August 10, 2021

Title of petition:

How protective and how transparent is the Canadian government response to the Per- and Polyfluoroalkyl Substances (PFAS) Class of 'Forever Chemicals' in water, products, and waste?

Petition:

Introduction

PFAS is the name of a group of chemicals classed as Per- and Polyfluoroalkyl Substances (PFAS).

This emerging class of chemicals includes at least 4,700 substances which are highly persistent in the environment and will take hundreds if not thousands of years to dissipate from the soil and ground and surface water where they accumulate.

Also known as the 'forever chemicals', these substances have properties that make them heat-resistant, able to repel water, and close to indestructible. As an example, for decades they have been used in firefighting foam to put out fuel fires at airports and military bases.

PFAS is also used in household products such as non-stick kitchen ware, food contact materials such as grease-proof wraps and take out containers, clothing and carpets treated for water and stain resistance, cosmetic products, plus a wide range of other common consumer products. When these products are thrown into landfills, PFAS in the waste will move into air and ground water around these disposal sites. Manufacturing sites that use PFAS to make products can also be a local source of contamination through releases to air, soil, and water.

This class of chemicals is very stable, meaning the chemicals do not break down in the environment. PFAS can also transform into even more hazardous forms of PFAS through biological processes in wastewater treatment plants, for instance. The fact that all PFAS are highly persistent, or will degrade to highly persistent molecular forms, is why this chemical class is under global scrutiny and must be subject to restrictions.

In the United States it has been estimated that the drinking water of over 110 million Americans may be contaminated with PFAS, although new findings indicate that this might be an under-estimate. New academic research has also found that PFAS is widespread in rainwater, signaling that PFAS is likely detectable in all major water supplies in the U.S, including chemicals from the PFAS family that are not commonly tested for in drinking water.[1]

[1] "PFAS Contamination of Drinking Water Far More Prevalent Than Previously Reported

In Canada we have no similar estimates of the extent of PFAS contamination in water, soil or air and we lack location-specific publicly available information about the extent of PFAS contamination. We also lack an action plan for how the federal government will take measures to prevent or mitigate contamination and protect Canadians from the vast number of PFAS in common use.

The purpose of the petition is to seek a response from **Environment Canada and Climate Change, Health Canada, Transport Canada and the Department of National Defence and other departments** and to subsequently determine how responsive federal legislation including the *Canadian Environmental Protection Act* (CEPA) is to the environmental and health threats associated with PFAS as a class of chemicals**, and to ascertain what steps the Canadian government will take to protect Canadian health and our environment.**

Regulation of PFAS in Canada

In 2015, three chemicals in the PFAS class – Perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and long-chain perflorocarboxylic acids (LC-PFCAs) and their salts and precursors – were designated as Chemicals of Mutual Concern (CMCs) in the Great Lakes Basin by the US and Canadian governments due to their impact on wildlife. Recently the class of PFAS was added as a contaminant in the Ontario Guide to Eating Fish. While there are over 4700 known PFAS available on the market, most of these PFAS are not included in the designation as Chemicals of Mutual Concern in the Great Lakes Basin.[2]

Although a few long-chain PFAS (PFOS, PFOA, LC-PFCAs) are listed as "toxic" under Schedule 1 Toxic Substances List in CEPA and are regulated and restricted in Canada, there are still exemptions for their ongoing use in firefighting foam, military vessels and in chrome plating, as well as in products for personal use and in manufactured items, including but not limited to textiles, semiconductors, surface treated paper, and more[3].

Also, for the majority of the more than 4,700 different types of PFAS on the market there is little to no data on their use, toxicity and chemical structure and they are not currently regulated or restricted in Canada.

As industry phases out the use of PFOS and PFOA, they are replacing these with other often shorter-chain PFAS for use in firefighting foam, carpets, textiles, cosmetics and other industrial and product uses because they are considered, by the manufacturers, to be less toxic. However,

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New Detections of 'Forever Chemicals' in New York, D.C., Other Major Cities", By Sydney Evans, David Andrews, Ph.D., Tasha Stoiber, Ph.D., and Olga Naidenko, Ph.D., January 2020, as found at https://www.ewg.org/research/national-pfas-testing/

[2] CELA Fact Sheet: The Threat of PFAS, The Forever Chemicals, as found at https://cela.ca/wp-content/uploads/2019/10/PFAS-Fact-Sheet.pdf

[3] https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/proposed-amendments-certain-toxic-substances-2018-consultation/chapter-2.html#toc9

one set of such substances – short-chain PFHxS, its salts, and PFHxS-related compounds – is already recommended for listing in Annex A to the Stockholm Convention on Persistent Organic Pollutants for consideration by the next Conference of the Parties in July 2022.

