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Date: February 19, 2025

To: Rep. Amy Sheldon, Chair
House Committee on Environment

cc: Rep. Larry Labor, Vice Chair
Rep. Larry Satcowitz, Ranking Member
Rep. Sarah "Sarita" Austin, Clerk
Rep. John L. Bartholomew
Rep. Ela Chapin
Rep. Kate Logan
Rep. Kristi Morris
Rep. Rob North
Rep. Christopher "Chris" Pritchard
Rep. Michael "Mike" Tagliavia
Anika Adams, Committee Assistant

From: Martin Wolf, Principal
Wolf Sustainability
Burlington, VT 05401

and

Advisor, Safer Chemicals and Circular Economy
The American Sustainable Business Network
Washington, DC 20002

RE: Testimony on H. 238 - An act relating to the phaseout of consumer products containing added perfluoroalkyl and polyfluoroalkyl substances

Dear Rep. Sheldon and Committee Members:

Thank you for this opportunity to testify on H. 238 - an act relating to the phaseout of consumer products containing added perfluoroalkyl and polyfluoroalkyl substances (PFAS).

For the record, my name is Martin Wolf, Principal, Wolf Sustainability. I am a chemist with over 50 years of industry experience studying the occurrence and fate of chemicals in the environment and designing more sustainable consumer products.

I also represent the American Sustainable Business Network, a multi-issue membership organization advocating on behalf of businesses, business associations, and the investor community, whose members collectively represent over 250,000 businesses.

Summary of Recommendations

It is recommended that:

- a) the definition of PFAS in H.238 be retained,
- b) a de minimis level of PFAS in consumer products be established, and
- c) the manufacture, sale, or distribution for sale of consumer products containing PFAS ultimately be prohibited.

Human and Environmental Harms of PFAS

Perfluoroalkyl and polyfluoroalkyl substances (PFAS) are substances containing fluorine atoms covalently bonded to carbon atoms. PFAS are known to be harmful to human health and have been associated with a variety of health effects, including altered immune and thyroid function, liver disease, lipid and insulin dysregulation, kidney disease, adverse reproductive and developmental outcomes, and cancer.¹ Concordance with experimental animal data exists for many of these effects.²

PFAS have been detected in rain, snow, groundwater, tap water, lakes, rivers, soils, and sediments and are ubiquitous in the environment.³ PFAS degradation products are freely mobile in water, soil, and air, and can be extremely resistant to breakdown.⁴ Given their potential to cause harm, ubiquity and resistance to breakdown, it is vitally important that PFAS uses and emissions must be rapidly restricted.⁵

Economic Costs of PFAS

For most consumer applications, the economic impacts of remediating harm to human health and harm to the environment from PFAS far exceed the economic value of transitioning to less hazardous alternatives. The benefit to PFAS manufacturers has been estimated as \$2 billion per year.⁶ Health-related costs for the United States are estimated to be \$37–59 billion annually, not including indirect social costs such as lost wages; lost years of life; reduced quality of life;

¹ Fenton SE, Ducatman A, Boobis A, DeWitt JC, Lau C, Ng C, Smith JS, Roberts SM. Per- and Polyfluoroalkyl Substance Toxicity and Human Health Review: Current State of Knowledge and Strategies for Informing Future Research. *Environ Toxicol Chem.* 2021 Mar;40(3):606-630. doi: 10.1002/etc.4890. Epub 2020 Dec 7. PMID: 33017053; PMCID: PMC7906952.

² Ibid.

³ Abunada, Z.; Alazaiza, M.Y.D.; Bashir, M.J.K. An Overview of Per- and Polyfluoroalkyl Substances (PFAS) in the Environment: Source, Fate, Risk and Regulations. *Water* 2020, 12, 3590. <https://doi.org/10.3390/w12123590>

⁴ Ibid

⁵ *Environ. Sci. Technol.* 2022, 56, 16, 11172–11179

⁶ Alissa Cordner, Gretta Goldenman, Linda S. Birnbaum, Phil Brown, Mark F. Miller, Rosie Mueller, Sharyle Patton, Derrick H. Salvatore, and Leonardo Trasande, *The True Cost of PFAS and the Benefits of Acting Now*, *Environmental Science & Technology* 2021 55 (14), 9630-9633. DOI: 10.1021/acs.est.1c03565

increased stress, anxiety, and depression; and subsequent impacts on families and communities.⁷ Additionally, the Minnesota Pollution Control Agency estimates the cost to remove just one pound of PFAS from wastewater, biosolids, municipal solid waste, or landfill leachate to be between \$0.4 million and \$39 million depending on the matrix and size of facility.⁸ Thus, there is not an economic case for continued use of PFAS and it is recommended that their use be phased out rapidly to limit future remediation costs.

