a no-observed-adverse-effect-level (NOAEL)) on a LOAEL for decreased bone development in the fore and hind limbs, in pup mice (both sexes) and accelerated puberty in male mice to generate a reference dose of 2×10^{-5} mg/kg-day” and that the “EPA assumed a drinking water ingestion rate of 0.054 L/kg-day, which represents the 90th percentile water ingestion estimate for a lactating woman.”)

⁸ *Id.* The tables on pages 31-32 contain a sample of toxicity values and drinking water exposure assumptions for PFOA and PFOS that are more protective than those selected by the EPA. For PFOA, ATSDR and New Jersey selected toxicity values of 3×10^{-6} and 1×10^{-7} respectively. For PFOS, ATSDR and New Jersey selected toxicity values of 2×10^{-8} and 2×10^{-6} respectively. For both PFOA and PFOS, ATSDR and New Jersey each selected a water ingestion rate of .175 L/kg/day for an infant less than 1 year of age.

even as low as 1 ppt may have adverse health effects for children.⁹ In light of other research conducted by the National Toxicology Program linking PFOA exposure to increased pancreatic tumors, experts have commented that a safe dose is likely closer to 0.1 ppt.¹⁰

Additionally, the Translation Levels do not adequately account for additive and cumulative exposures to the many thousands of PFAS chemicals. While the Draft Policy does clarify that 70 ppt applies to each PFOA, PFOS and PFNA *individually* as well as *the sum* of these three chemicals and the four parent constituents, the Translation Levels are not comprehensive and do not address all toxic PFAS that are in the environment. As previously mentioned, there are over 6,000 different PFAS chemical compounds. The EPA and other scientists have raised concerns that other lesser-known PFAS (not listed in Table 3 of the Draft Policy) are likely to pose similar health risks.¹¹ Concerningly, one recent study of public drinking water found that the concentration of unidentifiable organic fluorine chemicals frequently dwarfed the concentration of better-studied PFAS and precursors, with unknown fluorochemicals making up 37 to 94 percent of the chemicals present in drinking water samples.¹²

PFAS are only present as a result of human activity, and the ideal amount of PFAS in water is zero. Given the significant toxicity of PFAS even at low levels of exposure as well as the potential cumulative and synergistic effects from exposure to multiple types of PFAS, current studies suggest the need for far more stringent Translation Levels. Accordingly, ***Colorado should consider establishing a combined Translation Level of 1 ppt for all quantifiable PFAS, with a requirement to include additional PFAS chemicals as they become quantifiable.*** Notably, EPA Methods 537.1 and 533, as well as other analytical methods are able to detect many quantifiable PFAS to 1 ppt.¹³ Similarly, treatment technologies exist to remove long-chain and newer PFAS to concentrations below 2ppt.¹⁴

⁹ Phillippe Grandjean and Esben Budtz-Jorgensen, *Immunotoxicity of perfluorinated alkylates: calculation of benchmark doses based on serum concentrations in children*, 12 *Envtl. Health* 1 (2013), available at: <https://ehjournal.biomedcentral.com/track/pdf/10.1186/1476-069X-12-35>.

¹⁰ See, Sharon Lerner, *Teflon Toxin Safety Level Should be 700 Times Lower Than Current EPA Guideline*, *The Intercept* (June 18, 2019), available at: <https://theintercept.com/2019/06/18/pfoa-pfas-teflon-epa-limit/>.

¹¹ See, e.g., Consent Order, *In the matter of: Dupont Company* (Nos. P-08-508 and P-08-509, U.S. E.P.A. Office of Pollution Prevention and Toxics, April 9, 2009), at vii (stating with respect to GenX compounds (chemical substances intended to replace long-chain PFAS used in Teflon), “EPA has concerns that these PMN substances will persist in the environment, could bioaccumulate, and be toxic (“PBT”) to people, wild mammals, and birds.”), available at: https://chemview.epa.gov/chemview/proxy?filename=sanitized_consent_order_p_08_0508c.pdf; Arlene Blum et. al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123 *Envtl. Health Perspectives* (2015) A 107, available at: <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.1509934>.

¹² Xindi Hu et.al., *Tap Water Contributions to Plasma Concentrations of Poly- and Perfluoroalkyl Substances (PFAS) in a Nationwide Prospective Cohort of U.S. Women*, available at: <https://ehp.niehs.nih.gov/doi/10.1289/EHP4093> (Supported by the Harvard School of Public Health, this study analyzed drinking water samples using EPA’s Method 537 as well as a test that measures the total amount of synthetic organic fluorine chemicals, known as the extractable organic fluorine test).