Nevertheless, there is still little or no environmental and human health data associated with other shorter-chain molecules, and they are still highly persistent and are more mobile in water than the long chain PFAS, making them harder to treat in groundwater and drinking water. [4]

Scientific data is published almost daily on the discovery of short-chain PFAS in environmental media and humans. A recent study of PFAS in breast milk found that both legacy and current use of PFAS now contaminates breast milk, exposing nursing infants at levels nearly 2,000 times what is considered safe in drinking water.[5]

While chemical companies claim that short-chain PFAS are safer than the long-chain predecessors they replaced, recent findings indicate that short-chain PFAS are "more widely detected, more persistent and mobile in aquatic systems, and thus may pose more risks on the human and ecosystem health" than the long-chain compounds. Researchers have also noted that existing drinking water treatment approaches for the removal of long-chain PFAS are less effective in treating short-chain PFAS.[6]

A significant source of exposure to the PFAS chemicals is through consumer goods. The media is increasingly highlighting the unexpected presence of PFAS in common household products.[7]

A pro-active approach is needed, including the identification and restriction of PFAS in consumer products sold in Canada (both manufactured and imported) and requiring clear labeling and consumer information on products which might contain PFAS, including firefighting foam, carpets, textiles, cosmetics and food packaging. Safer PFAS-free alternatives are available and are being used by proactive companies for food packaging, clothing, cookware and carpets, while PFAS-free firefighting foam is available as an alternative for use in airports and Class A and B fires.[8]

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[4] CELA Fact Sheet: The Threat of PFAS, The Forever Chemicals, as found at https://cela.ca/wp-content/uploads/2019/10/PFAS-Fact-Sheet.pdf

[5] Per- and Polyfluoroalkyl Substances (PFAS) in Breast Milk: Concerning Trends for Current-Use PFAS. Environ. Sci. Technol. 2021 Publication Date:May 13, 2021. https://doi.org/10.1021/acs.est.0c06978

[6] "PFAS Contamination of Drinking Water Far More Prevalent Than Previously Reported
New Detections of 'Forever Chemicals' in New York, D.C., Other Major Cities", By Sydney Evans, David Andrews, Ph.D., Tasha Stoiber, Ph.D., and Olga Naidenko, Ph.D., January 2020, as found at https://www.ewg.org/research/national-pfas-testing/

[7] CBC News. How to make sense of the new findings on 'forever chemicals' in makeup. June 16, 2021 https://www.cbc.ca/news/science/cosmetics-pfas-faq-1.6066147

[8] CELA Fact Sheet: The Threat of PFAS, The Forever Chemicals, as found at https://cela.ca/wp-content/uploads/2019/10/PFAS-Fact-Sheet.pdf

We request a response from Environment and Climate Change Canada and Health Canada to respond to the Questions 1-4.

QUESTION 1: What is the Government of Canada's timeline for reviewing existing exemptions for PFOS, PFOAs, and LC-PFCAs currently included in the Prohibition of Certain Toxics Substances Regulations? The 2018 consultation document [9] released by the government recommended removing all existing exemptions for PFOS, PFOA and LC-PFCAs. The recent Notice of Intent on PFAS published in April 24, 2021 outlined these exemptions would be finalized in Spring 2021. When will these existing exemptions be removed?

QUESTION 2. How will the Government of Canada prevent regrettable substitutes for PFOS, PFOA and LC-PFCAs? In the 2018 consultation document reference is made to the removal of exemptions due to fact that 'alternatives are available globally'. Can the government clarify if these alternatives are fluorine-free or if they are other PFAS-based substances? Does the Government of Canada intend to promote PFAS-free alternatives to the use of PFOS, PFOA and LC-PFCAs? In particular, what is the rationale for regulations permitting the use of PFOS "in aqueous film forming foam present in military vessels or military firefighting vehicle contaminated during foreign military operations" and LC-PFCAs in aqueous film forming foam used in fire fighting? How is Transport Canada promoting the use of fluorine-free firefighting foams?

