COMMENT ON PFAS GROUP ASSESSMENT AND STAKEHOLDERS

Submitted to:

ENVIRONMENT AND CLIMATE CHANGE CANADA, HEALTH CANADA

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June 23, 2021

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Re: Canada Gazette, Part I, Volume 155, Number 17: PFAS Group Assessment and Stakeholders

Dear Sir/Madam,

We, the undersigned, represent a number of Canadian organizations and individuals working on environmental and health issues. Our organizations are closely engaged in the assessment of substances under the Chemicals Management Plan. This letter provides comments on the notice of intent to address the broad class of per- and polyfluoroalkyl substances (PFAS). We commend the government for this decision and provide the following recommendations in relation to the assessment in order to best protect the health of Canadians and the environment.

- The rationale for assessing PFAS as a class is well-described by the government. One challenge that we anticipate is suggested by sustained efforts from manufacturers of fluorinated compounds to cloud the scientific consensus on the necessity for class assessments of PFAS.[1] It is imperative that the government follow through with its intention to conduct a class

[1] See, for example, a recent exchange involving independent scientists and employees of Honeywell International Inc., summarized in: Kwiatkowski, C. F., Andrews, D. Q., Birnbaum, L. S., Bruton, T. A., DeWitt, J. C., Knappe, D. R. U., Maffini, M. V., Miller, M. F., Pelch, K. E., Reade, A., Soehl, A., Trier, X., Venier, M., Wagner, C. C., Wang, Z., & Blum, A. (2021). Response to "Comment on Scientific Basis for Managing PFAS as a Chemical Class." *Environmental Science & Technology Letters*, 8(2), 195–197.

assessment, in keeping with the scientifically sound reasoning in the notice of intent. The evidence that is subsequently reviewed should be critically assessed in terms of the obvious conflict-of-interest inherent to industry-funded studies and publications on PFAS.

- The government is aware of the lack of adequate scientific data on toxicity for the vast majority of chemicals in the large PFAS class, and on actual environmental exposures to PFAS. For example, items such as rugs, other household items, and food packaging that shed PFAS into the environment in ways that are largely unmeasured. Given the seriousness of the health and environmental impacts that have been associated with PFAS and their environmental persistence, it is especially important that the government **apply precaution in a rigorous manner** in assessing hazards, dose-response relationships, exposures and overall risks of not only single substances, but of these endocrine-disrupting chemicals in concert. It will be crucial to avoid the all-too-common practice of relying heavily on large toxicology studies that apply standardized test guidelines, which underestimate the importance of low-dose exposures to substances such as endocrine disruptors.[2] The government must **rigorously examine independent studies and emerging science** generated by academic toxicologists, epidemiologists, and other scientists who independently assess the health and environmental risks of chemicals without conflicting commercial interest.

- The PFAS class assessment provides an opportunity to continue refining the government's approach to consideration of cumulative effects in risk assessment. On this point, we remind the government that **cumulative effects are more than just additive effects**.[3] Focusing narrowly on additive effects would be particularly negligent for a chemical class that has shown a tendency to exhibit non-negligible synergistic interactions.[4]

- It is also important that identification of vulnerable populations and the implications of PFAS exposures for them **recognize the role of social determinants** such as intergenerational trauma and food insecurity in worsening the impacts of toxic chemicals.[5] While outdated methods of risk

[2] Vandenberg, L. N. (2019). Low dose effects challenge the evaluation of endocrine disrupting chemicals. *Trends in Food Science & Technology*, 84, 58–61.

[3] Morello-Frosch, R., Zuk, M., Jerrett, M., Shamasunder, B., & Kyle, A. D. (2011). Understanding the cumulative impacts of inequalities in environmental health: Implications for policy. *Health Affairs*, 30(5), 879–887.

[4] Ojo, A. F., Peng, C., & Ng, J. C. (2020). Combined effects and toxicological interactions of perfluoroalkyl and polyfluoroalkyl substances mixtures in human liver cells (HepG2). *Environmental Pollution*, *263*, 114182. https://doi.org/10.1016/j.envpol.2020.114182

[5] Conching, A. K. S., & Thayer, Z. (2019). Biological pathways for historical trauma to affect health: A conceptual model focusing on epigenetic modifications. *Social Science & Medicine*, 230, 74–82; Olden, K., Lin, Y.-S., Gruber, D.,

assessment have historically struggled to account for such factors, we are confident that the government could - if so inclined - conduct a weight of evidence analysis that takes (at least) the last three decades of public health science into account. Disproportionate exposures to PFAS in the North underscore the importance of getting such effects on susceptible and highly exposed populations right.

We look forward to seeing the government follow through with consultation to refine its promising, scientifically-grounded approach to assessing the substantial risks posed to health and the environment by the PFAS chemical class. This should in all likelihood conclude with a decision to eliminate this class of chemicals from all current non-essential uses, and uses for which safer non-PFAS alternatives exist. We are eager to be engaged in future discussions and to help support the government in this respect as it carries out its responsibility to protect people and the environment from toxic chemicals.

Signed,

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& Sonawane, B. (2014). Epigenome: Biosensor of cumulative exposure to chemical and nonchemical stressors related to environmental justice. *American Journal of Public Health*, 104(10), 1816–1821.