Definitions

The exact definition of PFAS has varied.⁹ The definition of PFAS in H.238, "...a class of fluorinated organic chemicals containing at least one fully fluorinated carbon atom" is preferred to the definition proposed in the Agency of Natural Resources report dated November, 2024, taken from the Code of Federal Regulations, "PFAS means any chemical substance or mixture containing a chemical substance that structurally contains at least one of the following three sub-structures:

- (1) $R-(CF_2)-CF(R')R''$, where both the CF_2 and CF moieties are saturated carbons.
- (2) $R-CF_2OCF_2-R'$, where R and R' can either be F , O , or saturated carbons.
- (3) $CF_3C(CF_3)R'R''$, where R' and R'' can either be F or saturated carbons."¹⁰

This definition has four major limitations: (1) omission of substances that have functional groups on both ends of the fully fluorinated carbon moiety (e.g., perfluoroalkyldicarboxylic acids); (2) inconsistencies in dealing with homologues that are fully fluorinated aliphatic cyclic compounds with or without a fully fluorinated alkyl side chain; (3) omission of substances with aromatic ring(s) in the nonfluorinated functional group(s) that can be cleaved in the environment and biota; and (4) use of the ambiguous term "highly fluorinated".¹¹ Many substances in commerce, known to harm human health and the environment, are omitted by ANR's proposed definition.¹²

De Minimis Level

Companies are appropriately concerned that their products may be held to a higher standard than municipal, ground, or surface water used to manufacture their products. According to the Agency for Toxic Substances and Disease Registry (ATSDR) ingestion of food and water is a main

⁷ Ibid.

⁸ Minnesota Pollution Control Agency, Evaluation of Current Alternatives and Estimated Cost Curves for PFAS Removal and Destruction from Municipal Wastewater, Biosolids, Landfill Leachate, and Compost Contact Water, 2023.

⁹ Zhanyun Wang, Andreas M. Buser, Ian T. Cousins, Silvia Demattio, Wiebke Drost, Olof Johansson, Koichi Ohno, Grace Patlewicz, Ann M. Richard, Glen W. Walker, Graham S. White, and Eeva Leinala, *A New OECD Definition for Per- and Polyfluoroalkyl Substances*, *Environmental Science & Technology* 2021 55 (23), 15575-15578

¹⁰ 40 CFR 705.3 "Per- and polyfluoroalkyl substances or PFAS"

¹¹ Zhanyun Wang, et al., *ibid.*

¹² *Ibid.*

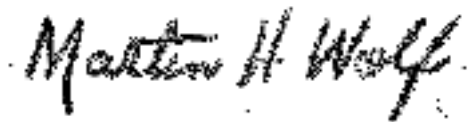
route of PFAS exposure.¹³ Therefore it is recommended that a de minimis thresholds be established by the Secretary for PFAS in a product or a product component, and that the threshold be higher than the maximum contaminant level (MCL) of PFAS set for municipal drinking water,¹⁴ ground water, or surface water.¹⁵

Conclusion

PFAS represent an immediate threat to the health of Vermont's citizens and our environment. H.238 takes important steps to limiting this threat by using a scientifically valid, inclusive definition of PFAS and by phasing out PFAS in a wide range of consumer products. I commend this Committee, ANR, and the other State agencies involved in developing this legislation.

Thank you for your attention to, and consideration of, these comments.

Respectfully submitted,



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and

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¹³ [Human Exposure: PFAS Information for Clinicians - 2024 | PFAS and Your Health | ATSDR](#). Downloaded 12 February 2025

¹⁴ US EPA, PFAS National Primary Drinking Water Regulation, 2024.

¹⁵ US EPA, DRAFT Human Health Ambient Water Quality Criteria: Perfluorooctanoic Acid (PFOA) and Related Salts 2024.