¹³ See *Scientific and Policy Assessment for Addressing Per- and Polyfluorinated Substances (PFAS) in Drinking Water* (2019), *supra* note 6; see also EPA, *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*, available at: <https://www.epa.gov/sites/production/files/2019-12/documents/method-533-815b19020.pdf>.

¹⁴ *Scientific and Policy Assessment for Addressing Per- and Polyfluorinated Substances (PFAS) in Drinking Water* (2019), *supra* note 7, at 53-54.

IV. Other States Have Adopted More Protective Standards or Guidelines

Every recent state that has reviewed the evidence of PFAS toxicity has proposed a drinking water standard or guideline that is more protective than Colorado’s proposed values. In Michigan, for example, scientific advisors to the PFAS Action Response Team scientific concluded, “Based on the available evidence for PFOA, in particular, the combined evidence from toxicology and epidemiology the Panel concludes that the research supports the potential for health effects resulting from long-term exposure to drinking water with concentrations below 70 ppt.”¹⁵

The following table summarizes more protective standards or guidelines from other states, and we have included a more comprehensive list of such standards in Appendix B.

Examples of states with more protective thresholds for combined groups of PFAS chemicals:

State	Type	PFAS Group	Threshold
VT ¹⁶	Ground and drinking water	Sum of PFOA, PFOS, PFNA, PFHxS and PFHpA	20 ppt
MA ¹⁷	Groundwater (proposed)	Sum of PFOS, PFOA, PFNA, PFHxS and PFHpA	20 ppt

Examples of state with more protective thresholds for individual PFAS chemicals:

State	Type	Individual PFAS	Threshold
NJ ¹⁸	Ground and drinking water	PFOA	14 ppt
		PFOS	13 ppt
		PFNA	13 ppt
NH ¹⁹	Ground and drinking water	PFOA	12 ppt
		PFOS	15 ppt
		PFNA	11 ppt
		PFHxS	18 ppt

¹⁵ Michigan PFAS Action Response Team (MPART). *Scientific Evidence and Recommendations for Managing PFAS Contamination in Michigan* (December 2018), available at: https://www.michigan.gov/documents/pfasresponse/Science_Advisory_Board_Report_641294_7.pdf.

¹⁶ Vermont Department of Health, *PFAS in Public Drinking Water*, available at: https://www.healthvermont.gov/sites/default/files/documents/pdf/ENV_DW_PFAS.pdf.

¹⁷ *PFAS-related Revisions to the Massachusetts Contingency Plan* (April 24, 2019), available at: <https://www.mass.gov/doc/pfas-related-proposed-mcp-revisions-2019/download>.

¹⁸ *Ground Water Quality Standards and Maximum Contaminant Levels (MCLs) for Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS)* available at: <https://www.nj.gov/dep/rules/proposals/20190401a.pdf> (The proposal establishing MCLs for PFOA and PFOS was recently submitted for review and finalization on Mar. 31, 2020. The MCL for PFNA was set in September 2018)

¹⁹ *NHDES Submits Final Rulemaking Proposal for PFOA, PFOS, PFHxS and PFNA*, available at: <https://www4.des.state.nh.us/nh-pfas-investigation/?p=1044>.

V. Colorado Can Do More Under Its Existing Authority

We acknowledge CDPHE's substantial efforts to address toxic PFAS contamination in our state within its existing resources. There will no doubt be costs associated with the monitoring, clean-up and treatment that will be necessary moving forward. However, Coloradoans deserve safe drinking water, and limited resources are not a justification for continuing to expose communities to dangerous PFAS chemicals that threaten public health. Further, there are avoided costs and benefits gained from preventing PFAS exposure. While the exact monetary and health-related costs associated with avoiding further PFAS exposure have not been quantified, such costs will undoubtedly outweigh the costs and benefits of monitoring and treatment that would be necessary to remove PFAS from our waters if contamination continues. After all, it is much harder to clean up PFAS from our water systems than to stop contamination in the first place.

CDPHE should act swiftly using its existing regulatory authority to take steps beyond those outlined in the Draft Policy, including holding manufacturers and polluters accountable; establishing enforceable effluent limits and maximum contamination limits that protect public health; improving monitoring and data collection; and improving transparency and community notification.

a. Colorado Should Hold Manufacturers and Polluters Accountable for PFAS Pollution

Particularly in light of resource constraints, Colorado must do more to hold manufacturers and polluters accountable for PFAS pollution. Far too often, communities and local drinking water suppliers are left holding the bag. Yet it is polluters, not taxpayers in the State of Colorado or drinking water suppliers, who should shoulder the financial responsibility for robust sampling, routine monitoring, and treatment of water systems affected by PFAS contamination.