QUESTION 3: Is the Government of Canada prioritizing for assessment and management the remaining PFAS in the commercial products available in Canada, including PFAS that may be used in other products such as firefighting foam and including the short chained PFAS, which are currently not included in the Prohibition of Certain Toxics Substances Regulations? What research or data has been undertaken by the Government of Canada about the risks, effects and treatment for short-chain PFAS, and how is this information considered when evaluating chemicals for inclusion in the Prohibition of Certain Toxics Substances Regulations?

QUESTION 4: How have Environment and Climate Change Canada and Health Canada given consideration to the imposition of a ban of all PFAS chemicals? Will Canada develop a PFAS Action Plan to phase out the class of PFAS by 2030 for all non-essential uses? Does Canada have an ambitious timeline to phase out the remaining uses of PFAS that currently have no available safer substitutes, similar to the approach taken by the European Commission in their Chemical Strategy for Sustainability?

[9] Government of Canada. Proposed amendments to the Prohibition of Certain Toxic Substances Regulations, 2018 consultation document: chapter 2. https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/proposed-amendments-certain-toxic-substances-2018-consultation/chapter-2.html#toc9

PFAS and Consumer Products

The Canada Consumer Product Safety Act (CCPSA) came into force a decade ago, with the objective of protecting the public from the dangers to human health that could be posed by consumer products, including both domestic and imported goods. Health Canada administers the Act within the Consumer Product Safety Program to identify, assess, manage, and communicate to Canadians health or safety risks associated with consumer products and cosmetics.

The federal government has also established a post-market program to oversee the safety of consumer products and cosmetics, under CCPSA and the Food and Drug Act (through Cosmetic Regulations), respectively. But while the CCPSA prohibits industry from selling noncompliant products, companies are not required to demonstrate compliance with safety regulations before selling a product in Canada, including imported products. Under the Cosmetic Ingredient Hotlist, a list of substances are targeted for prohibition and restrictions in cosmetic products, but products with complex chemistries or unknown toxicity and new materials with large data gaps on chemical hazards have been entering the Canadian marketplace without providing consumers with full information about their characteristics and effects. However, there is evidence that exposure to chemical substances used in some cosmetics and other consumer products poses risks to human health, and the exposures are associated with reproductive, developmental, and cognitive disorders. Endocrine disruptors have been identified as particularly dangerous, posing threat to human health and safety even at extremely low doses.[10]

We request a response from ECCC and HC to Questions 5 and 6.

QUESTION 5: How does the Prohibition of Certain Toxic Substances Regulations address cosmetic products containing PFAS, particularly imported products? What is the Government of Canada's plan and timeline for banning PFAS-contaminated products from entering Canada and for requiring clear labelling and consumer information on products which might contain PFAS?

QUESTION 6: How has Health Canada applied the provisions of the Canada Consumer Product Safety Act (CCPSA) with respect to consumer products that may contain PFAS? How has Health Canada ensured that the prohibitions from selling non-compliant products are being enforced? Please provide a detailed description of this program implementation and available data to confirm compliance.

Monitoring programs and public access to data

The use of PFAS in firefighting foam at military bases, airports and refineries is increasingly acknowledged to be a common source of PFAS water contamination. Research on PFAS in Toronto tributaries draining into Lake Ontario from 2007 through 2010 by the Ontario Ministry

[10] "The Canada Consumer Product Safety Act (CCPSA)", The Centre for Public Impact, June 13th, 2017, as found at https://www.centreforpublicimpact.org/case-study/canadian-consumer-product-safety-act-ccpsa

of Environment and Climate Change found Etobicoke Creek had the highest water concentrations of PFAS, consistent with the use and accidental release of firefighting foams containing PFAS at Pearson International Airport.

The following example of PFAS contamination near a military base highlights the lack of transparency around historic and ongoing PFAS water contamination.

In June 2017 the North Bay Health Unit was notified by the Department of National Defense (DND) that two private drinking water wells in the vicinity of the Canadian Forces Base had levels of PFAS that exceeded Health Canada's drinking water screening values. Affected homeowners were notified and advised not to drink or use the water for cooking purposes and DND began supplying water to the affected residents. [11]

While the public was not notified of the PFAS contamination until 2017, sampling conducted by the provincial Environment ministry beginning in 2013 had identified PFAS in Lee's Creek and Trout Lake and "historical data" dates back to 1998 and 1999 for several of the current sampling locations, and to 2009 for at least one more site, all of which identified the presence of PFAS then and continue to show exceedances, including of Health Canada's drinking water screening values.[12]

PFAS has been identified in (est) 39 of 44 surface and groundwater monitoring locations, and PFAS contamination has entered Lee's Creek, resulting in the Ontario Fish Eating Guide restricting consumption of fish from Lee's Creek to ZERO and including consumption limits for fish in Trout Lake, which is the City's source of drinking water (Lee's Creek drains into Trout Lake, approximately 700 metres away from the intake for the municipal water supply in Delaney Bay).