The state should take action through its Attorney General, as has occurred in New Hampshire and Vermont, to hold chemical manufacturers and polluters that have contributed and are contributing to the PFAS pollution crisis accountable for the harm they have caused. Such actions could and should generate substantial resources to compensate the State and public entities for costs incurred in cleaning up PFAS contamination.

There are numerous additional pathways that the state can pursue to hold polluters accountable. First, the state should conduct source investigations to identify responsible polluters and require that they eliminate sources of PFAS through process changes or that they pre-treat all wastewater prior to discharge. Second, Colorado can incentivize accountability, for example, by setting 0 ppt PFAS contamination limits in the permits of polluters who fail to engage in and fund robust sampling and monitoring of their own emissions. Third, the State can require that industrial users of PFAS—such as RMB Products in Fountain, CO which lines its pipes with a fluorochemical mixture known as Teflon™—report such uses to the state so that contamination can be appropriately managed and minimized.²⁰ Moving forward, we encourage the State to engage with our organizations in examining possibilities to improve accountability.

²⁰ RMB Products, example available at: <https://rmbproducts.com/wp-content/uploads/2019/09/RMB-Teflon-Lined-Pipe-Catalog.pdf>.

b. Colorado Should Establish Enforceable Effluent Limits That Are More Protective Than the Proposed Translation Limits

CDPHE should establish enforceable water quality-based effluent limits on a site-specific basis for facilities that are discharging PFAS. While we are pleased that the Draft Policy recommends that the Water Quality Control Division (WQCD) set numeric effluent limits, we are concerned that the Draft Policy calls for these limits to be established “based on the commission’s translation of the narrative standards in Table 3 of this policy.”

As discussed at length in Section III of this letter, the Translation Levels in Table 3 of the Draft Policy are too high. Adverse effects have been linked to PFAS exposure at concentrations as low as 1 ppt, and the proposed Translation Levels rely on toxicity values and water intake assumptions that are not sufficiently conservative enough to protect the health of Colorado’s most vulnerable populations. Nor do the Translation Levels in Table 3 account for the potential cumulative impacts from exposure to multiple types of PFAS chemicals, including lesser-known PFAS that are not expressly covered by the Draft Policy.

Moving forward, we hope that CDPHE will consider setting more stringent effluent limits that are consistent with the most current research regarding the significant health effects from exposure to PFAS chemicals. We also hope that CDPHE will consider altogether prohibiting discharges of PFAS from certain industrial facilities that are unable to meaningfully reduce their discharges, and that the State soon undertake the process to set Maximum Contaminant Levels (MCLs) for Colorado’s drinking water.

c. Colorado Should Improve Sampling, Monitoring and Data Collection

The Draft Policy’s plan for monitoring PFAS contamination is insufficient to protect public health. Monitoring is primarily discussed in the context of compliance with permits, and the Draft Policy gives the WQCD broad discretion to determine monitoring requirements on a permit-by-permit basis. However, robust and clear monitoring requirements are essential because PFAS are highly mobile in water, persistent in the environment, and harmful even at very low concentrations.

It should be a goal of the State to conduct initial sampling of *all* water systems and wastewater dischargers across Colorado for each quantifiable PFAS, ideally to occur for at least four consecutive quarters, in order to fully understand the extent of PFAS contamination and to know whether and where more frequent monitoring is warranted. Rather than laying out a plan for broad initial sampling, the Draft Policy plans to focus initial monitoring on “facilities with a likelihood of PFAS discharges to state waters” at the discretion of the WQCD. The WQCD should welcome input from the public in prioritizing monitoring of PFAS sources, wastewater treatment plants, and drinking water systems. The Draft Policy should also include a more extensive list of industries likely to be using and discharging PFAS, including but not limited to chemical producers, tanneries, carpet and rug mills, coated-paper-product plants, metal electroplating facilities, pipe lining fabricators, semiconductor factories and wire manufacturers.

As previously mentioned, the ideal amount of PFAS in drinking water is zero. When *any* quantifiable PFAS is detected, continued monitoring should be required. Rather than determining monitoring frequency on a permit-by-permit basis at WQCD's discretion, continued monitoring should occur on a consistent monthly schedule to ensure concentrations are not increasing. The State should also add PFAS sampling into routine permit compliance sampling inspections, conduct source investigations to identify PFAS dischargers, and evaluate source control options that may avert future emissions and the potential for costly cleanup. To better understand the prevalence of PFAS being discharged into waters throughout the state, CDPHE should also conduct ambient water quality monitoring in surface waters that are suspected to have PFAS contamination. Given resource constraints, the state should also welcome and sampling data collected by members of the public and organizations working to protect our waters.