The City of North Bay's water supply (serving approximately 50,000 people) is contaminated with PFAS, which the water treatment plant is currently not capable of removing. Private homes also take water from Trout Lake.

In December 2019 the Department of National Defence released a statement that they were "committed to keeping North Bay residents informed about our work to address the presence of per- and polyfluoroalkylated substances (PFAS) near 22 Wing/Canadian Forces Bay (CFB) North Bay" and described sampling and other investigations that had been underway between 2017 and 2019. A local resident requested these reports and monitoring results and was advised to make the request through the Access to Information process. DND then responded to the Access to Information request with a statement that an extension of 300 days would be required. DND further communicated in the spring of 2020 that COVID 19 would result in an additional delay. As of June 2021 a response had not yet been received and monitoring results referenced in DND statements in 2019 were still not available to the public. [13]

[11] CELA Fact Sheet: The Threat of PFAS, The Forever Chemicals, as found at https://cela.ca/wp-content/uploads/2019/10/PFAS-Fact-Sheet.pdf

[12] https://www.myhealthunit.ca/en/health-topics/perfluoroalkylated-substances-pfas.asp

[13] Personal Communication, Northwatch, March 2021

In an April 2021 media statement, the Department of National Defence (DND) again professed its commitment to keeping North Bay residents informed about work to address the presence of per- and polyfluoroalkylated substances (PFAS) near 22 Wing/Canadian Forces Base (CFB) North Bay and confirmed that they have continued to monitor the drinking water of affected residences and carry out additional studies, although they did not make the study details or the studies themselves available.

In the same statement, DND acknowledged that the Ontario Ministry of the Environment, Conservation and Parks (MECP) is recommending water test results in North Bay now be assessed using its interim guidance level for PFAS, which is lower than Health Canada's guidelines. Nine properties are currently above the MECP's interim guidance level, for which DND states they "are working with the City of North Bay to provide these homes with bottled water for cooking and drinking' and that they will re-sample two additional properties.[14]

The Canadian government has made available online some factsheets and updates on the work that the federal government is doing to regulate PFOS, PFOA and LC-PFCAs, but there are no location-specific maps that would help communities identify the monitoring locations or where monitoring results indicate the presence of these and other PFAS in drinking water or groundwater.[15]

In October and November 2020, the CBC Radio show and podcast Quirks & Quarks produced a three-part series on PFAS in Canada, including Canada's first map of compiled PFAS hotspots and surface water contamination.[16]

In comparison, the Great Lakes US states of Minnesota, Michigan and New York provide a range of public information including online maps of monitoring and contaminated sites, drinking water advisories, point sources of PFAS releases, and actions underway to deal with stockpiles of firefighting foam.

We request a response from Environment Canada and Climate Change, Health Canada, Transport Canada and the Department of National Defence to Questions 7-9.

QUESTION 7: How have the responsible departments – Environment Canada and Climate Change, Health Canada, Transport Canada and the Department of National Defence – identified potential sites of PFAS contamination? Please provide each Departments' criteria for

[14] "Update on PFAS water testing in North Bay, Ont.", Statement by the Department of National Defence, 22 April 2021, plus https://www.baytoday.ca/local-news/nine-properties-on-lees-road-are-currently-above-interim-guidance-level-for-polyfluoroalkylated-substances-3665493

[15] CELA Fact Sheet: The Threat of PFAS, The Forever Chemicals, as found at https://cela.ca/wp-content/uploads/2019/10/PFAS-Fact-Sheet.pdf

[16] Quirks & Quarks: 'Forever chemicals' can have far-reaching consequences, need more regulation in Canada, scientists say. CBC Radio · Posted: Nov 07, 2020, as found at https://www.cbc.ca/radio/quirks/nov-7-fast-radio-bursts-in-our-galaxy-monkeys-with-a-puberty-switch-and-more-1.5789388/forever-chemicals-can-have-far-reaching-consequences-need-more-regulation-in-canada-scientists-say-1.5789395

investigation, and a list of sites clearly depicted on a map or with GIS coordinates which have been identified as confirmed or potential sites of PFAS contamination.