The state should investigate the sources and potential spread of *all* PFAS, including those chemicals without Colorado-specific Translation Levels. Recognizing that the PFAS landscape is constantly changing, the State should launch a pilot investigation into the amount of total organic fluorine in water systems with detectable PFAS chemicals to gauge the magnitude of people's exposure to unknown organofluorines.

As an example of a robust state response to the PFAS crisis, Michigan has emerged as a national leader on identifying, monitoring, and controlling contamination in surface waters. Michigan first sampled its surface waters for PFAS contamination in 2001 and established its first PFAS surface water standards in 2014.²¹ In addition to promulgating water quality standards, Michigan has an extensive monitoring and industrial pretreatment program.²² Beginning in 2018, Michigan required wastewater treatment plants with industrial pretreatment programs to identify industrial users that may be significant sources of PFOS and PFOA; develop and implement source monitoring plans to track probable sources; reduce or eliminate identified sources; monitor wastewater effluent for PFAS; and submit all of this information to the state.²³ Michigan has also “added PFAS sampling into routine NPDES permit compliance sampling inspections to further understand the prevalence of PFAS in wastewaters of Michigan.”²⁴ In addition to monitoring industrial and municipal wastewater discharges, Michigan samples lakes and streams for PFAS.²⁵

²¹ State of Michigan, *Overview of Michigan's Screening Values & MCLS Per-and polyfluoroalkyl substances* (December 2019), available at: https://www.michigan.gov/documents/mdhhs/PFAS_-_Overview_of_Michigan_Values_FINAL_675761_7.pdf (In 2014, the standards for surface waters used as drinking water sources were set at 11 ppt for PFOS and 420 ppt for PFOA. For non-drinking surface waters, the standards were set at 12 ppt for PFOS and 12,000 ppt for PFOA. Later, in 2019, the State proposed more stringent MCLs for drinking water as listed in Appendix B).

²² Michigan Department of Environment, Great Lakes, and Energy, *PFAS Response - Wastewater Treatment Plants/Industrial Pretreatment Program* (October 2019), available at: https://www.michigan.gov/pfasresponse/0,9038,7-365-88059_91299---,00.html

²³ Michigan Department of Environmental Quality, *PFAS Source Evaluation and Reduction Requirements Letter to Wastewater Treatment Plants* (February 2018), available at: https://www.michigan.gov/documents/deq/wrd-ipp-pfas-letter-wwtp_614863_7.pdf. See also Michigan Department of Environment, Great Lakes, and Energy, *Municipal NPDES Permitting Strategy for PFOS and PFOA Water Resources Guide* (September 2019), available at: https://www.michigan.gov/documents/pfasresponse/Municipal_NPDES_Permitting_Strategy_for_PFOS_and_PFOA_WRD_092019_668823_7.pdf

²⁴ *PFAS Response - Wastewater Treatment Plants/Industrial Pretreatment Program*, *supra* note 22.

²⁵ Michigan Department of Environment, Great Lakes, and Energy, *PFAS Response - Sampling in Lakes and Streams*, (last accessed May 2020) available at: https://www.michigan.gov/pfasresponse/0,9038,7-365-86510_88060_88065---,00.html

Michigan's efforts have resulted in dramatic decreases in PFAS releases from identified industrial sites around the state, with some wastewater treatment plants reporting a 99 percent reduction of PFOS in effluent.²⁶ Michigan even created an interactive map to track the success of its PFAS pretreatment standards program.²⁷ This early success in Michigan's approach underscores the value of a source control approach through pretreatment standards coupled with ongoing monitoring.

d. Colorado Should Improve Transparency and Community Notification

Communities deserve to be informed. In order to manage risk and best protect the public, the Narrative Policy Standards must be fully transparent with test results and the available science. Because Colorado has not yet begun the process of setting drinking water standards, we need interim protections for the public who may be exposed through drinking water. The Narrative Policy must establish notification requirements for drinking water sources with detectable levels of PFAS.

**Why Transparency and Notification is Essential:
A Current Example Upstream from Colorado Springs**

Air Force testing revealed that groundwater under the Air Force (AF) Academy had very high levels of PFAS contamination, most likely from training exercises with firefighting foam. The high levels raised concern that there was possible off-site migration through the groundwater. Many of the homes in the adjacent neighborhoods have drinking water wells that tap into that same groundwater. The AF has tested 43 private drinking water wells in two neighborhoods adjacent to the Academy.

We understand that the AF provided notification of the test results to the well owners, letting them know that their well did not exceed the standards for PFOA and PFAS. A neighborhood website still has the following posted, "As a reminder, the USAFA tested 43 wells across our neighborhoods and 40 of the [wells] did not show any contamination. Three has [sic] less than 20 parts per trillion, which is much lower than the EPA limit of 70 parts per trillion. The USAFA will continue to test, but at this point, it appears this is NOT an issue for our neighborhoods."²⁸ The Colorado Springs Gazette headline read, "Air Force Academy assures nearby residents their drinking water is safe."²⁹

However, when our organizations had the opportunity to review the sample data, we found levels that are concerning. There were combined PFAS levels at a single well exceeded 400 ppt. Further, the Air Force tested each well for 18 different PFAS, yet only reported to the well

²⁶ *PFAS Response - Wastewater Treatment Plants/Industrial Pretreatment Program* (see Table 1. Substantial PFOS Reduction at WWTPs with Exceedances)

²⁷ Michigan Department of Environment, Great Lakes, and Energy, *PFAS Response - Michigan IPP WWTP PFAS Status Interactive Map* (March 2020), available at: <https://mdeq.maps.arcgis.com/apps/webappviewer/index.html?id=94980853d03e44e2a342beba1e5e1a0e>

²⁸ See Woodman Valley Fire Protection District website, at <http://www.wvfpd.org/index.htm>.

²⁹ The Gazette, *Air Force Academy Assures Nearby Residents That Their Drinking Water is Safe*, 11/21/19, https://gazette.com/contaminated-water/air-force-academy-assures-nearby-residents-their-drinking-water-is/article_61b371cc-0bbf-11ea-961f-3739a3210625.html

owners on two chemicals, PFOA and PFOS. This lack of transparency is problematic because there are other levels of other chemicals that may be concerning to the public. For example, at a third well, the chemical of PFPA was measured at the level of 210 ppt.

Consider the PFHxS levels: one neighborhood drinking water well had levels at 110 ppt and another tested at 200 ppt. The concentrations in these wells exceeds the state of Minnesota PFHxS drinking water guidelines of 47 ppt, New Hampshire's proposed limit for PFHxS at 18 ppt, and Michigan's proposed PFHxS drinking water standard of 51 ppt. As you can see, these states have determined that PFHxS is not safe to drink, yet this information was kept from the public and most importantly families using water from the two drinking water wells in the neighborhood adjacent to the Academy.

Because Colorado does not have drinking water standards for PFAS, the military and the CDPHE have no obligation to inform these communities of the test results. However, we need interim protections for the public who may be exposed. As a matter of public health, communities should be informed when drinking water has detectable levels of PFAS so that they can make choices in their water. Ideally each household should be directly notified in writing. As an example of notification, we are attaching a letter that the Town of Easton, MA has sent out to its impacted public. See Appendix C.

It is important for CDPHE to communicate about PFAS in a consistent, open, and transparent manner. We have the following recommendations:

- Centralized data. PFAS sampling and monitoring data should be housed at CDPHE so that it is available to the public and is easy to find, ideally online via an interactive map. Testing is not currently posted for some drinking water districts and you must call, sometimes multiple times, to request data. When it is posted, it can be difficult to find on the website. The military's system for posting test results is also cumbersome and difficult to access.
- Post full test reports. The public should be able to view the results, not just the levels that exceed a federal standard or the state narrative standards.
- Be consistent. Post results in a standard regular format with conversions into standard terms. It can be confusing if levels are listed in "ppt" in one sample, "ppb" in another and "ng/l" in another.
- Provide Notice. To manage risk and protect public health, CDPHE should provide written notice to every household that is known to be drinking detectable levels of PFAS, including clear "do not drink" language if the drinking water is unsafe. Such notices should be disseminated in at least the two most prevalent language spoken in the community, as identified in the latest American Community Survey published by the federal Census Bureau.
- Provide resources. The public should be informed in multiple languages of what levels are in other states that are further along in the process of setting drinking water standards and those that currently have more protective standards.
- Provide Free Testing for Colorado residents' drinking well water.

VI. Conclusion

Colorado must follow the lead of other progressive states and take immediate action to protect the health of state residents and our precious water resources. This is all the more important in the absence of federal water standards, which will take up to a decade to enact. Please consider the important steps we have outlined to increase the scope and rigor of the state's efforts to address the PFAS crisis.