QUESTION 8: What data is available from monitoring programs undertaken by or on behalf of Environment Canada and Climate Change, Health Canada, Transport Canada and the Department of National Defence to detect or measure the levels of PFOS, PFOA, and LC-PFCAs or any other PFAS in Canada? How do each of the departments make the data, results and findings from monitoring programs available to the public and to local health agencies? What other environmental and health monitoring has been completed on PFAS beyond those in the PFOS, PFOA and LC-PFCAs? Please provide the data, particularly for landfills, drinking water sources and wildlife monitoring. How is this data released or made available to local health agencies and to the public? Please specify if the data is publicly and freely available and how it can be accessed.

QUESTION 9: In how many instances have each of Environment Canada and Climate Change, Health Canada, Transport Canada and the Department of National Defence requested extensions of up to 300 days to reply to Access to Information requests from the public when those requests pertain to reports, studies or monitoring results that are complete and / or have been the subject of issued statements by that Department? Please provide specifics.

Drinking Water Quality Guidelines

New Canadian Drinking Water Guidelines for PFOS and PFOA are substantially weaker in comparison to many US based and other international guidelines.

In December 2018, Health Canada published Guidelines for Canadian Drinking Water Quality for both PFOA and PFOS. The Canadian government's maximum acceptable concentration (MAC) for PFOS in drinking water is 600 ng/L (0.600 µg/L) and for PFOA it is 200 ng/L (0.200 µg/L).

The US Environmental Protection Agency has set a lifetime health advisory of 70 ng/L (0.070 µg/L) for PFOS and PFOA and are working to finalize this into law. Many states including Michigan, Minnesota, New Hampshire, New Jersey and Vermont, have drafted even stricter drinking water and groundwater guidelines after conducting their own analysis of limits that would be more protective of public health.

Health Canada notes that water utilities should sample source water for PFAS, particularly if source waters are impacted by firefighting training areas, military bases, airports, manufacturing sites and/or waste disposal sites, but this collected information is not readily, easily and publicly available and it is not actively disseminated to communities that may be at risk. [17]

[17] CELA Fact Sheet: The Threat of PFAS, The Forever Chemicals, as found at https://cela.ca/wp-content/uploads/2019/10/PFAS-Fact-Sheet.pdf

We request a response from Health Canada to Questions 10 and 11.

QUESTION 10: What data and scientific reports were used by Health Canada to establish the drinking water guidelines / standards for PFOA and for PFOS? Did Health Canada use the risk assessment results on these PFAS completed under CEPA to establish the drinking water guidelines /standards for Canada? Does Health Canada intend to update the guidelines based on current and emerging scientific knowledge of health impacts? What is Health Canada's plan and timeline for establishing guidelines / standards for the remaining PFAS chemicals?

QUESTION 11: Why do Canadian drinking water guidelines and standards differ significantly from other jurisdictions with more stringent levels? For example, please provide a supporting rationale for why Health Canada established a Drinking Water Maximum Acceptable Concentration of 0.200 ug/L for PFOA and 0.600 ug/L for PFOS in comparison to the US Environmental Protection Agency (EPA) DW Lifetime health advisory of 0.070 ug/L for each of PFOA and PFOS?[18]

Human Health Effects

Health Canada's Biomonitoring program found all Canadians sampled to have PFOS and PFOA present in tissues or blood. The half-life, or time it takes to eliminate half of the substance from the human body, for PFOS and PFOA, ranges from 2.8 to 8.5 years. A range of other PFAS are present in infants, children and adults.[19]

Exposure to PFAS increases the risk of cancer, harms the development of the fetus and reduces the effectiveness of vaccines, among other health impacts studied.[20]

Long-chain PFAS are generally toxic at lower doses than short-chain PFAS because long-chain PFAS are more bio-accumulative than short-chain PFAS and therefore build up to higher levels in the body from the same dose than short-chain PFAS. However new data on the toxicity of short-chain PFAS raises questions about claims from PFAS manufacturers that these substances are less toxic.