Respectfully submitted,

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Press Release

For Immediate Release: Thursday, March 12, 2020

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PEER Obtains Evidence of “Forever Chemicals” at Air Force Academy Washing Your Hands Can’t Stop PFAS in Water

Denver, CO — Today, Public Employees for Environmental Responsibility (PEER) released test results from private wells adjacent to the U.S. Air Force Academy in Colorado Springs which suggest contamination has spread from the Academy to private wells downstream. The tests show 16 carcinogenic and endocrine-disrupting “forever chemicals,” some at dangerously elevated levels. The chemicals, known collectively as PFAS, accumulate in the body and cause health problems including cancer. The military’s heavy use of PFAS chemicals for firefighting and training has contaminated water at hundreds of US bases.

While the documents obtained by PEER reveal that PFAS were found in concerning levels in off-base well water samples, the Air Force did not disclose these results to well owners or the public.

“People around Colorado Springs have been drinking a witch’s brew of chemical runoff for possibly decades,” commented PEER’s Rocky Mountain Director Chandra Rosenthal, who obtained the results from the Colorado Department of Public Health and the Environment (CDPHE).

While EPA has not set a drinking water limit for PFAS, many states, particularly those with current and former military facilities, have stepped in to set their own standards. “This stuff is dangerous at shockingly low levels,” said PEER Staff Counsel Kevin Bell, whose portfolio also covers PFAS and public records issues. “It’s not proven safe at any level, but at least six states have stronger standards than the one that the Air Force is applying--70 parts per trillion for the sum of two PFAS chemicals.”

The Air Force Academy test data of neighboring drinking water wells found:

- Levels of two individual PFAS chemicals, PFHxS and PFHpA, at more than 200 parts per trillion (ppt) in two locations
- Combined PFAS levels at a single well of 503.9 ppt and 537.8 ppt across two separate tests.
- Five unregulated PFAS in water samples, all of which are part of the Congressionally-mandated phase out of PFAS in military fire-fighting foam.

The State of Colorado has taken the important first step in figuring out the extent of the contamination in the state. The CDPHE is beginning the process of setting monitoring

requirements for water and is planning to examine 18 of the different PFAS chemicals.

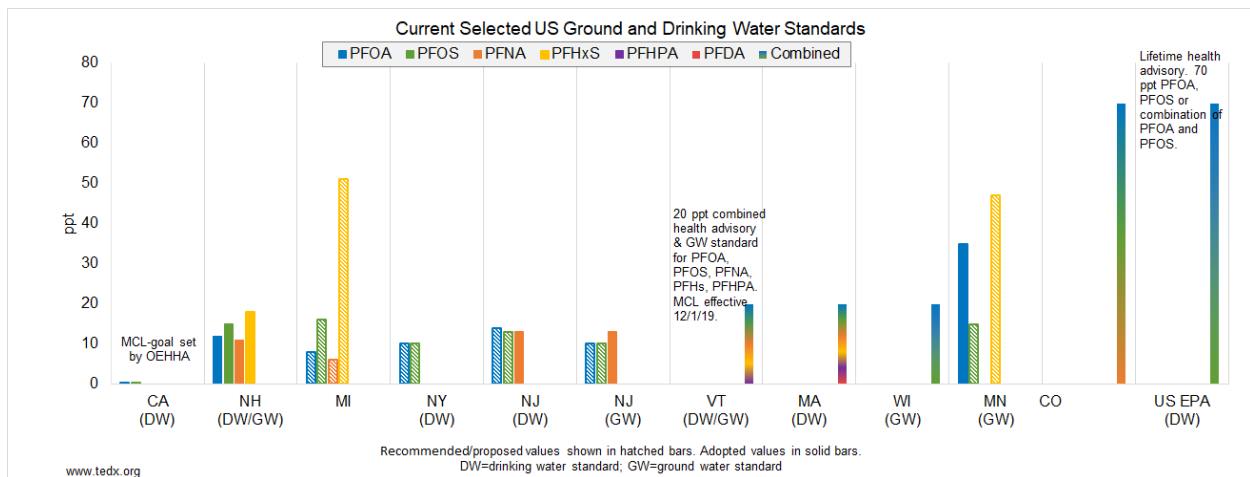
Environmental groups such as the Sierra Club, Public Employees for Environmental Responsibility (PEER) and the Fountain Valley Clean Water Coalition are working with the state to keep the interest of the public’s health in the forefront.

The Former Director of the U.S. National Institute of Health, Dr. Linda Birnbaum, has taken an interest in the Colorado process and recently reached out to the Director of the Colorado Department of Public Health and the Environment, to let the state know that the standards Colorado is considering are not protective enough.