Human bioaccumulation of PFAS can occur regardless of the route of exposure. In fact, the majority of the thousands of PFAS known to exist, including many that are in commercial use and/or are found in drinking water or other environmental media, have very limited or no toxicity data, yet are on the market. This is a critical data gap in health effects information for PFAS.

[18] Source: ITRC, May 2019 https://pfas-1.itrcweb.org/fact-sheets/

[19] CELA Fact Sheet: The Threat of PFAS, The Forever Chemicals, as found at https://cela.ca/wp-content/uploads/2019/10/PFAS-Fact-Sheet.pdf

[20] "PFAS Contamination of Drinking Water Far More Prevalent Than Previously Reported
New Detections of 'Forever Chemicals' in New York, D.C., Other Major Cities", By Sydney Evans, David Andrews, Ph.D., Tasha Stoiber, Ph.D., and Olga Naidenko, Ph.D., January 2020, as found at https://www.ewg.org/research/national-pfas-testing/

Because developmental effects are considered to be sensitive endpoints for long-chain PFAS, exposures during developmental life-stages (for example, *in utero* and infant) are important. PFAS are known to cross the placenta to reach the fetus and now new evidence cited previously, show the prevalence of short-chain PFAS in breast milk. Peak exposures to breastfed infants are several times higher than in older individuals, and infants who consume formula prepared with contaminated water also receive higher exposures.[21]

Recent research reports on links between PFAS and COVID-19, with a focus on PFBA, demonstrate that a higher presence of PFBA is linked to more severe symptoms and health effects in individuals with COVID-19. This is at least partially explained by the fact that PFBA accumulates in the lungs, where the most serious effects of COVID-19 occur.[22] Other evidence shows that PFAS exposure in infancy is linked to reduced vaccine response.[23]

We request a response from Health Canada to Questions 12 and 13.

QUESTION 12: What recent research has been undertaken with respect to the effect of PFAS exposure on the health of Canadians, and how and where are those research findings made available to Canadians in general and to public health agencies in particular? Does Health Canada have a plan to update their health impact information and if so, how will this be communicated to the public?

QUESTION 13: What research is underway with respect to potential links between PFAS and COVID-19, and other vaccines? How does Health Canada intend to communicate the findings of this research to COVID-19 researchers and science advisory groups in Canada?

Waste Containing PFAS

Landfills are a known source of PFAS releases into the environment. The amount of waste containing PFAS will most likely grow as companies transition to fluorine-free alternatives. Incineration of PFAS waste, such as disused fluorinated firefighting foam concentrates, presents new and even unknown hazards.

[21] Human and Ecological Health Effects and Risk Assessment of Per- and Polyfluoroalkyl Substances (PFAS), Interstate Technology and Regulatory Council (ITRC), as found at https://pfas-1.itrcweb.org/wp-content/uploads/2020/10/human_and_eco_health_508_20200918.pdf

[22] Episode 3 at 46:20, CBC Quirks and Quarks, November 7, 2020 https://www.cbc.ca/listen/live-radio/1-51-quirks-and-quarks/clip/15807485-fast-radio-bursts-monkeys-puberty-switch-black-hole

[23] Grandjean P, Heilmann C, Weihe P, Nielsen F, Mogensen UB, Timmermann A, Budtz-Jørgensen E. 2017. Estimated exposures to perfluorinated compounds in infancy predict attenuated vaccine antibody concentrations at age 5-years. J Immunotoxicol. 14(1):188–195.

The nature of these persistent 'forever chemicals' creates a growing and costly legacy for municipalities, as well as ongoing health exposure to releases of PFAS from incinerators, landfill leachates and air emissions. This problem is compounded by waste imports.[24]

We request a response from ECCC and Transport Canada to Question 14.

Question 14: How does CEPA and its regulations apply to the movement of waste containing PFAS into Canada from US and other countries? What information is collected and made available to the public regarding the origin, quantity, frequency, treatment and disposal of these wastes? Please explain and provide supporting information.

[24] Concentrating Per- and Polyfluoroalkyl Substances (PFAS) in Municipal Solid Waste Landfill Leachate Using Foam Separation, Nicole M. Robey, Bianca F. da Silva, Michael D. Annable, Timothy G. Townsend, and John A. Bowden* Cite this: Environ. Sci. Technol. 2020, 54, 19, 12550–12559, Publication Date:August 31, 2020, As found online at https://pubs.acs.org/doi/abs/10.1021/acs.est.0c01266

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