“Colorado’s proposed threshold levels for PFAS are too lax and will mean less protection for state residents,” Sonya Lunder, Senior Toxics Policy Advisor for Sierra Club argues. “The tests show that toxic PFAS migrated out of the Air Force Academy and are measured at levels that would be considered illegal in several US states, yet the proposed Colorado standards wouldn’t require more testing or cleanup.”

Liz Rosenbaum, leader of the Fountain Valley Clean Water Coalition, is married to a Disabled Army Veteran and has a son in active duty in the Navy, and calls for the Air Force to do the right thing. “The Air Force invested millions in testing and cleaning up water in my community of Fountain. I’m shocked to hear they have hid information from us about similar contamination on and near the Academy.”

Bill Beaudin and his family have lived in Woodman Valley, near the AF Academy, for over 40 years. Though the Beaudin’s believe that their well is contaminated, it was not tested by the Air Force because it is not used for drinking water. Bill believes that the military has a responsibility to measure the extent of the spread of contamination, “The location of the Fire Station Test Area on the Academy has been contaminated with foam chemicals since the 1970’s. The DOD may have contaminated Kettle Creek on the Academy lands, and Monument Creek which feeds into Pikeview Reservoir. This Reservoir has been a source of Colorado Springs Drinking water since 2004! We need more testing and we need to see the results of the tests.”



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Compare Colorado's proposed standards to other state standards
<https://www.awwa.org/Portals/0/AWWA/Government/SummaryofStateRegulationtoProtectDrinkingWater.pdf>

Review the Air Force test results
https://www.peer.org/wp-content/uploads/2020/03/3_12_20_USAFA_Private_Well_Test_Data.pdf

See Dr. Linda Birnbaum's letter to the Director of CDPHE
https://www.peer.org/wp-content/uploads/2020/03/3_12_20-Linda_B_Letter_to_Dir_CDPHE.pdf

Read PEER's petition to have PFAS regulated under the TSCA
https://www.peer.org/wp-content/uploads/2020/03/3_12_20_PFAS_RCRA_Petition.pdf

PFAS detections in private wells downgradient from the Air Force Academy:

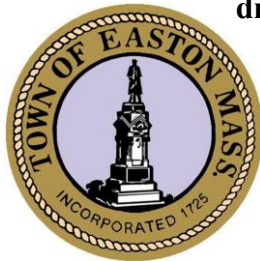
PFBA - detected in 1 well - 39 ppt
PFBS - detected in 2 wells - 4 and 38 ppt
PFHpA - detected in 1 well - 36 ppt
PFHxS - detected in 2 wells - 110, 200 ppt
PFHxA - detected in 3 wells - 55, 63, 150 ppt
PFPA - detected in 2 wells - 24, 210 ppt

Total PFAS: 198, 325, 435 ppt

Appendix B - Current state drinking and ground water standards

State	Type of standard	Media	PFAS and level
California	Notification levels	Drinking Water	PFOA- 5.1ppt PFOS- 6.5ppt
Connecticut	Action Level	Drinking Water	Sum of PFOA, PFOS, PFHxS, PFNA, PFHpA at 70ppt
Massachusetts	Proposed Standard	Drinking water and Groundwater	Sum of PFOA, PFOS, PFHxS, PFNA, PFHpA, PFDA at 20ppt
Michigan	Proposed Maximum Contaminant Level	Drinking Water	PFOA- 8ppt PFOS- 16ppt PFNA- 6ppt PFHxS- 51ppt PFBS- 420 ppt PFHxA- 400,000 ppt GenX- 370
Minnesota	Health Based Guidance	Groundwater	PFOA- 34ppt PFOS- 15ppt PFHxS- 47ppt
New Hampshire	MCL	Drinking Water and groundwater	PFOA- 12ppt PFOS- 15ppt PFHxS- 18ppt PFNA- 11ppt
New Jersey	MCL	Drinking Water	PFOA- 14ppt PFOS- 13ppt PFNA- 13ppt
New Jersey	Interim Groundwater Quality Standard	Groundwater	PFOA- 10ppt PFOS- 10ppt PFNA- 13ppt
New York	MCL - proposed	Drinking Water	PFOA- 10ppt PFOS- 10ppt
Vermont	MCL	Drinking Water and Groundwater	Sum of PFOA, PFOS, PFHxS, PFNA, PFHpA at 20ppt
Wisconsin	MCL	Groundwater	PFOA+PFOS at 20 ppt

Appendix C - Letter from Town of Easton, MA to residents disclosing PFAS contamination of drinking water



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PFAS Public Notification

(PFAS) Perfluoroalkyl Substances

The Town of Easton as part of sampling related to a replacement of one of our wells has discovered the presence of PFAS in our water supply. The Massachusetts Department of Environmental Protection (MassDEP) has recommended that we share this information with our residents.

Overview

The Town of Easton supplies water to its residents through seven (7) drinking water wells. Through recent testing of those wells we have detected Per-and polyfluoroalkyl substances, also known as PFAS in six (6) of those wells. The tests showed levels of PFAS between 0 and 51 parts per trillion (ppt) in the finished drinking water.

PFAS is not currently regulated by MassDEP or the Environmental Protection Agency (EPA). In May 2016, the EPA issued a lifetime Health Advisory (HA) of 70 parts per trillion (0.07 ug/L) for the combination of two PFAS chemicals, PFOS and PFOA, in drinking water. In 2018, MassDEP issued a more stringent drinking water guideline of 70 parts per trillion for five combined PFAS compounds. MassDEP's Office of Research and Standards Guideline currently recommends consumers in sensitive subgroups (pregnant women, nursing mothers and infants) not consume water with PFAS levels above 70 ppt. However, in January 2019 MassDEP announced they would study and likely set a standard maximum contaminant limit (MCL) for PFAS for drinking water providers. In June 2019 they established 20 ppt as their planned MCL. The majority of our wells are below the planned 20 ppt MCL and all of our wells are below the current 70 ppt health advisories.

At this time, public water suppliers are not required to test for PFAS unless they are permitting a new source or installing a replacement source or well.

Well	Initial PFAS Level Detected (ppt)	Confirmatory PFAS Levels (ppt)	Average PFAS Level Detected (ppt)
Well #1	51.1	38.7	44.9
Well #2	27.2	10.0	18.6
Well #3	11.3	Not Collected	11.3
Well #4	16.6	26.7/28.2	23.7
Well #5	14.3	Not Collected	14.3
Well #6	0.0	Not Collected	0.0
Well #7	8.0	Not Collected	8.0

Next Steps

The Town of Easton will continue to work with MassDEP and will monitor any new developments regarding a potential PFAS regulation. PFAS can be removed from drinking water through filtration. However, until more information is known and final regulations are issued, the Town of Easton is not in a position to responsibly implement long term treatment solutions. The Town of Easton will explore all options to comply with any future drinking water regulations and we will continue to work closely with MassDEP and will keep the community updated.

In the meantime, any resident that is concerned about the health effects of PFAS should consult a health professional (your doctor). The Town will also make available a water-bill rebate program for residents who wish to purchase and install an in-home filter capable of removing PFAS. The Town will provide a one-time water-bill rebate of up to \$75 to offset the cost of purchasing a NSF certified filter. A link to the current list of NSF certified filters is located below.

Additional Information

What are PFAS?

Per- and polyfluoroalkyl substances, also known as PFAS, are a group of manmade chemicals that have been manufactured and used in a variety of industries since the 1950s. They are referred to as ‘forever chemicals’ – they are persistent in our bodies and the environment and many will not naturally degrade. PFAS chemicals are most often commercially used to create grease, water and stain resistant barriers for materials, including Teflon, grease-resistant take out containers, and upholstery and carpet treatments; these chemicals are also found in firefighting foam.

Why are PFAS only recently garnering attention if they have been used since the 1950s? In 2016, the [United States Environmental Protection Agency](#) published a drinking water Health Advisory level for two PFAS compounds at a combined 70 parts per trillion as the science to test and identify these chemicals has evolved. In 2018, the Massachusetts Department of Environmental Protection (DEP) issued a more stringent drinking water guideline of 70 parts per trillion for five combined PFAS compounds.

As of April 2019, DEP has proposed amendments to drinking water guidelines, and groundwater and soil cleanup standards to change the limits to 20 parts per trillion for a combined six PFAS compounds.

Documents

[Mass DEP Fact Sheet - Per- and Polyfluoroalkyl Substances \(PFAS\) in Drinking Water: Questions and Answers for Consumers](#)

[Massachusetts Department of Public Health- Per- and Polyfluoroalkyl Substances \(PFAS\) in Drinking Water](#)

[NSF Certified Water Filters](#)

Links to additional information

[Mass DEP information about PFAS](#)

[US EPA information about PFAS](#)

[CDC ATSDR information about PFAS](#)

[Association of State Drinking Water Administrators](#) PFAS webpage includes information about what other States are doing